



交易效率、分工演进与山区农业集约化发展研究

—— 以四川南部山区为例

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—— YI SICHUAN NANBU SHANQU WEILI

罗富民

著



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摘要

农业集约化发展是现代农业发展的重要方向，是加快转变农业发展方式的基本路径，是在工业化、城镇化深入发展中同步推进农业现代化的内在要求。农业集约化经营是农业集约化发展的基础。虽然农业集约化经营包括劳动集约、资本集约和技术集约等多种形式，但是技术集约是实现农业集约化经营的关键。因而，本书中所说的农业集约化发展主要是以采用现代农业技术的集约化经营为基础，通过促进农业集约化经营活动的不断扩散和农业集约化经营效率的不断改进，进而提升农业集约化水平的这样一个过程。

我国是一个多山的国家，全国 895 个山区县级行政区域的国土面积达到了 424 万平方千米，占整个国土面积的 44%。近年来，工业化、城镇化在山区的兴起挤占了大量优质耕地与农业劳动力资源，使得山区现代农业发展所需的生产要素更加紧缺。因此，通过增加现代农业技术投入，对山区有限农业生产要素的集约利用，促进山区农业集约化发展，不仅是促进山区现代农业发展的内在需要，也是在工业化、城镇化深入发展中同步推进山区农业现代化的必然选择。研究山区农业集约化发展问题因而具有重

要的现实意义。

基于上述背景,本书拟从农业分工演进视角对基于新古典经济学的农业集约化发展分析框架进行完善;并应用完善后的分析框架分析农业分工演进、交易效率等因素对四川南部山区(以下简称川南山区)农业集约化发展的影响;进而在此基础之上提出川南山区农业集约化发展的相关政策建议。

1. 本研究的主要内容

(1) 基于农业分工演进视角的农业集约化发展理论分析。首先,根据新古典经济学思想,从农业集约化经营行为与农业集约化水平提升两个层面揭示农业集约化发展的内在机理。其次,在把农业分工划分为工农产业分工、农产品种类分工、农业生产环节分工的基础上,全面考察农业分工演进对农业集约化发展的影响机理。最后,根据新兴古典经济学的思想,分析交易效率对农业分工演进及集约化发展的影响机理。

(2) 川南山区农业集约化发展现状及绩效分析。首先,利用相关统计数据,对川南山区12个县级行政区域的农业发展状况等进行简要介绍。其次,通过建立相关指标和应用超效率SBM-DEA分析方法,从农业集约化经营程度和农业集约化水平两个方面分析川南山区农业集约化发展现状。最后,利用动态面板数据分析方法,从促进农民增收的角度,分析川南山区农业集约化发展的绩效。

(3) 农业分工演进对川南山区农业集约化发展的影响分析。首先,通过建立相关指标,从县域层面的工农产业分工、农产品种类分工、农业生产环节分工,对川南山区2000—2011年间的农业分工水平进行测度。其次,利用空间面板数据分析方法,从县域层面分析工农产业分工、农产品种类分工、农业生产环节分工对川南山区农业集约化经营程度的影响。最后,利用空间面板数据分析方法,从县域层面分析工农产业分工、农产品种类分工、农业生产环节分工对川南山区农业集约化水平的影响。

(4) 交易效率受限对川南山区农业分工演进及集约化发展的制约分析。首先,从自然地理条件、交通基础设施、信息基础设施、社会文化环境、基层政府行为、交易主体素质六个方面,利用交易费用理论,结合山区的地域特性,分析川南山区交易效率受限的成因。其次,分析交易效率

受限对川南山区工农产业分工、农产品种类分工、农业生产环节分工的制约。最后,从直接与间接两个方面分析交易效率受限对川南山区农业集约化发展的制约。

(5) 川南山区农业集约化发展的政策建议。首先,通过揭示农业分工演进与新型农业经营主体之间的关系,对依托新型农业经营主体的川南山区新型农业集约化经营模式进行分析。其次,从促进工农产业分工、农产品种类分工、农业生产环节分工三个方面,提出农业分工演进视角下川南山区农业集约化发展的路径。最后,从交易平台建设、改善交易硬件环境、优化交易政务环境、提升交易主体素质等方面,提出改善川南山区交易效率,进而促进川南山区农业集约化发展的政策建议。

2. 本研究的主要结论

(1) 农业集约化发展是以采用现代农业技术的集约化经营为基础,并通过促进农业集约化经营活动扩散和改进农业集约化经营效率而不断提升农业集约化水平的过程。根据新古典经济学的观点,在农业集约化经营的过程中,农产品市场需求和农业生产要素稀缺程度的变化,将通过市场价格机制对其产生诱导作用;农业公共科研部门、农资生产企业和农户的互动协作,为农业集约化经营的最终实现提供了支撑和保障。而农业集约化水平的提升,则需以农业集约化经营活动的扩散和农业集约化经营效率的改进为必要条件。

(2) 农业分工演进会对农业集约化发展产生促进作用,但其自身会受到交易效率的影响。工农产业分工会扩大农产品市场需求规模,导致农业生产要素稀缺程度发生变化,进而对农业集约化经营产生诱导作用;农产品种类分工将促进农业区域专业化生产和产业集聚,降低农业集约化经营活动的扩散成本;农业生产环节分工,将缩减农户学习掌握现代农业技术的时间耗费,进而加速人力资本积累,促进农业集约化经营效率的改进。但是,农业分工演进会扩大不同地区、不同部门以及不同农户间的各种产品或服务的交易规模,进而提升交易费用。只有降低这种交易费用,提升其交易效率,才能促进农业分工的有效演进。

(3) 川南山区农业集约化发展对农民收入增长存在促进作用。近年来,川南山区农业集约化经营程度得到了显著提升,但仍然滞后于丘陵及

平原地区。而川南山区农业集约化水平的提升,一方面得益于农业集约化经营活动的扩散,另一方面得益于农业集约化经营效率的不断改进。

(4) 农业分工演进对川南山区农业集约化发展总体上存在促进作用。首先,工农产业分工和农业生产环节分工都可以促进川南山区农业集约化发展,而工农产业分工的作用相对不显著。这可能是因为,在兼业经营条件下,工农产业分工不利于促进农产品市场需求的增长,也不能彻底改变农业劳动力生产要素的稀缺程度,进而会削弱其对农业集约化发展的作用。其次,县域层面的农产品种类分工虽然可以促进川南山区农业集约化经营,但并没有促进其农业集约化水平的提升。这可能是因为,对于山区而言,县域层面的农产品种类分工仍然难以促进农业的地理集中,进而会削弱其对农业集约化经营活动扩散的积极作用。

(5) 川南山区农业集约化发展总体上存在显著的空间相关性。其中,川南山区不同县域间的农业机械技术投入呈现出负的空间相关性。其可能的解释是,农业机械设备在相邻地区之间可以流动使用。但是,川南山区农业集约化经营效率的空间相关性不强。这可能是因为,地理的分割和文化观念的障碍不利于不同地区间农业生产者的交流,从而没能提升其农业集约化经营效率。

(6) 交易效率受限是川南山区农业分工演进及集约化发展的重要制约因素。川南山区交易效率的提升受到地理自然条件、交通基础设施、信息基础设施、社会文化环境、基层政府行为及交易主体素质等因素的多重限制。交易效率受限不但会通过影响农业集约化经营活动的实现、农业集约化经营活动的扩散及农业集约化经营效率改进,对川南山区农业集约化发展形成直接制约,而且还可以通过影响工农产业分工、农产品种类分工以及农业生产环节分工对其形成间接制约。

(7) 新型农业经营主体的产生及发展是农业分工演进的重要表现和内在要求。川南山区应借鉴发达地区的先进经验,培育发展新型农业经营主体,并积极构建以传统农户的农业集约化经营为基础,以专业大户、家庭农场的农业集约化经营为补充,以农民专业合作社、农业产业化龙头企业的农业社会化服务保障的新型农业集约化经营模式。而促进工农产业分工、农产品种类分工、农业生产环节分工是农业分工演进视角下川南山区

农业集约化发展的重要路径；提高交易效率是推进川南山区农业分工演进及集约化发展的重要举措。

3. 本研究的可能创新之处

本书的创新点主要体现在，从农业分工演进视角完善了农业集约化发展的分析框架。本书继承了新古典经济学关于农业集约化发展的观点，并对基于新古典经济学观点的农业集约化发展分析框架从以下三个方面进行了完善：

（1）从农业分工演进视角提出农产品市场需求增长和生产要素稀缺程度变化主要取决于工农产业分工水平而不仅仅是人口规模、资源禀赋等外生因素；

（2）从农业分工演进视角进一步分析了不同区域间的农产品种类分工对促进农业集约化经营实现、降低农业集约化经营扩散成本的作用；

（3）从农业分工演进视角进一步论证了农业生产环节分工对促进农业集约化经营实现、加速农户人力资本积累进而提升农业集约化经营效率的作用。

关键词：农业分工；农业集约化；川南山区；交易效率；空间计量分析

ABSTRACT

Agricultural intensification development is an important direction of modern agriculture development, is the basic path of transforming the agricultural development mode, and the inherent requirements to precede agricultural modernization with in - depth development of industrialization and urbanization. Intensive management of agriculture is the basis for the agricultural intensification development. While agriculture intensive management includes labor intensive, capital - intensive and technology - intensive and other forms, but the technology - intensive is the key to achieve agricultural intensification. Thus, the development process of agricultural intensification in this article is based on the technology - intensive management of agriculture. It enhances the level of agricultural intensification through the spreading of agricultural intensive management and the improvement of agricultural intensive management efficiency.

China is a mountainous country; the land area of 895 mountain county - lev-

el administrative is 4.24 million square kilometers, accounting for 44% of the entire land area. In recent years, the rising of industrialization and urbanization in mountain zones crowded out a large number of high - quality arable land and agricultural labor resources. This makes the factors of modern agricultural production in mountain zones are scarcer. Therefore, in the new situation enhancing the intensive use of limited agricultural factors of production, thus contributing to the development of mountainous agricultural intensification, not only is the inherent need to mountain zones for the development of modern agriculture, but also is the inevitable choice to proceed mountain agricultural modernization with in - depth development of industrialization and urbanization.

Based on the above background, this paper will perfect the neoclassical economics analysis framework of agricultural intensification development from the perspective of agricultural labor division evolution, and use it to analyze the effect of agricultural labor division evolution and transaction efficiency on the agricultural intensification development in the mountain zones of southern Sichuan (hereinafter referred to as MZSS). Thus, on this basis, proposed the suggestions of agricultural intensification development in MZSS.

1. Main contents of the study

(1) The theoretical analysis of agricultural intensification development based on the perspective of agricultural labor division evolution. First, according to the neoclassical economic thought reveal the internal mechanism of agricultural intensification development from agricultural intensification management behaviors and the enhancement of agricultural intensification level. Secondly, comprehensively study the effect mechanism of agricultural labor division evolution on agricultural intensification development from labor division between agriculture and industry, labor division in agricultural products types and agricultural production processes. Finally, based on the idea of new classical economics analyze the effect mechanism of transaction efficiency on the agricultural labor division evolution and agricultural intensification development.

(2) Analyze the status quo of agricultural intensification development in

MZSS. First, briefly describe the agricultural development of twelve county - level administrative regions in MZSS using relevant statistical data. Secondly, analyze the degree of agricultural intensification operating in the county - level administrative regions of MZSS from the mechanization and chemicalization of agriculture, according to the theory of induced agricultural technological change. Finally, analyze the level of agricultural intensification in the county - level administrative regions of MZSS, through measuring the agricultural total factor productivity, the rate of technological advances and agricultural technology efficiency indicators using the super - efficiency SBM - DEA model.

(3) Analyze the effect of agricultural labor division evolution on the agricultural intensification development in MZSS. First, measure the level of agricultural labor division in MZSS from 2000 to 2011 through establishing relevant indicators about labor division between agriculture and industry, labor division in agricultural products types and agricultural production processes of the county - level. Secondly, analyze the effect of labor division between agriculture and industry, labor division in agricultural products types and agricultural production processes on the degree of agricultural intensification operating in MZSS using space panel data analysis methods from the county level. Finally, analyze the effect of labor division between agriculture and industry, labor division in agricultural products types and agricultural production processes on the level of agricultural intensification in MZSS using space panel data analysis methods from the county level.

(4) Analyze the restrictions of the confining transaction efficiency to the agricultural labor division evolution and the agricultural intensification development in MZSS. First, analyze the reasons of confining transaction efficiency in MZSS from the six aspects of the natural and geographical conditions, transport infrastructure, information infrastructure, social and cultural environment, grass - roots government acts, transactions subject qualities, using transaction cost theory and combined with the geographical characteristics of mountain zone. Second, analyze the restrictions of the confining transaction efficiency to labor division be-

tween agriculture and industry, labor division in agricultural products types and agricultural production processes in MZSS. Finally, analyze the restrictions of the confining transaction efficiency to the agricultural intensification development in MZSS from direct and indirect aspects.

(5) The suggestions of agricultural intensification development in MZSS. First, by revealing the relationship between the agricultural labor division evolution and new agricultural business entities, analyze the new agricultural intensification business model relying on new agricultural business entities in MZSS. Second, propose the path of agricultural intensification development in MZSS from promoting labor division between agriculture and industry, labor division in agricultural products types and agricultural production processes. Finally, propose the policy recommendations of improving transaction efficiency and thus promoting agricultural intensification development in MZSS from building trading platform, improving trading hardware environment, optimizing transaction administrative environment, enhancing transaction subject qualities.

2. Main results of the study

(1) The development process of agricultural intensification is based on intensive management of agriculture, and has the main feature of raising the level of agricultural intensification. According to neoclassical economics point of view, the changes of agricultural market demand and agricultural production factors scarcity will generate induced effect on the process of agricultural intensification operating through the market price mechanism; the interactive collaboration of agricultural public research departments, agricultural producers and farmers provides support and protection for the realization of agricultural intensification operating eventually. To enhance the level of agricultural intensification is required necessary conditions as the diffusion of agricultural intensification operating activities and improving of agricultural intensification operating efficiency.

(2) The agricultural labor division evolution will promote the agricultural intensification development, but is restricted by trading efficiency. The labor division between agriculture and industry will expand the size of the agricultural mar-

ket demand, cause changes in the degree of agricultural production factors scarcity, thereby produce inducing effect on agricultural intensification operating; labor division in agricultural products types will promote agricultural product specialization and industrial agglomeration, and reduce the diffusion costs of agricultural intensification operating activities; labor division in agricultural production processes will reduce the time consuming of farmers to learn and master modern agricultural technology, thereby accelerate the accumulation of human capital, and promote the improvements of agricultural intensification operational efficiency. However, the agricultural labor division evolution will expand the size of products or services transactions between different regions, different departments and different farmers, and thus enhance the transaction costs. Only reduce the transaction costs, improve the efficiency of their transactions, are able to promote the agricultural labor division evolution.

(3) In recent years, the degree of agricultural intensification operating and the level of agricultural intensification in MZSS are all improved, but the degree of agricultural intensification operating continues to lag in the hills and plains regions. Among which, the degree of agricultural mechanization is significantly lower than non - mountain counties, and the degree of agricultural schematization is gradually close to the non - mountain counties. In addition, the enhancement of agricultural intensification level in MZSS is on the one hand due to the diffusion of agricultural intensification activities, on the other hand due to continuous improvement of agricultural intensification operational efficiency.

(4) The agricultural labor division evolution has overall promoted the agricultural intensification development in MZSS. First, the labor division between agriculture and industry and the labor division of agricultural production chain can promote the development of agricultural intensification in MZSS, while the role of labor division between agriculture and industry is relatively significant. This may be because, under the part - time operating conditions, the labor division between agriculture and industry is not conducive to promote the growth of agricultural products market demand, can not completely change the scarcity de-

gree of agricultural labor force factor, and thus would undermine its role in the development of agricultural intensification. Second, the labor division in agricultural products types of county - level division can contribute to agricultural intensification operating in MZSS, but did not improve the level of agricultural intensification. This may be because in terms of mountainous areas the labor division in agricultural products types of county - level is still difficult to promote agricultural geographic concentration, and thus will weaken its positive role in the spread of agricultural intensification operating activities.

(5) The agricultural intensification development has significant spatial correlation overall in MZSS. The agricultural mechanization in MZSS shows a negative spatial correlation in different counties. A possible explanation is that the agricultural machinery equipment can flow between adjacent areas. However, the spatial correlation of agricultural intensification operating efficiency in MZSS is not strong. This may be because that the geographic segmentation and barriers of cultural concepts are not conducive to the exchange of agricultural producers in different regions, so as to enhance the efficiency of agricultural technology.

(6) The confining transaction efficiency is the limited factor of agricultural labor division evolution and agricultural intensification development in MZSS. The enhancement of trading efficiency in MZSS is multiply restricted by geographic natural conditions, transportation infrastructure, information infrastructure, social and cultural environment, grass - roots government action and the quality of trade subject. The confining transaction efficiency will not only directly the agricultural intensification development in MZSS through affecting the realization of agricultural intensification activities, the diffusion of agricultural intensification operating activities and the improvements of agricultural intensification operating efficiency; but also can indirectly restrict it through affecting the labor division between agriculture and industry, labor division in agricultural products types and agricultural production processes.

(7) The generation and development of new agricultural business entities are important manifestation and internal requirements of agricultural labor division

evolution. MZSS should learn from the advanced experience of developed areas to foster and develop the new agricultural business entities, and build the new model of agricultural intensification operating which is based on the traditional farmers, supplemented by the big professional farmers and family farm, and supported by the social services of farmer professional cooperatives and agricultural industrialization leading enterprises. And the agricultural intensification development path is promoting the labor division between agriculture and industry, labor division in agricultural products types and agricultural production processes in MZSS; Improving the transaction efficiency is an important measure to promote agricultural labor division evolution and agricultural intensification development in MZSS.

3. Possible innovations of the study

From the perspective of agricultural labor division evolution this article has perfected the analytical framework of agricultural intensification development. Inherited the neoclassical economics connotation of agricultural intensification development, and perfected the neoclassical economics analytical framework of it from the following three aspects:

First, from the perspective of agricultural labor division evolution present that the growth of agricultural products markets demand and the change in the scarcity degree of production factors depend primarily on the level of labor division between agriculture and industry, not just the exogenous factors such as population size, resource endowment;

Second, further analyze the effect of labor division in agricultural products types in different regions on promoting agricultural intensification operating to achieve, reducing the cost of the diffusion;

Third, further demonstrate the effect of labor division in agricultural production processes on promoting agricultural intensification operating to achieve, accelerating farmer's human capital accumulation and thus enhancing the efficiency of it.

Keywords: Agricultural Labor Division; Agricultural Intensification; Mountain Zone of Southern Sichuan (MZSS); Trading Efficiency; Spatial Econometric Analysis

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