



经济学学术前沿书系

Spatial Deprivation and Spatial Optimization:
Challenges and Countermeasures of
Eco-migrants in Ningxia in the New Era

空间剥夺与空间优化： 新时代宁夏生态移民的挑战与应对

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序

“逐水草而居”，是人类为了生存本能的主动的人口迁移（移动）现象。历史上诸如秦始皇统一六国后“徙天下豪富于咸阳十二万户”，汉武帝为巩固匈奴战争成果向西北边疆移民 70 余万，美国在 19 世纪 30 年代实施的印第安人移民，加拿大于 20 世纪 50 年代实施的因纽特人“北极圈安置计划”等，则是具有政治或经济目的的人口迁移。目前，人口迁移除了自由迁移（移民），还有气候移民、环境移民、工程移民、灾害移民等不同类型和表述。

生态移民是兼顾减贫与生态建设双重意义的一种特殊人口迁移类型或过程。20 世纪 70 年代以来，国内外学者从生态移民的规划选址、项目建设、产业发展、政策扶持、社会融入、生计能力、绩效评估等方面开展了大量研究，取得了丰硕的研究成果。进入新时代，我国社会主要矛盾发生重大变化，生态移民对美好生活的新期待面临新的考验。一方面，2020 年贫困县、贫困村将全部“摘帽”、“脱帽”，但生态移民脱贫成果有待巩固，“返贫”风险仍然存在；另一方面，乡村要实现产业、生态、文化、组织、人才的全面振兴，但生态移民村存在振兴动力不强、活力不足等问题。如何实现生态移民可持续脱贫和生态移民村全面振兴，是一个亟待研究的重要科学问题。

为了掌握第一手资料，作者及研究小组历时近两个月对宁夏 70 个生态移民样本村的 100 多名村组干部和 1000 多个农户开展了深入访谈和调研，发放并回收 2000 多份调查问卷。在定性分析基础上，作者从空间剥夺的视角，结合空间地理研究方法、社会行为结构方程模型及因子分析、层次分析等方法，特别是运用了地理探测器、地理模拟优化系统等前沿研究方法，探讨了生态移民村落的空间剥夺水平及其影响主导因子，并对有效减缓生态移民村落空间剥夺程度等问题进行了学理阐述和实证分析，体现了作者敏锐的学术洞察力和较强的综合分析能力。全文层次清晰，逻辑严密，论证有力，行文流畅，

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显示了作者较强的思维能力和扎实的文字功底。

本书把空间剥夺理论从城市移民向生态移民进行了延伸，把生态移民的绝对贫困问题向相对贫困问题进行了拓展，把生态移民问题从现象解读分析向内在机理研究进行了深化，并以乡村振兴为背景提出了解决方案，具有一定的理论创新性和较强的实践操作性，是民族经济学、社会地理学交叉融合的有益探索。

希望作者继续关注生态移民均衡发展和可持续脱贫问题，继续探寻生态移民空间剥夺的发展规律，深入探讨空间剥夺对生态移民生产生活的影响机理，争取更多的研究成果问世。



二〇一九年十一月一日

Foreword

"Living by water and grass" is an active phenomenon of population migration (movement) in order to survive. However, it still has some special migrations with specific politic or economic purposes, just like the migrations of emigrating 200 thousand rich households to Xianyang in Qin Dynasty and emigrating more than 700 thousand migrants to the northwest frontier for consolidating the achievements of the Xiongnu War in Han Dynasty in China, as well as the American Indians emigrated in 1830's and *Arctic Circle settlement plan* of the Inuit people's implemented in Canada in 1950's. So far, in addition to free movement (migration), different types and expressions of climate migration, environmental migration, engineering migration and disaster migration also exists.

Eco-migration is a specific migration with dual objectives of ecological protection and poverty alleviation in China. Scholars at home and abroad have carried out a lot of researches and achieved fruitful research results on the planning and location, project construction, industrial development, policy support, social integration, livelihood capacity, performance evaluation and other aspects of eco-migration over the last five decades. In the new era, the major social contradictions in China have changed greatly, and the new expectation of eco-migrants for a better life is facing a serious challenge. On the one hand, all the poor counties and households will "take off their hats" in 2020, but the achievements of poverty reduction of eco-migrants need to be consolidated, and the risk of "returning to poverty" still exist. On the other hand, the villages need to realize the overall revitalization of industry, ecology, culture, organization and talents, but the problems of insufficient motivation and vitality of eco-migrant villages are not solved. How to realize the objective of sustainable poverty

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alleviation of eco-migrants and the overall revitalization of eco-migrant villages is a critical scientific issue to be solved urgently.

In order to master the first-hand data, more than 2000 questionnaires were collect by the author and his team with an in-depth interviews and surveys for more than 100 village leaders and 1000 farmers from 70 sample eco-migrant villages in Ningxia during two months. On the basis of qualitative analysis, combining spatial geography research methods, social behavior structural equation model and factor analysis, analytic hierarchy process and other methods, especially using frontier research methods such as geographical detector and geographical simulation optimization system, the author discusses the level of spatial deprivation and its major influence factors of eco-migrant villages from the perspective of spatial deprivation. Meanwhile the strategies of effectively slowing down the degree of spatial deprivation in eco-migrant villages are explained theoretically and analyzed empirically, which reflects the author's keen academic insight and comprehensive analyzing ability. The book is valued with clear structure, powerful argument and fluent in writing, which highlights the author's strong thinking capacities and solid writing skills.

This book extends the theory of spatial deprivation from urban migration to eco-migration, expands the absolute poverty of eco-migrants to relative poverty, deepens the analysis of eco-migration from phenomenon to internal mechanism, and puts forward solutions based on the background of rural revitalization, which has certain theoretical innovation and strong practical operability with the beneficial exploration of the cross integration of nationalities economics and social geography.

It is hoped that the author should continue to pay attention to the balanced development and sustainable poverty alleviation of eco-migrants, explore the development law of spatial deprivation of eco-migrant villages and the mechanism of spatial deprivation on the production and lives of eco-migrants with more research results.

Liu Xiaopeng

November 1, 2019

前言

自吊庄移民以来，宁夏大致经历了五个阶段的生态移民，包括1983年—2000年的吊庄移民，1998年—2005年的扶贫扬黄灌溉工程移民（1236移民），2001年—2007年的易地扶贫移民，2007年—2011年的中部干旱带县内生态移民，2011年至今的中南部地区生态移民。截至2015年年底，宁夏全区共移民111.45万人，开发农田174.46万亩，贫困人口从101.5万减少到58.1万，贫困发生率由25.6%下降到14.5%。生态移民为宁夏精准扶贫和生态保护做出了历史性的重大贡献。

然而，生态移民过程仍然存在一些突出问题，比如生态移民村落土地地力瘠薄、社区配套不全、公共服务供给不足、定居率较低以及“返贫”“返迁”等等。这些现象表面上看是政策落实不到位的问题，其深层原因则是生态移民村落生产生活资源的空间配置不尽合理不尽科学的问题。

因空间资源分布和配置的差异导致特定区域和群体处于发展相对劣势的一种状态，就是空间剥夺现象。空间剥夺理论源于“社会剥夺”理论（世界银行将城市中存在的“剥夺”现象定义为“低的收入能力和对社会公共基础设施和服务的低进入性”；Townsend则将“剥夺”定义为“相较于个人、家庭或群体所属的地方社区、或者更广泛的社会和国家的一种明显的劣势状态”），是国内外地理学者将“社会剥夺”与地理空间相结合后形成的研究新领域。通过建立指标体系并分区进行空间剥夺测度，在美国、英国、加拿大及南非等国已实施多年，成为衡量社会均衡发展的重要指标。我国一些学者也开展了南京、广州、西安等地城市社区的空间剥夺问题研究。

党的十九大作出了“中国特色社会主义进入了新时代”的重大判断，指出我国社会主要矛盾已经转化为“人民日益增长的美好生活需要和不平衡不充分的发展之间的矛盾”，并旗帜鲜明地提出“坚决打赢脱贫攻坚战”“确保

到二〇二〇年我国现行标准下农村贫困人口实现脱贫，贫困县全部摘帽，解决区域性整体贫困”“做到脱真贫、真脱贫”。宁夏回族自治区第十二次党代会提出了“创新驱动、脱贫富民、生态立区”的三大战略。精准扶贫、脱贫富民成为宁夏新时代的主旋律。

生态移民是宁夏精准扶贫脱贫的重要对象，他们的生产生活状况不仅关乎宁夏贫困人口脱贫致富的发展大局，也关乎生态移民政策的切实成效。那么，已经搬迁的生态移民生产生活状况如何呢？他们从一个绝对劣势地理空间的区域，搬迁到一个地理空间绝对优势地区后，是否会进入一个地理空间的相对劣势区？生态移民村落是否和我国一些城市移民人口聚集区一样存在空间剥夺现象？如果确实存在，那么这种空间剥夺水平有多高？影响因素有哪些？如何优化生态移民村落的空间布局以降低空间剥夺水平？等等，这是社会地理学需要回答的理论问题，也是生态移民可持续脱贫需要解决的现实问题。

本书从空间剥夺的视角，以宁夏生态移民村落为研究对象，采取分层抽样与随机抽样相结合的方式，从宁夏全区 18 个县（市、区）49 个乡镇中选取了 70 个生态移民村落样本，构建了以收入就业、教育培训、社会生活、居住环境及公共服务可达性为主要内容的空间剥夺指标体系（共 5 个类别 35 个指标，采用组合赋权法确定权重），对宁夏生态移民村落空间剥夺进行测度分析。研究的主要内容有：一是通过测量空间剥夺水平，分析评价宁夏生态移民村落空间剥夺的现状及时空分布规律，探寻生态移民生产生活状况与村落空间地理的内在联系。二是建立计划行为模型（TPB）和技术接受模型（TAM）的整合模型，采用结构方程模型（SEM），以生态移民定居意愿和行为为视角，分析空间剥夺对生态移民的影响。三是根据生态移民村落空间剥夺指数，结合地理探测器（GeoDetector）和地理模拟优化系统（GeoSOS）运行结果，分析各因子对生态移民村落空间剥夺指数的影响程度、作用大小和交互作用，揭示生态移民村落空间剥夺各因子相互之间的作用机理。四是建立宁夏生态移民村落“空间剥夺水平评估——空间资源合理调配——配套政策有序跟进”的空间优化调节机制，通过建立“定期评估、预警预报、定期调节、多方协调”四个具体的工作机制，促进宁夏生态移民村落空间资源的合理配置，进而通过空间重构实现生态移民村落的乡村振兴。

通过研究得出以下基本结论：一是宁夏生态移民村落存空间剥夺总体指

数均值略高出非生态移民村落，且时空分异明显；二是民族构成类型和地形地貌类型对宁夏生态移民村落空间剥夺的影响显著；三是空间剥夺对生态移民定居意愿和行为产生多方面的显著影响。

本研究的创新之处在于：一是明确提出了生态移民村落空间剥夺及空间优化调节的科学问题，并开展量化实证分析，既是对空间贫困理论的深化拓展，又是对空间剥夺理论的发展延伸，开辟了研究新领域，探索了研究新路径，具有一定的理论创新性。二是合理建立了生态移民村落空间剥夺的测度指标体系并进行综合水平测量，为全面评价生态移民生存状态提供了新的客观标准，给生态移民“后扶贫”问题研究打下坚实基础，并为生态移民政策完善优化提供新的有力支持。三是综合运用了多种空间地理研究方法（地理探测器、地理模拟优化系统等）和计划行为结构方程模型，多角度分析空间剥夺对生态移民的影响，实现了空间地理和社会行为研究方法的有机结合，为研究的可靠性提供了新的方法支撑。

本研究建立的生态移民村落的空间剥夺指标体系是一种衡量生态移民相对贫困的标准，目前仅限于理论上的探讨，实践上尚未应用于精准扶贫领域，可能存在体系不完善、与实践不一致的地方，需要后期根据实际运用的情况进行调整。另外，研究使用的数据不完全是普查数据和官方统计数据，有一部分是抽样调查数据和移民满意度主观测评的数据，个别数据可能和官方的数据有出入，权威性可能存在不足。最后，本研究在空间优化时仅考虑了农村区域的空间因素，未将周边城镇的空间资源要素纳入优化系统，空间优化的结果可能与实际状态有一定差距。

由于时间仓促，再加之作者水平所限，疏漏之处在所难免，期待读者多提宝贵意见和建议。谢谢。



二〇一九年十月三十一日

Preface

Since the Diaozhuang Migration, Ningxia has experienced five stages of ecological migration, including Diaozhuang Migration (1983–2000), Yanghuang Irrigation Project Migration i.e 1236 Migration (1998–2005), Relocation Poverty Alleviation Migration (2001–2007), Central Arid Counties Ecological Migration (2007–2011), and Central and Southern regions Ecological Migration (2011–). By the end of 2015, the Ningxia region had emigrated 1.1145 million people, developed 1.7446 million mu of farmland, reduced the number of poor people from 1.015 million to 581000, and reduced the incidence of poverty from 25.6% to 14.5%. Ecological migration has made great contributions to Ningxia's accurate poverty alleviation and ecological protection.

However, there are still some outstanding problems in the process of ecological migration. Such as barren land in eco-migrant villages, incomplete community facilities, inadequate supply of public services, low settlement rate and "returning to poverty", moving back and so on. On the surface, these phenomena are the problems that the policy implementation is not in place, and the deep reason is that the spatial allocation of production and living resources in eco-migrant villages is unreasonable and not scientific enough.

Spatial deprivation is a phenomenon in which specific regions and groups are at a relative disadvantage because of the differences in the distribution and allocation of spatial resources. The theory of spatial deprivation originates from the theory of "social deprivation" —the World Bank defines the deprivation in cities as "low income capacity and low access to social public infrastructure and services", Townsend defines "deprivation" as "a distinct disadvantage compared with the local community of individuals, families or groups, or a wider society and country"— is a new research field formed by the combination of "social deprivation" and geographical space by

geographers at home and abroad. Through the establishment of an indicator system and the measurement of spatial deprivation in different regions, it has been implemented for many years in the United States, Britain, Canada and South Africa, in which an important indicator has been to measure the balanced development of society. Some scholars in China have also carried out the study of spatial deprivation of urban communities in Nanjing, Guangzhou, Xi'an and other metropolises.

The Nineteenth National Congress of the Communist Party of China made a major judgment that "socialism with Chinese characteristics has entered a new era", pointing out that the main contradictions have been transformed into "the contradiction between the people's growing need for a better life and the unbalanced and insufficient development", and clearly proclaimed "resolutely winning the battle against poverty" and "ensuring all rural poor people under the current standards being lifted out of poverty, and all poor counties taken off poverty hats for solving regional overall poverty by 2020", "realizing getting rid of real poverty". The 12th Party Congress of Ningxia Autonomous Region put forward three strategies of "Innovation Driving, Poverty Alleviation and Enriching People, Developing the District with Ecology". Precise poverty alleviation and enriching people are the main theme of the new era in Ningxia.

Eco-migrants is an significant target of precise poverty alleviation in Ningxia. Their production and living conditions are not only related to the overall situation of poverty alleviation and development in Ningxia, but also to the practical effect of the eco-migration policy. So, what about the production and living conditions of the eco-migrants who have been relocated? Will they enter a relatively disadvantaged geographical area after they move from an absolutely disadvantaged geographical area to an absolutely advantageous geographical area? Is spatial deprivation existed in eco-migrant villages as some urban migrant population gathering areas in China? If so, how high is the level? What are the influencing factors? How to optimize the spatial layout of eco-migrant villages to reduce the degree? etc. This is a theoretical question that needs to be answered by social geography and a practical problem that need to solve in order to get rid of eco-migrants poverty sustainably.

From the perspective of spatial deprivation, this book takes Ningxia eco-migrant

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villages as the research object, adopts the method of stratified sampling and random sampling, selecting 70 eco-migrant villages samples from 49 towns in 18 counties of Ningxia, for constructing a spatial deprivation index system including income employment, education and training, social life, living environment and public service accessibility (35 indicators in 5 categories, using combination weighting method to determine the weight). The main contents of the study are as follows: Firstly, it is to construct the spatial deprivation index system of eco-migrant villages, unveiling the rule of the production and living conditions of eco-migrants with the allocation of spatial resources in Ningxia, as well as their internal relationship. Secondly, through the integrated model of TPB and TAM with Structural Equation Model (SEM), it is to analyze the effects of the spatial deprivation for eco-migrants from the perspective of their settlement intentions and behavior. Thirdly, according to the spatial deprivation index of eco-migrant villages, combined with the results of GeoSOS and GeoDetector, it is to disclose the influence, size and interaction of each factor on the spatial deprivation index, revealing its interaction mechanism. Fourthly, constructing the spatial optimization and regulatory mechanism of "spatial deprivation level assessment — rational allocation of spatial resources — orderly follow-up of supporting policies" in eco-migrant villages in Ningxia, it promotes the rational allocation of spatial resources in eco-migrant villages by establishing four specific working mechanisms: periodic assessment, early warning and prediction, periodic regulation and multi-parties coordination. Then, through spatial reconstruction, the Rural Revitalization of eco-migrant villages can be realized.

The following basic conclusions are drawn: Firstly, the average value of the overall index of spatial deprivation in Ningxia eco-migrant villages is slightly higher than that in non-eco-migrant villages, showing obvious characteristics of differentiation in spatial and temporal distribution; Secondly, the ethnic composition types and topographic types are the obvious factors affecting spatial deprivation of eco-migrant villages in Ningxia; Last one, spatial deprivation has a significant impact on the willingness and behavior of eco-migrant settlements in many ways.

The innovation lies in three dimensions: Firstly, this research definitely puts forward of the scientific issues of spatial deprivation and spatial optimizing

regulation of eco-migrant villages, carrying out quantitative empirical analysis. It is not only a deep expansion of the spatial poverty theory, but also an extension of the spatial deprivation theory, which builds a new field and path of research as well as a theoretical innovation. Secondly, this study establishes the measurement spatial deprivation index system of eco-migration villages and measures its comprehensive levels, which provides a new objective standard for effective evaluation of eco-migration survival status, laying a solid foundation for the discussion of "post-poverty alleviation" of eco-migration, including a new powerful support for the improvement and optimization of eco-migration policies. Thirdly, this study comprehensively uses a variety of spatial geography research methods (GeoDetector, GeoSOS, etc.) and Structural Equation Model of planned behavior to analyze the impact of spatial deprivation on eco-migrants from multiple perspectives, realizing the organic combination of spatial geography and social behavior research methods which can provide a new methodological support for the reliability of the research.

The spatial deprivation index system of eco-migrant villages established in this study is a criterion to measure the relative poverty of eco-migrants. At present, it is limited to theoretical discussion, not yet being applied in the field of precise poverty alleviation in practice. There may be imperfections in the system and inconsistencies with practice, which need to be adjusted according to the actual situation in the later period. In addition, the data used in the study are not entirely census data and official statistics, some are sample survey data and subjective evaluation data of eco-migrants' satisfaction, in which something may differ from official data with less authority. Finally, this study only considers the spatial factors of rural areas in the spatial optimizing process, not including the spatial resources of surrounding cities and towns, so that the results of spatial optimization may have a certain gap with the actual state.

Due to the time constraints and the author's capacity, the omissions are unavoidable. I hope that readers can make more valuable comments and suggestions. Thanks millions.

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