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转移支付的 博弈分析

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DE BOYI FENXI

刘黎明 著

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财政转移支付
的
博弈分析

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The Analysis of Fiscal Transfer
Payment by Game Theory

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摘要

建立新型、规范化的财政转移支付制度，是目前中国公共财政建设中一项十分紧迫的研究课题。本书正是在这一研究背景下所作的关于中央政府与地方政府之间财政分配关系及其转移支付模式的一个尝试性研究。

中国作为向市场经济转型的国家，随着市场经济的深入发展，社会经济结构发生重大变化，与此相适应建立符合市场经济要求、与国际惯例接轨的政府间财政分配关系及其管理模式，成为财政制度创新的首要课题。书中依据这一改革的指导思想，在转移支付的制度设计中提出了具有创新性的思路和建议。

财政转移支付制度即是指西方国家政府间财政的补助金制度，已有一百多年的历史。各国在实践中依据各自不同的社会历史条件，形成了各具特色、模式各异、不断发展变化的制度体系。本书依据中国的具体国情，将研究的

重点放在转移支付的制度设计方面。本书打破原有财政体制的研究方式，以数学模型研究为主体，主要采用博弈论的方法，借助博弈论中处理竞争冲突与合作共谋等问题的有效理论工具，考虑转移支付制度的创新与设计。通过中央政府与地方政府博弈机理的研究，建立相应的数学模型，每一个数学模型针对相应的财政问题，使模型具有很强的可解释性，为科学决策以及制度设计提供依据和思路，使财政体制的研究更具科学性。

在分析分税制改革的必然性时，着重研究了包干制下不完全信息的非合作博弈机理，揭示了包干制体制的弊端，进而阐明了分税制在体制上的优越性。同时，对分税制中比较棘手的共享税激励问题，通过委托—代理模型，研究了中央与地方在共享税中的分配关系，以及两级政府风险合理分担并调动地方政府支持共享税积极性的问题。通过将共享税的体制设计与规范的转移支付联系起来，拓展了转移支付制度研究的视野，创立了共享税与转移支付制度相结合的分配模式和激励机制。

转移支付的结构，是一个复杂的大系统，它是由中央政府和各个地方政府多个决策者来决定的分配形式，由于受社会组织结构和信息结构等因素的影响，使得中央政府和各个地方政府处在不同的级次上，形成了所谓的多人递阶大系统。其决策问题也称为 Stackelberg 博弈问题。在界定了转移支付的基本概念、分类、功能以及转移支付与分税制关系的基础上，对转移支付的总体结构进行了分析，揭示我国作为单一制国家财政体制存在着一个明显的特点，即分级分块的组织管理结构模式，是一个树状结构，具有递阶层次的特征。因此，本书采用多层规划的方法建立了转移支付的指标体系和运作体系，为转移支付制度设计提供了思考的轮廓和框架。

在充分考虑转移支付总量规模与均衡分配的合理性基础上，

采用二人主从的 Stackelberg 博弈模型，研究了转移支付制度中中央与地方纵向均衡的分配关系。并从数学的角度加以抽象，归结为转移支付的总量问题。模型设计过程中，以客观因素为标准，考虑标准收入和标准支出以及激励地方政府税收积极性，同时又考虑了限制地方乱收费等因素，找到了确定转移支付总量的一种分配方案。

在假定转移支付总量已确定的情况下，研究了转移支付横向均衡问题。本书采用一主多从的 Stackelberg 博弈模型，研究了转移支付制度中中央政府与 n 个地方政府的横向均衡分配关系。在模型设计中，从体现公平的角度出发，以客观因素为主要依据，通过设计一套有效的约束机制和激励机制，给出了体现转移支付横向均衡的分配方案和制度设计思路。

如何合理的调动地区之间不同形式的合作积极性，也是转移支付的一个重要内容。本书分析了合作博弈在地区间资源配置中的作用，采用合作对策模型研究了在不动用中央财力的情况下转移支付横向均衡的“罗宾汉模式”，即地方之间多种合作方式的选择问题。

书中还分析了转移支付在补偿地区利益外溢中的作用。着重研究了在人口迁移、教育、环境保护、跨地区的大型基础设施建设等方面的利益外溢问题，采用博弈论的思想，提出了引导人口正向迁移的政策思路，对利益外溢公共品的提供提出了配套补助的补贴办法，建立了避免“公共地悲剧”、“免费搭车”等模型，为这一问题的有效解决提供了一些思路。

本书探讨了转移支付制度公平与效率问题，强调发展中国家地区之间的贫富差距悬殊，转移支付是消除地区间的贫富差距的手段。本书从经济发展速度入手，采用博弈论的思想，建立了区域发展的追赶模型。通过对转移支付制度兼顾公平与效率关系的

探讨，提出不同时期兼顾公平与效率的侧重点，以及衡量地区发展差距的标准，提出了转移支付公平和效率的权重思想和权衡标准，为制定协调地区发展政策和转移支付分配方案，提供了依据。

从长期趋势上看，旨在矫正地区之间贫困差距的转移支付存在着边际效益递减的规律。随着生产力和社会的发展，人民生活水平的不断富裕，转移支付将面对新的经济发展问题，转移支付模型及其分配方法也将不断发生转变。本书结合中国经济的发展，预测并展望了转移支付未来的发展趋势。

关键词：

转移支付 分税制 横向均衡 纵向均衡 博弈论 公共品



ABSTRACT

At the present time, establishing a new and standardized Intergovernmental Fiscal Transfer system is an urgent research task in Chinese public finance construction. Based on this background, this book is a tentative research on fiscal distribution relations and Intergovernmental Fiscal Transfer mode between the central government and the local governments.

As a market economy oriented country, China, with the further development of market economy, has greatly changed in social economic structure. Establishing intergovernmental fiscal distribution relations and management system which meet the needs of market economy and accord with international conventions has become the most important task. According to the reformation guideline, this book renders innovative

ideas and proposals on designing fiscal transfer system.

Intergovernmental Fiscal Transfer system refers to fiscal grants system between western governments and has a history of more than 100 years. According to its own different social history condition, each government establishes its own institutional system with different characteristics, different models and unceasing development. According to the reality in China, this book puts more research strength on institution design of intergovernmental fiscal transfer. This book differs from the previous research methods. It uses mathematics as the main research tool and mainly adopts the methods in game theory. By adopting the efficient tools of dealing with competitive and cooperation in Game theory, this book considers the design and innovation of intergovernmental fiscal transfer system. By doing research on the game mechanisms between central government and local governments, the author establishes mathematics models. Each mathematics model aims at the corresponding fiscal problem, and thus makes the mathematics model strongly explainable. These models also render ideas and warranties for scientific decision - making and institution design, making the fiscal system research more scientific.

When analyzing the inevitability of tax share system, this book puts more strength on the research of the mechanism of non - cooperative game on the supply system of incomplete information, reveals the shortcomings of the supply system and illustrates the advantage of tax share system. At the same time, to the difficult share tax incentive problem, by using principal - agent theory, the author does research work on the distribution relation in share tax

between the central government and the local governments, The author also does research work on the problems of how to rationally share risks in two level governments and how to make local government support share tax system. By connecting the system design of share tax with normative fiscal transfer, the book expands the research of fiscal transfer and establishes distribution models and incentive systems which combine share tax and fiscal transfer system.

Fiscal transfer is a complex large system and a distribution form decided by the central government and each local government. Since the structure of fiscal transfer is influenced by the factors such as social organization structure, information structure and etc., the central government and local governments locate in the different grades and thus generate the so-called multi-person multi-level large system. The decision-making problem is called Stackelberg game problem. After defining the basic concepts, classifications, functions and the relation with share tax, this book analyses the general structure of fiscal transfer and reveals an apparent characteristic of our country that has sole country financial system. Organization management structure form with different grades and different blocks is a tree structure and has the character of dijie level, Thus this book adopts multistage programming method to establish the index system and operational system of fiscal transfer and provides the frame and contour for the system design of fiscal transfer.

After fully considering the rationality of gross scale and equilibrium distribution, the book adopts the two-person principal and subordinate Stackelberg game model, does research work on distri-

bution relationship between the central government and the local government in fiscal transfer system and from the view of mathematics abstract it into the gross problem of fiscal transfer. During the design of models, based on objective factors the author considers the standard income, the standard expenditure and how to stimulate the tax enthusiasm of local governments. At the same time the book considers the factors on how to confine local government error charging and finds a distribution method, which confirms the gross of fiscal transfer.

After assuming that the gross of fiscal transfer has been decided, the book does research work on horizontal balances of fiscal transfer. The book adopts one principle and multi - subordinate Stackelberg game model and does research work on the horizontal balance distribution relationship between the central government and several local governments in the fiscal transfer. In the design of models, from the aspect of the fair and impersonality, by designing a set of effective restrict system and incentive system, the book gives out the distribution methods and system design ideas that reveal horizontal balances of fiscal transfer.

How to rationally stimulate the different types of cooperation enthusiasm between local governments is an important content of fiscal transfer. The book analyses the effects of cooperation game in resource allocation between local governments and adopts cooperative game model to research Robinhan - model of fiscal transfer horizontal balance in which central government's funds are not used. Robinhan - model is about the selection problem of different cooperation modes between local governments.

The book also analyses the effect of fiscal transfer in compensating the out - going of regional benefit. It emphasizes on the research of the benefit out - going on immigration, education, environment protection, large basic construction and etc. It adopts the ideas in game theory, renders policy consideration to lead people positive immigration, brings about matching grants subsidy methods to the supply of benefit out - going public goods, establishes models to avoid the "tragedy of the commons" and "free - rider" and provides some ideas for the effective solution of these problems.

The book discusses the issues on fair and efficiency in fiscal transfer system. It emphasizes that there exist large rich - poor differences between developing countries and regions and fiscal transfer is a method to eliminate rich - poor differences between regions. The book begins from the economic developing speed, adopts the ideas of game theory and establishes the region chase models. Through the discussion of fiscal transfer and relationship between fair and efficiency, the book renders the emphasis of the fair and efficiency of different periods and the standards of weighing developing difference between regions. It also brings about the power - weigh ideas and measuring standards of fair and efficiency in fiscal transfer and provides basis for designing region developing policy and fiscal transfer method.


From the long period, the fiscal transfer used to eliminate the poor - rich differences between region accords with the rule of marginal utility elimination. With the development of productivity, society and people' s living condition, fiscal transfer will face new economic developing problems and the fiscal transfer model and its

distribution method will change unceasingly. The book anticipates and prospects the future developing trends of fiscal transfer combining the development of Chinese economy.

Key words:

fiscal transfer, share tax, horizontal balances, vertical balance, game theory, public goods

本书得到国家软科学研究项目《“三农问题”与财政政策》和财政部科学研究项目《国债金融预警系统》两项课题的资助。



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