

Methodology of Pattern Recognition and
Scheme Simulation of Rural Social Old-age Insurance

农村社会养老保险的模式 识别方法技术与政策仿真

米红 著



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序 言

第十届全国人民代表大会第四次会议上表决通过的《国民经济和社会发展第十一个五年规划纲要草案》第六章第四节“发展农村社会保障”中明确提出：“探索建立与农村经济发展水平相适应、与其他保障措施相配套的农村养老保险制度。”这标志着我国农村社会养老保险已经进入了一个中央政府高度重视的关键性探索与发展阶段。党中央和国务院的重要决策，为农村社会养老保险工作指明了方向，为农村社会养老保险事业的发展提供了前所未有的机遇。因此，在新时期探索与发展新型农村社会养老保险制度必须注意以下五大问题：

1. 必须在宏观农村区域社会经济发展的框架和原则的指导下，在详细比较分析我国农村的多层次性、农业结构的多样性以及各种资源的差异性基础上，结合自然禀赋、人文特征等多元因素，探索建立多元性、多模式，与经济发展多层次相配套的新型农村社会保障制度。

2. 必须深入细致地研究原有农村社会养老保险制度的利弊，结合传统的、渐进发展的城市化、现代化进程等理论客观、全面地分析旧农保的制度变迁历程，并结合当代农村区域社会经济发展的现状，以动态的视野把握新型农村社会养老保险制度发展的系统化理论与方法，研究其与经济、社会的关联模式与层次。

3. 必须认清新型农村社会保障制度探索与建立的历史地位，既重视与其他养老保障措施的配套与衔接，又要坚定新型农保不可替代的作用。其中，与其他养老保障配套、互补与衔接的包括：（1）与城镇社保配套、衔接；（2）与城市、农村低保配套；（3）与农村医保配套；（4）与机关、事业单位保险配套；（5）与

城镇医保配套；(6) 与商业保险衔接；(7) 与原有的农保制度衔接。

4. 必须分级、分类指导，按不同群体提供新型农村社会养老保障配套措施。其中，尤其以农民工、计生户、失地农民、纯农户四大群体为代表。(1) 在农民工的社会养老保险方面，必须建立方便转移的弹性政策，一部分人与完善后的城保接轨，一部分留在新农保下。按照低费率、低保障、广覆盖、可转移，与现行城乡养老保险制度相衔接的原则，实行以个人账户为主，以专项调剂金为辅的养老保险办法。(2) 在计生户养老保险方面，制定有利于农村独生子女和双女户家庭参保的优惠政策，落实计划生育政府专项补贴资金，引导和鼓励独生子女和双女户家庭父母参保，落实“有限财政”的责任。(3) 在失地农民的养老保险方面，应分情况而定，在城市规划区内的失地农民，以个人账户为主，按不同年龄段确定缴费标准，保障水平不低于当地最低生活保障标准；对 60 岁以上的老人也可不建个人账户，直接发放养老金或养老生活补贴。而城市规划区外的被征地农民参加农保，保障水平不低于当地农村最低生活保障标准；没有建立农村最低生活保障制度的地区，应不低于当地城镇居民最低生活保障标准的 60%。(4) 在纯农户的养老保险方面，探索建立粮食换保障、实物换保障的养老保险模式。

5. 必须重视并认真对待探索建立新型农村社会养老保险制度带来的一系列新问题，引进科学的、先进的方法与技术在新型农保的个人账户测算、基金运营与风险管理、新型农保评估等方面，构筑先进的精算与风险评估工具，并通过计算机模式识别与仿真技术，最终形成高效、智能化的农保软件，实现新型农保从个人账户，基金运营到风险管理、评估的“链式”研究，实现新型农保从理论研究、局部探索到集约化、规模化发展的全国性探索与发展的飞跃。

总体上，在宏观农村区域社会经济的框架下，必须认清楚当前我国农村情况的复杂性，资源禀赋的差异性。伴随着中国社会

转型与经济体制改革发展的大环境下,在我国农村社会养老保险制度建设的长期且渐进的过程之中,新的农保制度建设必须与农村区域经济的发展紧密结合在一起,在“有限财政”的理念下,将精算模型、工具、方法与技术和信息化、智能化的软件相结合,探索多元性、多模式,经济发展多层次,与自然禀赋、社会经济发展差异性相联系的新型信息化发展的农村社会养老保险制度与模式。

本书在对农民工、失地农民、农村计生户和纯农户的特征分析的基础上,系统地提出了我国农村养老保险制度创新的基本思路、目标、任务、模式,其独到之处主要体现在以下两个方面:一方面,该书拓宽了研究的视野,夯实了研究的基础。针对我国农村社会养老保险的实际问题和现实需求,通过大量的抽样调查,运用实证的方法,对“有条件的地方”、“有条件的人群”进行了定性和定量分析。该书对农村社会养老保险的理论探索和方案创新,将成为推进农村社会养老保险制度建设的重要政策选择;另一方面,本书融合了数理人口技术、系统工程方法、保险精算技术、经济学、统计学等方法,创建了我国农村社会养老保险模式识别的理论与方法体系,为提高我国农村社会养老保险制度建设的理论研究、政策制定和实际操作的科学性提供了良好的技术支撑。

本书的写作过程中得到了王丽郦、刘力丰、耿代、陈瑜、林立、邱婷婷、王一峰、范静、潘夏蓉、曲雅萍等同学的支持和帮助,正是由于他(她)们的辛勤工作,这本书才得以顺利出版。另外,本书的出版还得到了国家社会科学基金项目“我国农村社会养老保障的基础理论框架”(05BSH049)和教育部985二期项目(0000X07204)“信息化平台”的资助,在此,作者表示衷心地感谢。

、总之,本书通过密切联系我国农村区域经济发展实际,积极探讨了构筑与区域农村经济发展水平相适应的、新型的农村社会养老保险模式和制度的理论、方法、模型和软件支撑技术,并对我国农

村社会养老保障的基础理论框架体系的完善也有了进一步的探索。但需要指出的是，由于作者知识和水平的局限，本书一定还存在一些疏漏，期待着各位方家给予批评指正。

作者

2006. 6. 28.

PREAMBLE

The forth section of chapter 6 of "The eleventh five-year plan compendium draft for national economy and social development" voted and passed in the fourth conference of the tenth National People's Congress with the content about 'developing rural social security' has point out clearly that : ' Seeking for establishing the rural old-age insurance system which match the economic development level in rural community, and outfit with other safeguards. This indicates that the rural old-age insurance in our country has entered into a critical explorative and developmental stage, and the central government has pay great attention to the issue. The important decision making by the Party Central Committee and the State Department indicate the direction for the rural old-age insurance and offer the opportunity that has never existed before. Therefore, in the new period of seeking and developing the new-style system of the rural old-age insurance we must pay great attention to the five issues listed below:

Firstly, we must seek for establishing the multiplex, multi-mode new system of rural old-age insurance which also matched the multi-level economical development, under the instruction of framework and principle of macroscopic socioeconomic development of rural community, on the base of comparing and analyzing the characteristics of multi-level countryside, the diversity of the agricultural configuration and the difference of diversified resources, and combining with some factors , such as natural resources, hu-

man culture characteristics and so on. .

Secondly, we must research the advantages and disadvantages of the original rural old-age insurance system, analyze the changing process of the original system objectively and generally with the theories about traditional, gradual developmental urbanization and modernization, and we should grasp the systemic theory and method about the development of the new rural old-age insurance system with dynamic vision, and research the association mode and level during the system, the economy and the society, connecting with the contemporary actuality of the area economy in rural community.

Thirdly, we must understand the historical status of exploring and establishing the new rural old-age insurance system, not only pay attention to the outfit and connection to other safeguards, but also guarantee the irreplaceable function of the new rural old-age insurance system. The matching other safeguards are listed as following: firstly, the urban social security system; secondly, the System for ensuring a minimum standard of living in the city and countryside; thirdly, the rural medical insurance system; fourthly, the office and Public Service Unit's insurance system; fifthly, business insurance; and at last, the original rural old-age insurance system.

Fourthly, providing the new rural social old-age insurance matching measures according to the different community. Among them, especially taking the four big communities including peasant-workers, households of family planning, lost-land peasants, pure peasants as representative. Firstly, in the aspect of peasant-worker's social old-age insurance, it must establish the elastic policy that can shift expediently, part of them enter into the urban so-

cial security system, and part keep back in the new countryside social security system. According to the low expense rate, the low security level, the broad cover, and the transferability, and the principle that links up with the present urban and countryside old-age insurance system, implementing the old-age insurance means by individual account primarily, and special relief fund as auxiliary. Secondly, in the aspect of the old-age insurance of households of family planning, instituting preferential policy which is advantageous to join the countryside social security system for the households of only one child or two girls, carrying out the government family planning special subsidy fund, guiding and encouraging the households of only one child or two girls to join the countryside social security system, realizing the responsibility of "limited finance". Thirdly, in the aspect lost-land peasant's old-age insurance, we should divide them according to the situation, to the lost-land peasants in the urban planning area, implementing the individual account primarily, the payment standard according to different age section, the security level being not lower than the local lowest social security standard; the old persons above 60 years old may not construct individual account, directly providing the pension or the aged cost-of-living allowance. But the lost-land peasants outside the urban planning area join the countryside social old-age insurance, the security level is not lower than the local countryside lowest social security standard; the area of no countryside lowest social security system should not be lower than 60% of the lowest social security standard of local towns' inhabitant. Fourthly, in the aspect of pure peasant's old-age insurance, the exploring to establish the old-age insurance pattern of "grain trades with security", "food trades with security".

And fifthly, we must regard and earnestly treat a series of new problems which the exploration of new countryside social old-age insurance system brings, introduce into scientific and advanced methods and technologies which can construct advanced actuarial technology and risk assessment tool in the aspects of individual account measure and calculation, the fund operation and risk management, the appraisal of new countryside social security system and so on, and through the computer pattern recognition and simulation technology, finally form highly effective, and intellectualized countryside social security system software, then realizing the leap of new countryside social security system from individual account, the fund operation to the risk management, the appraisal of the "chain type" research, and from the fundamental research, partial exploration to the intensified, extensive nationwide exploration.

In the overall, under the frame of macroscopic countryside region social economy, we must recognize the complexity of current countryside situation, and the difference of resources. Following the macro-environment of Chinese society restructuring and the economic system reforming, during the process of long-term and gradual construction of our country's countryside social old-age insurance system, the construction of new countryside social security system must integrate close with countryside region economic development, under the idea of "limited finance", combining the actuarial model, tool, method and technology with informatization and intellectualized software, exploring the new pattern of countryside social old-age insurance system which contact polytropism, multi-patterns, multi-level economic development with the resources and the difference of social economic development.

This book systematically advanced the basic mentality, goal,

duty and pattern of rural old-age insurance system innovation, on the base of the analysis of characteristics of peasant-workers, households of family planning, lost-land peasants and pure peasants. Its originality mainly manifests in following two aspects: On the one hand, this book has opened up the research field of vision and has temped the research foundation. In view of our country's rural social old-age insurance actual problem and the realistic demand, through the massive sample investigation and demonstration method, this book has carried through qualitative and the quantitative analysis about " the place has the condition ", " the crowd has the condition ". The theory exploration and plan innovation of this book to the rural social old-age insurance will become the major policy choice that advances the rural social old-age insurance system construction; On the other hand, this book has displayed the multi-disciplinary superiority. This book fused many subjects, such as mathematical population theories, systems engineering process, actuarial technology, economics, statistics and so on, and founded the scientific system of our country's rural social old-age insurance, this is advantageous to enhance scientific & fundamental research, policy formulation and actual operation of our country's rural social old-age insurance system.

With the help of the graduate students Wang Lili, Liu Lifeng, Geng Dai, Chen Yu , Lin Li, Qiu Tingting, Wang Yifeng, Fan Jing, Pan Xiarong and Qu Yaping, the book has been written now. The book also has been sponsored by The State Social Science Project (05BSH049) and The Second Period of the Chinese Higher Education 985 Project (0000X07204). Theirs contribution is very associated by the author.

Without doubt, this book makes effort to explore a way of es-

tablishing a rural social old-age insurance system with Chinese characteristics, in light of the realities in Chinese rural community, this is a kind of very meaningful work, it will produce positive influence on improving China's rural social security system and on promoting the study of theories of rural social old-age insurance as well. But we need to point out, as a result of the limit of time, manpower and material resources, although we have revised for several times, this book must have some oversights of one kind or another, we were expecting readers to make a comment or criticism.

MI HONG

June 2006

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