

公共经济与公共政策 齐鲁文库

国家社科基金项目：“基本公共服务均等化：
基本理论与实证研究”研究成果

骆永民 著

城乡基础设施 均等化供给研究

On the Equalization of
Infrastructure in Urban and
Rural Areas



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骆永民 著

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总 序

又是一个秋高气爽、硕果累累的十月。恰逢新中国六十华诞，盛世强国，蒸蒸日上，庆典隆重，举国欢腾；又迎十一全运泉城举行，健儿齐聚，英姿勃发，民心振奋，人人欢颜。

再经山东省公共经济与公共政策研究基地学术委员会认真甄选，山东大学应用经济学博士后流动站的杨国涛博士的专著《中国西部农村贫困的演进与分布研究》入选《中国公共经济与公共政策研究报告》（第三辑），解垚博士等人的《城乡卫生医疗服务均等化研究》、《城乡基础设施均等化供给研究》、《经济增长视野下的中国财政分权实证研究》和《新型农村合作医疗统筹补偿方案研究》等4本专著纳入《公共经济与公共政策齐鲁文库》系列出版。这是研究基地成立之后的第三批研究成果。与前两批成果相比，这些专著同样具有研究选题的前沿性、研究方法的规范性、学术观点的创新性等共性，特别值得提及的是，在研究问题的选择上，结合中国当下轰轰烈烈实践着的改革与发展进程和突出矛盾，这些年轻学者不仅密切关注关乎中国经济增长的问题（如财政分权与经济增长），而且更为关注关乎中国社会公平的问题（如西部农村贫困问

题，城乡卫生医疗服务均等化，城乡基础设施均等化)；在研究方法上，不仅进行了较为深入的规范的理论分析和实证的计量分析，而且更加注重深入基层实地调查，通过入户访谈和问卷调查方式掌握第一手资料，进行统计分析，来得更加勤奋扎实；在研究结论上，更加贴近中国实际，更加接近政策，更加务实具体。这些无疑都令人欣喜、令人鼓舞！

光阴如梭，转眼之间研究基地即将迈入第四个年头。回首三年，多学科师生同心同德，共筑平台，收获颇丰。主要收获有三：一是人才培养，探索了一种富有特色的研究生培养模式，即利用一个平台实现跨学科、跨领域、与科学研究紧密结合的人才培养，全面实行研究生“双导师”制，着力增加研究生的“五种经历”（10%以上的同学拥有第二校园经历，10%以上的同学拥有海外学习经历，100%的同学拥有专业实习或社会调查、社会实践经历，100%的同学拥有参与课题研究的经历，100%的同学拥有参加全国性或国际学术会议进行学术交流的经历），扎实进行研究方法与学术规范的指导；二是科学研究，探索着一条多学科增进交流、增加了解、增进合作的路子，即设立交叉研究基金鼓励合作研究，多学科师生共同讨论公共政策问题和方法运用问题，开拓国际交流与合作途径，产生了包括《公共经济与公共政策齐鲁文库》、《中国公共经济与公共政策研究报告》和《山东大学公共经济与公共政策研究报告（Working Paper）》在内的一系列成果，繁荣学术，资政谏言；三是扶持新人，在基地的平台上锻炼成长，一批30多岁的青年才俊思维活跃，羽翼渐丰，势头强劲。

再次衷心感谢经济科学出版社的吕萍副总编和中国财

经出版社的赖伟文副总编及赵力女士。您的鼎力相助使两个研究系列的高质量编辑出版成为可能。衷心感谢专业读者的积极回应和热心讨论，您的关心关注是我们前行的动力之一。

谨为序。

樊丽明

2009年10月26日于山东大学

基础设施在提高国家生产能力的同时，还改善着居民的生活水平，是一国物质文明发展水平的重要标志。改革开放 30 年来，我国的城市经济得到了飞速发展，城市基础设施的建设也日趋完善，现有的城市基础设施基本上能够满足城市居民生产和生活的需要。但在广大的农村地区，农民们却仍旧生活在严重匮乏基础设施的境地之中。为此，本书提出应当以城市基础设施发展的现有成果作为参照，来努力加强农村基础设施建设，以保障城乡居民能共享国家物质文明的发展成果，即实现城乡基础设施的某种均等化。

城乡基础设施均等化一说并非本书独创，中央政府的多个政府文件均明确指出要实现城乡基本公共服务的均等化，而基础设施就是基本公共服务中的一项重要内容。与此同时，国内也涌现出大量关于城乡基本公共服务均等化的研究。然而这些研究往往将对象局限在公共医疗卫生、义务教育以及社会保障等公共服务上，较少描述基础设施这种公共服务。其原因不外乎如下三点：其一，基础设施与其他公共服务相比十分特殊，其他公共服务都是针对于个体消费而言的某种消费品，而基础设施却同时承载着生产和消费两种功能，因城乡有着完全不同的生产模式，从而对基础设施也有不同的需求，故而难以定义一个“均等化”；其二，其他公共服务是可以独立到某个消费者个体的，具有某种程度上的可分性，而基础设施一经提供就注定是针对于群体的，不具备可分性，所以其他公共服务可以强调“人人均等”，而基础设施却难以从“人人均等”入

手；其三，国内的相关研究将此“均等化”较集中地定义为数量和质量上的“结果均等”，此定义一经提出，即注定基础设施的均等化研究将无法展开。于是，尽管政府和学术界都提出国家要致力于实现城乡公共服务的均等化，但在基础设施领域却留下了尴尬的理论空白。这促使本研究在更加广泛的概念环境中去探寻城乡间的公共服务，究竟要实现一个怎样的均等化状况，即抽象出一个含义更为宽泛的均等化概念。那么，本书的“均等化”是如何定义的呢？

我们知道，任何公共政策的实施，总是为了追求某种价值目标的实现，即努力实现政府所认同的社会福利函数的最大化。于是如果我们确立了这个价值目标，就可以遵循其要求定义出我们要实现怎样的一个“均等化”状态。那么城乡基础设施的均等化乃至公共服务的均等化政策，又是为了实现哪种社会福利函数的最大化（即价值目标）呢？不同学派基于其自身的认知，给社会福利函数总结出完全不同的含义，这些社会福利函数的最大化又各自要求社会实现福利均等、机会均等、最大最小原则下的结果均等、功利主义均等、资源均等、能力均等、权利均等等“均等化”。我们应当选择其中哪一个呢？或者是否可以创造出一个新的均等化概念呢？

本书最终选定以功利主义的社会福利函数作为全书的理论基础，即本书是依据功利主义所提倡的“最大多数人的最大幸福”而提出“城乡基础设施均等化”含义的。作为一个农民占国民一半以上比例的发展中国家，没有什么更好的社会福利函数比功利主义思想更能彰显农民福利水平的重要性。而基础设施的不可分性和生产性特征，也只有功利主义的社会福利函数才能总结出更加贴切并且具有明确政策含义的“均等化”概念。文中第3章将本研究选择功利主义思想的原因归结为六条。依照功利主义的社会福利函数，本书认为城乡基础设施的均等化要遵循如下两条：其一，均等地看待每一个人的福利函数，即在社会福利函数中，赋予每一个人均等的权重，这是功利主义的基本观点。其二，城乡基础设施均等化即是要求城乡基础设施分别给城市福利函数（城市居民福利之和）和农村福利函数（农村居民福利之和）带来的边际福利均等，这样就能

保证作为两者之和的全社会福利函数的最大化。

上述两条由功利主义福利函数所引申的均等化要求，很难在现实中得到确切的衡量指标，既难以辨识城乡基础设施是否实现了均等化，更难以衡量偏离均等化的程度（即非均等程度）。为此，我们将上述两条要求进行进一步的细分，以便于找到合适的衡量指标。由于功利主义的社会福利函数最大化要求城乡基础设施给城乡居民带来的边际福利均等化，而基础设施通过直接和间接这两种方式作用于居民的福利水平，所以本书认为城乡基础设施的均等化应尽可能实现直接边际福利和间接边际福利这两个方面的均等化。所谓直接边际福利，就是指城乡居民由于直接消费基础设施而得到的边际福利。间接边际福利是指由于基础设施的提供而产生的生产水平提高、消费空间扩大等变化而带来的边际消费，并由此边际消费带来的边际福利。城乡基础设施的直接边际福利均等化体现为，衡量居民消费基础设施难易程度的基础设施“普及率”或者“覆盖率”，在城乡间应当均等。城乡基础设施的间接边际福利均等化体现为，城乡基础设施给城乡居民带来的边际消费应当均等。依照上述讨论，本书第3章给出了一个衡量城乡基础设施均等化程度的指标体系。随后的第4、5、6章便以上述思想为基础分析了我国城乡基础设施的非均等状况、成因以及经济效应。第7章描述了影响基础设施提升农民福利的多种因素，最后第8章主要描述了实现城乡基础设施均等化的途径。现将全文各章节的主要内容介绍如下：

本书的正文共有8章，第1章是引言，第2章是对相关文献的综述，第3章到第8章是全书的主体部分。

第3章首先指出城乡基础设施均等化的目标是为了实现“大多数人的最大幸福”，即功利主义思想所要求的价值目标，而后分六个方面阐述了选择这一价值目标的原因。接着，本章在第二小节中提出城乡基础设施均等化的衡量标准和指标体系，并在第三小节中阐述了城乡基础设施均等化的前提条件和几个发达国家的建设经验。本章的最后建立了一个内生经济增长模型，用以讨论在工业反哺农业、城市反哺农村的背景下，相关因素对城乡基础设施均等化

政策的影响力。

第4章着重分析了我国城乡基础设施的非均等问题，也即城乡基础设施的差距问题。而城乡基础设施均等化的衡量标准是本书在第3章确定的指标体系。于是，本章首先重点分析了我国新中国成立后城乡基础设施差距的演进简史。而后分别就基础设施的直接边际福利差距和间接边际福利差距对照于第3章所列的种种指标进行了城乡比较，最终得出我国城乡基础设施差距仍十分巨大的结论。

在得到农村基础设施严重落后于城市这一结论后，本书的第5章和第6章分别就为什么会出现这一巨大差距以及这一差距会带来哪些经济效应进行了分析。在第5章中，本书着重从三个方面来讨论造成城乡基础设施差距的原因所在。这三个方面是：基础设施投资的城乡差距、基础设施建造效率的城乡差距以及基础设施维护力度的城乡差距。在第6章中，本书使用因素分析法和空间面板数据模型，实证分析了城乡基础设施差距对拉大城乡生活水平差距、工农业人均产出差距、城乡社会性基础设施差距并减小农民获取工资收入机会这四个经济效应的作用力情况。

第7章着重分析了影响农村基础设施提升农民福利的多种因素。而由于农民从消费基础设施中得到的福利水平十分难以计量，故而采用了农民对农村基础设施的满意度进行指代。依据山东省214个行政村670份调查问卷所得到的调查数据，本章使用结构方程模型（SEM）实证分析了农民对农村基础设施的满意度及其影响因素的作用力大小问题。实证分析得出如下结论：除了加大对农村基础设施的投入以外，以中央政府统一安排农村基础设施建设、给距离县城较远的村庄以更多的投入、给非乡镇驻地以及非城郊的普通农村以更多的投入、更加关注收入水平和教育水平较低家庭对基础设施的需求，都可以从很大程度上提高农民总体的福利水平。

在进行完第7章的分析后，本书已为开展如何实现城乡基础设施均等化的研究积攒了足够的知识。于是本书的第8章就着重分析了实现城乡基础设施均等化的途径。在总结全书的基础上，本章首先给出了城乡基础设施均等化建设所要遵循的基本原则。而后，针

对本书第5章描述的城乡基础设施在投资、建造效率以及维护力度方面的差距,提出了旨在实现城乡基础设施均等化的种种途径。但上述分析都是针对所有种类基础设施的共性而提出,没有专门针对各种基础设施的个性而提出相应的建议。为此,本章最后还针对各类基础设施提出了一些“个性化”的均等化发展建议。

本书的创新之处在于:(1)在我国公共服务均等化研究这一领域中,首次以功利主义的均等化思想作为研究的理论基础;(2)使用了因素分析法和空间计量分析工具实证分析了我国城乡基础设施差距的经济效应;(3)在工业反哺农业和城市反哺农村的理论假设上,构建了一个讨论城乡基础设施政策安排的内生经济增长模型;(4)通过使用结构方程模型和调研数据,实证分析了多种因素影响农民福利(由消费农村基础设施而来的福利)的作用力大小。

关键词 城乡 基础设施 均等化 功利主义

ABSTRACT

Infrastructure could not only improve the productivity of one country, but also improve the living standard of the local residents. So infrastructure is the symbol of the country's material civilization. After 30 years of reform and opening up, China's economy of the cities have grown quickly, the infrastructure nowadays in the cities could satisfy the need of the people in cities. But in the rural areas of China, rural infrastructure is still in deficiency. But we believe the people in the rural areas have the equal right to enjoy the achievement of the country's material civilization with the people in the cities. So it's very important to improve the rural infrastructure. So this book gives the notion that we should develop the rural infrastructure as well as we could compare with the urban infrastructure. Namely we should realize some kind of equalization between the rural and urban infrastructure.

The equalization of the urban-rural infrastructure is not this book's original creation. China's central government has given the notion that the "equalization of public service in urban and rural areas" several times in many important documents. These years, the central government is trying to provide the equal public service between the rural and urban areas and public infrastructure is one kind of the most important public service. Because this notion embodied the government's will, so the academic world in China also gave out many researches after the notion of "equali-

zation of rural-urban public services” was given by the central government. But in these researches, we can hardly find a paper which focused on the infrastructure. These researches are keen on the public sanitation, primary education and social security and some other kinds of public service just except infrastructure. The appearance of this situation is the result of three following reasons. The first, other kinds of public service are pure consumables but the provision of infrastructure is not only for consumption but also for production. The second, other kinds of public service are separable for every consumer, but infrastructure cannot be separated for everybody. The third, domestic researches are apt to deem the “equalization” as “equal quantity and equal quality”, because of the different modes of production, rural infrastructure must be different to the urban infrastructure. Up to present there is still embarrassingly blank in the research of the equalization of infrastructure, though both the central government and the academic world of China have the same opinion that we should realize the equalization of public service and infrastructure is an important part of public service. Thus this paper believes we should give a more broad definition of the “equalization”.

After analyzing many different definitions of the social welfare function, this book employed utilitarian social welfare function to explain the equalization provision of infrastructure between urban and rural areas. Because China is a developing country where more than half people are farmers, so utilitarian social welfare function could embody the farmer's good best than other kinds of social welfare functions. And because the specialities of infrastructure, such as infrastructure can not be divided and consumed equally by everybody, and utilitarian social welfare function also is built on the conception of colony, so utilitarianism theory is the most suitable for the research of infrastructure. Based on the utilitarianism theory, we believe “the greatest amount of happiness for the greatest number of people” is the most important social aim. Based on this

conception, in the area of the infrastructural equalization research, we can get two basic demands. First, everyone's weightiness of the welfare in the social welfare function is the same. Second, rural infrastructure bring the same social marginal welfare of rural social welfare function (the sum of every farmer's welfare) with the marginal welfare of urban social welfare function which is brought by the urban infrastructure.

But it's a pity that we cannot find a suitable index system to estimate the degree of this "equalization" or "inequality" based on the above two demands. So we need to analyze the two demands further. Because the infrastructure could affect the welfare of people by two ways, so there are two kinds of equalization we should realize. The first kind is indirect, infrastructure could affect the productivity of the factories (so the income will be higher) and expanding the space of the consumption, so infrastructure could improve the consumption and then improve the welfare. The second kind is direct, people consume the infrastructure and then get the utility. So the marginal welfare has two types naturally. Then this paper gives another two rules to estimate the equalization and inequality. First, the indirect marginal welfare should be same in the rural and urban areas. Because the farmers are poorer than the people in cities on the whole, so if the infrastructure could bring the same marginal consumption, we could deem this equalization coming into existence. Second, the direct marginal welfare should be same in the rural and urban areas. Because the degree of difficulty on consuming the infrastructure decided the size of the marginal welfare and the popularization rate or coverage rate could embody this degree of difficulty, so if the two kinds of "rate" are equal, we could deem this direct marginal welfare as the same. The third chapter of this book gives an index system by the above thoughts. Then chapter 4, 5, 6 uses the data from China to analyze the degree of inequality of rural-urban infrastructure, the cause of formation of this inequality, the economic effects of this inequality. Chapter 7 ana-

lyzes the factors which affect the farmers' welfare coming from rural infrastructure. Chapter 8 gives the suggestions of how to realize the equalization of the infrastructure in rural and urban areas. The following text gives the details.

This book includes 8 chapters; the first chapter is the introduction of the whole book. The second chapter is the literature reviews. From Chapter 3 to Chapter 8 is the main body of the whole book.

In the Chapter 3, the book points out the aim of the "equalization of the infrastructure in rural and urban areas" is to realize the "the greatest amount of happiness for the greatest number of people" which is called utilitarianism opinion. Then this chapter gives the reasons of choosing this opinion. The second part of the chapter gives out the index system which could estimate the degree of the equalization or inequality of the infrastructure in rural and urban areas. The third part of the chapter talks about the preconditions of the equalization and the experiences of some developed countries. The last part establishes an endogenous growth model to talk about the related parameters' influences on the urban-rural infrastructure policy of the government.

Chapter 4 analyzes the inequality of the infrastructure between China's rural and urban areas. The standard of the estimation here is coming from the index system in Chapter 3. At first, this chapter talks about the evolution of the gap (inequality) between rural and urban infrastructure in the history of China. Then this chapter analyzes the real gap between rural and urban infrastructure by employ the index system from the table 3.1. At last this chapter gets the result that rural infrastructure is far behind the urban infrastructure.

After getting the conclusion in Chapter 4, Chapter 5 and Chapter 6 separately analyzes the reasons of the inequality of rural and urban infrastructure and the economic effects of this inequality. In Chapter 5, this paper gives the reasons form three aspects; in the processes of infrastruc-

ture investment, construction and maintenance. Chapter 6 analyzes the economic effects of the inequality by using the panel data of China. By using the way of factor analysis and the spatial linear panel model (with the software of Matlab6.5), this chapter analyzes the effects of the gap between rural and urban infrastructure which include enlarging the gap of living standard between rural and urban people, the gap of output per people between agriculture and industry, the gap of social infrastructure between rural and urban areas and decreasing the opportunity of the farmers getting wage income from non-agriculture.

Chapter 7 analyzes the factors affecting the farmers' welfare coming from the rural infrastructure. Because the welfare is very difficult to estimate, so this book uses the satisfactory degree of the rural infrastructure to substitute the welfare. Based on the investigation data of 670 families in 214 administrative villages in Shandong province and the Structural Equation Model (SEM), we find many useful results. Based on the analysis of the investigation, we find the farmers are dissatisfied with the irrigation and the environmental infrastructure. Based on the results of the estimation of SEM model, we find if the farmers had slower growth rate of the income, more superior style of the village, nearer to the center town, lower price of the infrastructures, smaller gaps between supply and requirement, better structure of the family, or more superiority complex coming from comparing with other villages, they would be more satisfactory with the rural infrastructure.

After the analysis in Chapter 7, we have already had enough knowledge to think about the methods to realize the equalization defined by the book. So Chapter 8 does this job. Based on the summing-up of the whole book, this chapter first gives the principles which should be abided in the process of realizing the equalization we defined. Then, contra pose to the reasons of the gap between rural and urban infrastructure which is described in Chapter 5, this chapter gives the suggestions which help