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**T A S K  
TO MASTER THESIS**

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#### 4. Work plan

No	Stages of work
1.	Approval of the thesis content
2.	Preparation of the thesis' first section
3.	Completion of the first section according to the supervisor recommendations. Writing the thesis' second section
4.	Completing of the second section according to the supervisor recommendations. Preparation of the thesis' third section
5.	Completing of the third section according to the supervisor recommendations. Preparation of a report for a scientific conference with a presentation of the main results of the thesis
6.	Writing of the introduction, conclusions of the thesis. Making references list
7.	Submission of the thesis to the Department of Management and Administration

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## INTRODUCTION

Comprehensive socio-economic development of rural areas is the basis for the progressive development of the agro-industrial complex, effective solution of social problems and gradual transition to sustainable economic growth in rural areas. The focus of attention is on problematic rural areas characterized by the highest level of social and economic problems. This category sometimes includes territories with a sufficiently high economic potential, which, due to the competitiveness of the main industries of specialization, are in a state of deep crisis, as evidenced by high unemployment, low investment activity of business entities and a number of social problems.

Rural credit cooperatives play a vital role in China's rural economic development. As the main channel to provide financial services, they are of great significance for solving the financial constraints of farmers, promoting the upgrading of rural industries and increasing farmers' income. However, there are some problems, such as low loan coverage and information asymmetry, which hinder its role. Therefore, it is of great significance to research the organizational structure, asset structure and financial risk management of rural credit cooperatives to improve the quality of rural financial services and promote the stable development of rural economy.

The following scholars have made a significant contribution to the study of socio-economic development of rural areas: Feng Zhilei, Gu Xiujuan, Li Zhengang, Liu Tai, Liu Zhili, Sun Zhichao, Wang Hongyu, Wang Nan, Xue Ruoyu, Yang Yadi, Zhang Huawei, etc. The works of these researchers cover the main problems of rural development quite thoroughly, but insufficient attention is paid to the formation of a mechanism for socio-economic development of rural areas and the degree of influence of the decentralization process on social development of rural areas is not fully investigated. Also, the issues of planning sustainable development of rural areas using the possibilities of applying the program-targeted approach remain insufficiently studied.

At the same time, in our opinion, special attention should be paid to the introduction of practical aspects of self-organization of rural communities, as well as to increasing the investment attractiveness of rural areas.

The aim of the research is the theoretical justification and development of practical recommendations for management of socio-economic development of rural areas.

In accordance with the purpose of the research, the following tasks were set and solved:

- categorical and conceptual apparatus of socio-economic development of rural areas were disclosed;
- conceptual framework for managing socio-economic development of rural areas was investigated;
- methodical approaches to assessing the effectiveness of socio-economic development of rural areas were summarized;
- analysis on efficiency of rural finance service in China was carried out;
- diagnostics of the economic potential of the agricultural sector in rural areas was carried out;
- influence of systemic factors on the development of rural areas was singled out;
- proposals for improving rural management mechanisms in the context of the national economy were prepared;
- innovative approaches to the management of socio-economic development of rural areas were developed.

The object of the research is the process of determining the peculiarities of socio-economic development of rural areas.

The subject of the study is theoretical and methodical provisions and practical recommendations for management of socio-economic development of rural areas.

The scientific novelty and theoretical significance of the research results lies in the theoretical and methodical substantiation of the peculiarities of managing the socio-economic development of rural areas.

The theoretical and methodical basis of the qualification work are the works of Chinese and foreign scientists, materials of scientific conferences and seminars, thematic publications in periodical scientific publications. The information base of the research is made up of the materials of the Ministry of Agriculture and Rural Affairs of China, China National Bureau of Statistics, own analytical developments.

In the process of research, general scientific and special methods of cognition were used: structural and logical – to build the general structure of the research; abstract and logical – when defining the purpose, tasks, formulating conclusions, researching domestic and foreign literary sources, regulations, forming a system of socio-economic development of rural areas; comparative analysis – when analyzing long-term data of socio-economic processes, trends, phenomena; statistical groupings, expert – when interviewing residents of rural areas; method of graphical and tabular presentation of data; scientific generalization – when substantiating conclusions.

Background of rural cooperative finance development in China was published at the International scientific and practical internet conference “Problems and prospects of ensuring sustainable socio-economic development of territories”, Kharkiv (October 27–28, 2023).

The thesis consists of an introduction, three sections, a list of used sources and annexes.

**SECTION 1**  
**THEORETICAL AND METHODOLOGICAL FOUNDATIONS**  
**OF MANAGEMENT OF SOCIO-ECONOMIC DEVELOPMENT**  
**OF RURAL AREAS**

**1.1 Categorical and conceptual apparatus of socio-economic development of rural areas**

The socio-economic development of rural areas is one of the main priorities of China's state policy aimed at improving the living standards of the rural population, increasing the efficiency of the agricultural sector, improving the quality of human capital and providing ways to sell it.

There are two ways to overcome rural degradation. The first option is characterized by insufficient funding for rural development, including social infrastructure, and the declaration of social, economic and environmental measures in the absence of real mechanisms for their implementation. If this option is implemented, the main problems of rural development, in particular in terms of rural employment and the destructive processes of social infrastructure in rural areas, will not be solved [3]. The second option involves defining a strategy for sustainable development of rural areas based on optimizing their social and production infrastructure, increasing the level of employment of the rural population, reducing labor migration, increasing the competitiveness of agricultural production, increasing its volumes, improving the quality and safety of agricultural products, environmental protection and the reproduction of natural resources. The latter option was determined to be optimal, as it will allow overcoming the crisis situation in ensuring sustainable socio-economic development of rural areas.

In the context of the new strategy, the new changes that are mentioned in the targeted rural development programs, if they are implemented in time, it will

be possible to attract investment in this sector of the economy and give a powerful impetus to its development. The main idea behind this unified rural development strategy is to strengthen local self-government. The most important advantage for rural development is the transition to a bottom-up development policy, not the other way around. When the very potential of rural people is activated and they are involved in these development processes that can be initiated from above. That is, a program will be outlined from above, but a lot will depend on the grassroots level. It is important to understand that even European money will not be given to the national level, only to the local level, to organizations that will be created to develop the economy, agriculture and diversified activities in rural areas. This diversification will be developed in two directions: farm diversification, when the farm will produce not only crops that are more efficient to produce on large farms, but also those that can be more efficient for small producers [6]. These include medicinal plants, flowers, and products with special qualities that are developed in certain regions. That is, products with added value. Another area is the development of non-agricultural activities in rural areas (Table 1.1).

In this context, it is important to note that the following components are key to rural development: the development of local leadership, the cultivation of leaders from rural citizens. The second is new knowledge of the rural population. That is, innovative approaches to institutional and social development. The third is building social networks, that is, the social capital of rural people, to overcome the social isolation of the village, which has worsened over the past 20 years and led to the fact that villagers are completely isolated from public life. The fourth is infrastructure development. It will be the key to the economic development of the community, and will also simplify the activities of large agricultural holdings. What does this mean? Firstly, the information infrastructure – wireless communication, broadband Internet, i.e. all the opportunities available in the city.

One of the inhibiting factors for the sustainable development of rural areas is their insufficient investment attractiveness and low efficiency of investment

resources. The main content of investment support for sustainable development of rural areas is a set of resources and measures, conditions necessary for the implementation of appropriate and effective investment, which will ensure a balanced and uniform development of rural areas.

Table 1.1 – Analysis of approaches to the concept of “rural area”

Author of the term	Definition of the concept
Chang Baowu & Jin Huaiyu [4]	A historically formed element of the settlement network that combines the organizational and functional totality of settlements, villages, hamlets, single-family and other residential units under the jurisdiction of village (settlement) councils
Duong Huy [9]	Rural territory is distinguished by: the area of land on which it is located; the number of people living and employed in production or service; the volume and structure of production; the development of social and production infrastructure; the form of employment of those living there and other features
Guo Maozhe [16]	The historical transformation of the governance paradigm defines rural areas as a complex natural, industrial, economic, social, political, and, in fact, territorial entity that is under the managerial influence of various entities represented by public authorities, local governments, business structures, and public organizations
Li Jie [30]	The concept of “rural territory” defines rural areas as an integral system with its structure, functions, relations with the external environment, history, culture, living conditions of the population, characterized by a large number of interconnected subsystems of various types with local goals, multi-contour management
Liu Tai [37]	Notes that the term “rural areas” is used to refer to rural areas of specific parts of the country, namely natural, economic, administrative and territorial entities
Wang Hongyu & Ji Meng [56]	Defines rural areas as one of the most important parts of the national economic complex of the country, including inhabited areas outside the territory of cities with its conditions and resources, rural population and various fixed assets in these areas
Wang Yasong [61]	Interprets rural territories as historically formed within certain boundaries a set that combines organizational-territorial and territorial-functional affiliation (production, processing, sale) of agricultural products
Yan Xiang & Feng Xingyuan [67]	Rural territory is a territorial unit of self-government acting within the framework of the law, based on its own experience, specifics of management, which unites the community around it in order to manage life, solve problems by joint efforts and promote the development of this territory
Zheng Chunping [81]	The term “rural area” is used to designate rural areas of specific parts of the country, namely natural, economic, administrative and territorial entities. An important aspect of the existence of rural areas is that they are a resource base for agriculture, develop in close connection, but each in its own way

Thus, the territories have to be integrated into the urbanized system, and without this, it is impossible to attract investments. In terms of investment, the bottom-up approach that we started with, when people themselves develop their own development programs, they implement them, and funding is provided through fundraising, is still working (Fig. 1.1).

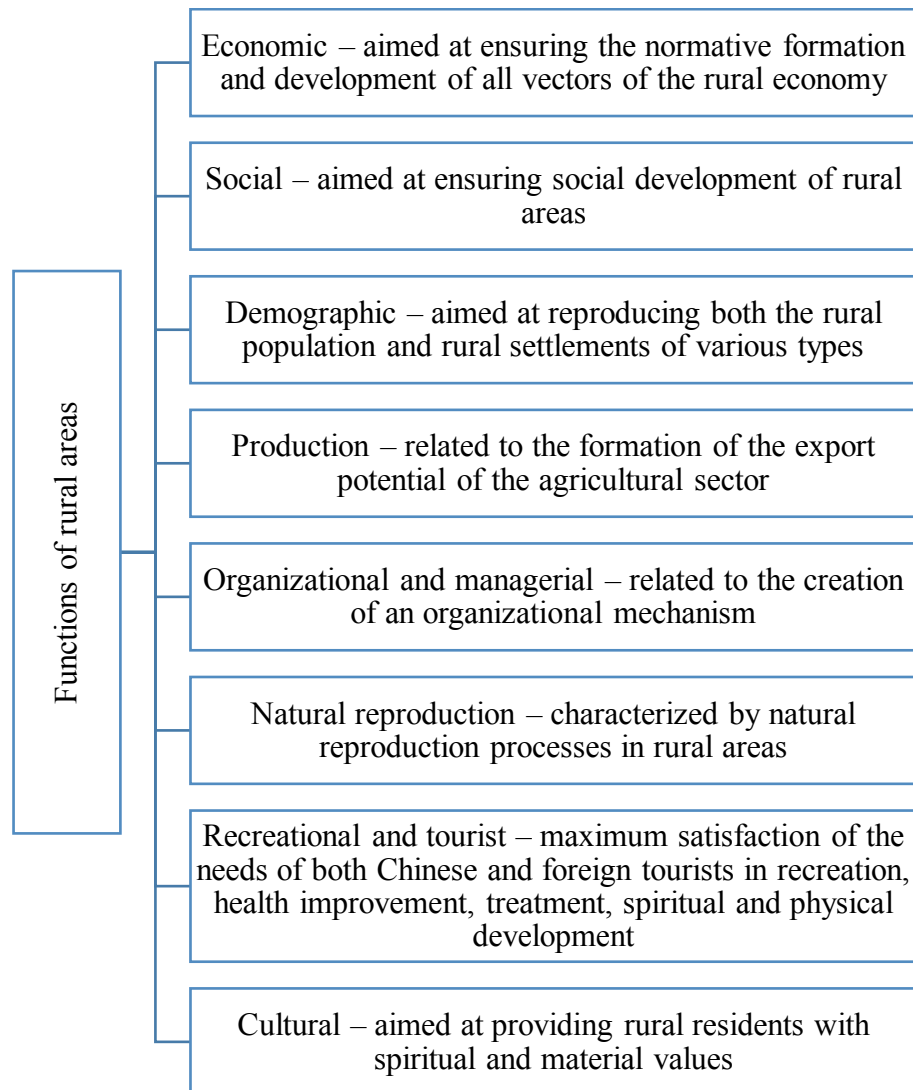


Figure 1.1 – Functions of rural areas (compiled by the author according to [29, 71])

The implementation of the mechanism of investment support for sustainable development of rural areas largely depends on their investment attractiveness. However, the formation of favorable investment conditions, attraction of foreign and increase of national investment resources in rural development is constrained

by a number of negative factors, the most acute of which are: imperfect and inconsistent investment policy of the state, which is dominated by the principles of residual allocation of funds for rural development, imperfect mechanisms for the use of budget funds, unfavorable conditions for the development of entrepreneurial activity in rural areas, low liquidity of investment resources, insufficient financing of social.

Let us consider the experience of implemented projects of sustainable rural development in developed European countries, which allows us to highlight the main emphases that can be implemented in China in the future [10, 54, 80]:

- Comprehensiveness – development projects consider all possible types of economic activities that can increase the income of the rural population. Each proposal to increase employment and income is comprehensively justified from a legal, economic, and social perspective. The solution to the problem of employment and income increase is coordinated with the solution of other regional problems and the development of rural areas in general.

- Openness – interactive (participatory) planning methods are used in the development of project activities; the results achieved and problems are comprehensively covered in the local media, discussed at village meetings, and meetings with the population; based on the results of these discussions, appropriate adjustments are made to the projects.

- Broad participation of the population – in the process of developing and implementing projects, the knowledge, experience and perceptions of the population about the most effective ways to ensure employment and income are used to the maximum extent possible, the peculiarities of economic and social behavior of different social groups are taken into account, their interests and intentions are coordinated, and joint efforts are consolidated through cooperation, development of local self-government and activities of public organizations.

- Reliance on local resources – achievement of the goals of sustainable rural development is ensured primarily through the mobilization of local financial, material and technical, social and natural resources, which is of paramount

importance for creating sustainable mechanisms for employment and income generation. However, this does not exclude the use of external sources of resources for rural development.

One of the ways to effectively ensure the socio-economic development of rural areas is to finance the social infrastructure of settlements. The main sources of funding for the functioning of social infrastructure in rural areas are the state, regional and district budgets, voluntary contributions from citizens and off-budget revenues. At the same time, the main role in the formation of financial resources for the maintenance of social infrastructure is largely assigned to local budgets.

Local budgets are not sufficient even for the simple reproduction of the social infrastructure of a village, as they are formed primarily by local taxes and fees paid by enterprises located in the territory of the respective territorial unit.

In our opinion, in order to reflect the role of local budget expenditures in ensuring the socio-economic development of rural areas, it is advisable to divide them into the following main groups [26, 52]:

- 1) expenditures on economic activity (development of housing and communal services, construction, agriculture, forestry and fisheries, transportation and other services related to economic activity);

- 2) expenditures on social protection and social security (provision of social benefits and allowances to certain segments of the population, other social measures);

- 3) expenditures to finance the social sphere (ensuring the functioning of cultural and artistic institutions, education, healthcare, and physical culture and sports).

The research allows us to conclude that the role of local budget expenditures in financing socio-economic expenditures in rural areas should increase in the near future. Local budget expenditures are a dynamic concept, so their study should be conducted taking into account many features that affect the socio-economic life of the rural population.

When developing and implementing the policy of socio-economic development of rural areas, the problem of providing rural residents with jobs and adequate wages deserves special attention. As of today, the issue of determining the employment of persons who own or use a land plot (share) has not been regulated (Fig. 1.2.).

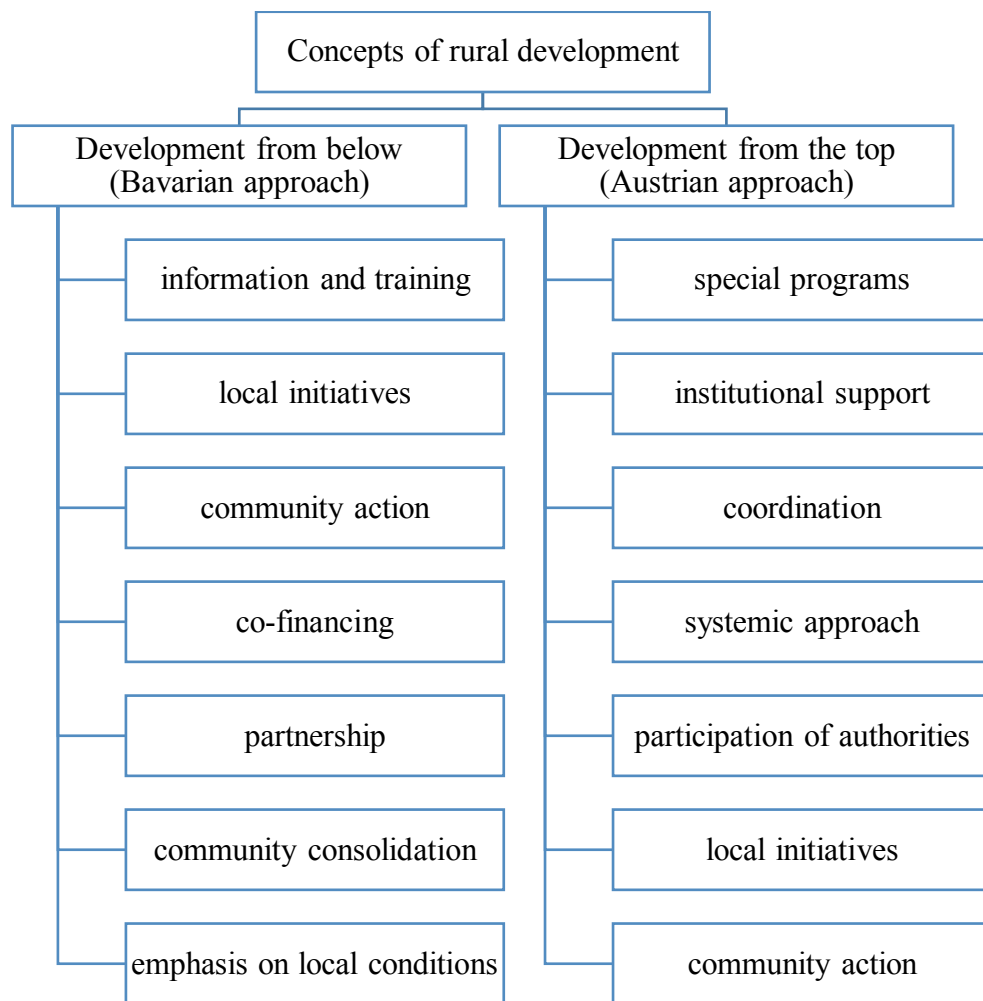


Figure 1.2 – Basic concepts of rural development (compiled by the author according to [14, 48])

Another important prerequisite for successful modernization of the agricultural sector is the diversification of economic activity in rural areas. The employed population that is released from agriculture for various reasons can engage in non-agricultural (alternative) activities.

One of the main conditions for the effective functioning of local budgets is the provision of sufficient financial resources to guarantee their independence and autonomy. With the necessary financial base, local governments solve the most important task – meeting the needs of the population of the respective territory [5].

China remains a country that retains extensive methods of economic development, which inevitably leads to irrational and inefficient use of local budget funds. This, in turn, causes problems of disproportions between national and local interests, mismatches between the distribution of natural resources and socio-economic potential, scientific, technical backwardness, etc. (Fig. 1.3).

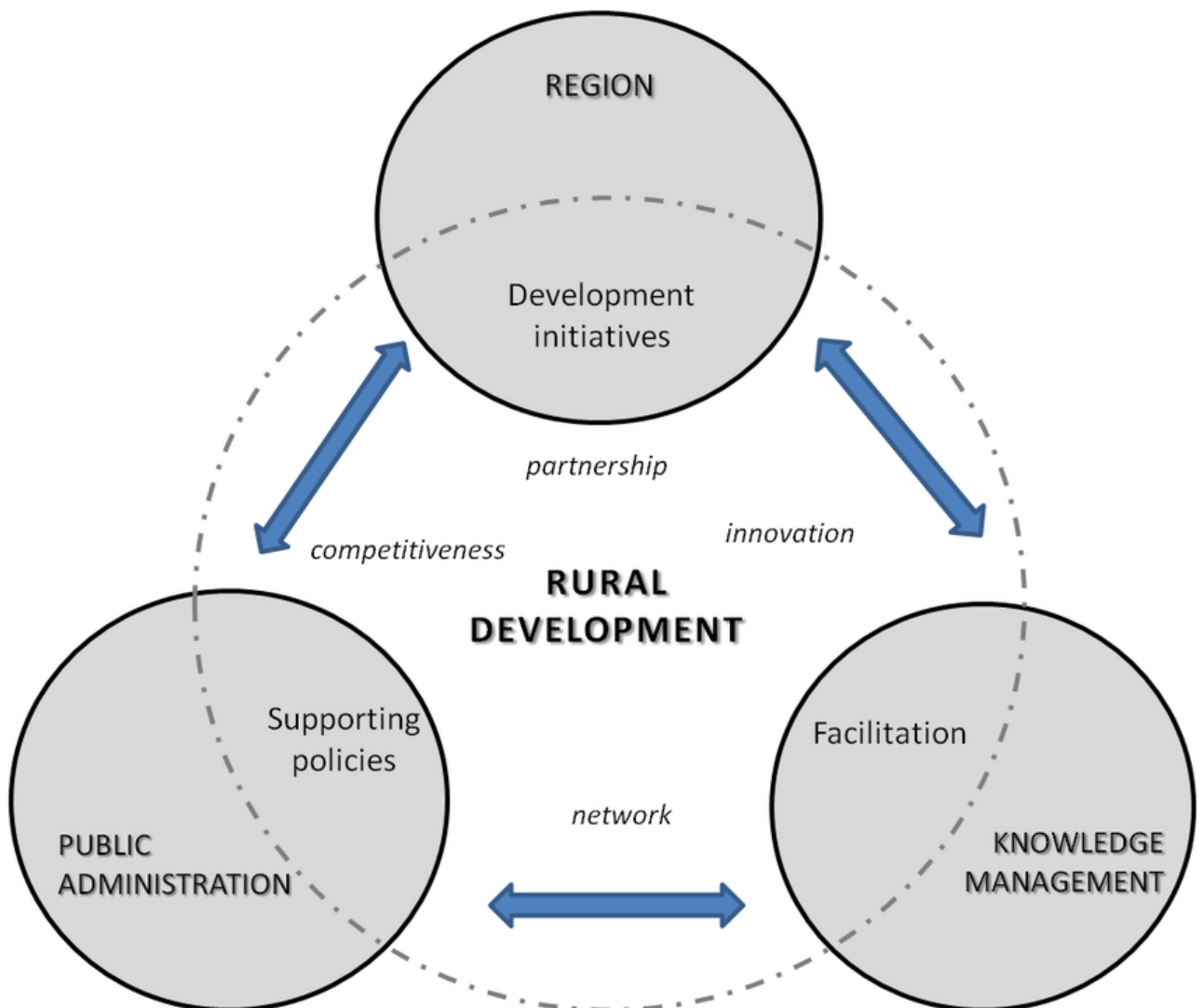


Figure 1.3 – Integrated conceptual framework of rural development (compiled by the author according to [22, 83])

The lack of financial resources at the local level, and thus the low level of funding for social protection and social security, education, health care, spiritual and physical development, is compensated for by transfers. The state should be interested in ensuring that social, cultural and economic activities are funded in the proper amount and quality in all regions, not only by controlling the efficiency of budgetary funds, but also by ensuring their adequate financing.

In our opinion, in order to optimize local budget expenditures for financing the socio-economic development of rural areas, it is necessary to [19, 67]:

- Improve the mechanism for granting social benefits in terms of their monetization and the introduction of a preferential approach to different categories of citizens.

- Introduce a “one-stop shop” system for various types of social assistance payments and social privileges to the population.

- Reorganize the institution of professional benefits by eliminating certain benefits, limiting a certain contingent of recipients and replacing them with compensation payments;

- Introduce multi-level financing of health care at the expense of budgetary funds and voluntary health insurance.

- Streamline the system of additional medical services, which will be financed through a commercial payment mechanism.

- Develop a credit mechanism for financing higher and vocational education, basic and applied research.

- Optimize the system of state orders for training specialists based on the rating of efficiency of graduates’ employment.

- Streamline the network of pre-school and general secondary education institutions in rural areas, and ensure their technical re-equipment.

- To gradually move from budgetary funding of cultural institutions to self-financing and the introduction of commercial calculation.

- Reorganize subsidized cultural institutions in rural areas with a small number of residents by liquidating and merging them.

Thus, in an environment where there is a lack of resources and levers of influence on the socio-economic development of territories, the proposed measures to optimize local budget expenditures to finance the socio-economic development of rural areas will improve the current state of affairs. In this context, an important priority for solving complex socio-economic problems in rural areas should be to attract significant investment resources and introduce a new institution that will accumulate investment resources for rural development and ensure the implementation of targeted programs.

## **1.2 Conceptual framework for managing socio-economic development of rural areas**

The research of the management of socio-economic development should be based on the system of the most general principles, methods and ways of cognition of socio-economic processes in the development of rural areas. Thus, let us define an algorithm for studying the functioning of socio-economic development of rural areas (Fig. 1.4).

Important factors influencing the system of management of socio-economic development of rural areas are: economic preconditions, formation of a basis for self-sufficiency of rural communities, organization of an effective system of local self-government bodies, development of social infrastructure, establishment of social and labor relations and a system of social partnership. The structural scheme of interrelationships between the elements of rural economic development to some extent reflects the broad connection of various factors (Fig.1.5) [1].

Economic development includes a number of blocks:

- production and economic element (land relations, agriculture, system of procurement and sale of products, material and technical base, etc.);
- entrepreneurship (entities of various forms of ownership and types of activities);

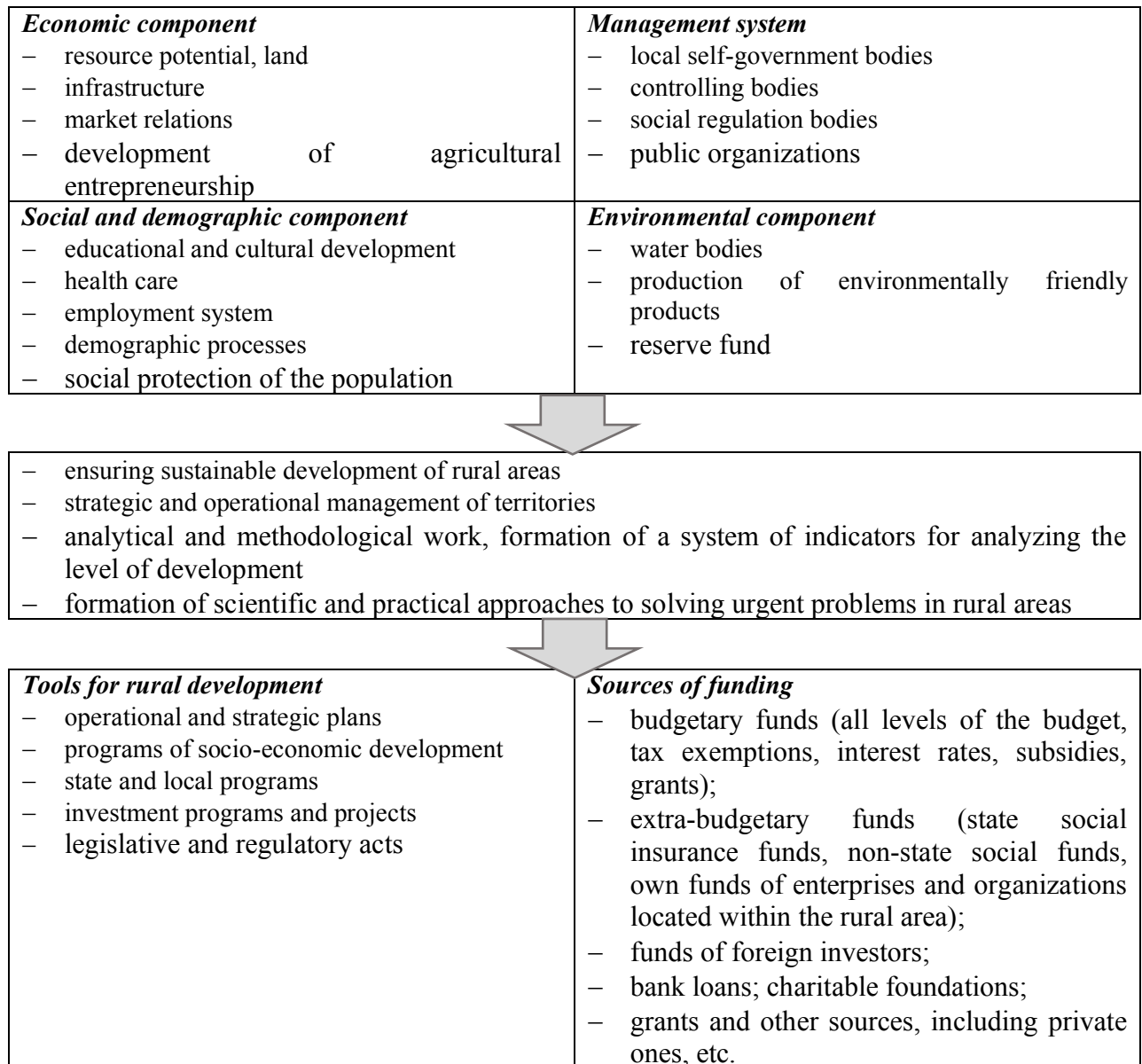


Figure 1.4 – Structure of the study of socio-economic development of rural areas (compiled by the author according to [36, 61, 75])

- investment and innovation activities (requires the development of specific ways to improve the investment climate in rural areas, the search for domestic and foreign investors and their involvement in the implementation of various projects to ensure accelerated development of social and transport infrastructure in rural areas, etc. Innovative development of priority sectors of the economy and strengthening of scientific potential are especially relevant);

- fiscal and financial levers (specialized agricultural banks, credit unions, rural financial resources, etc.).

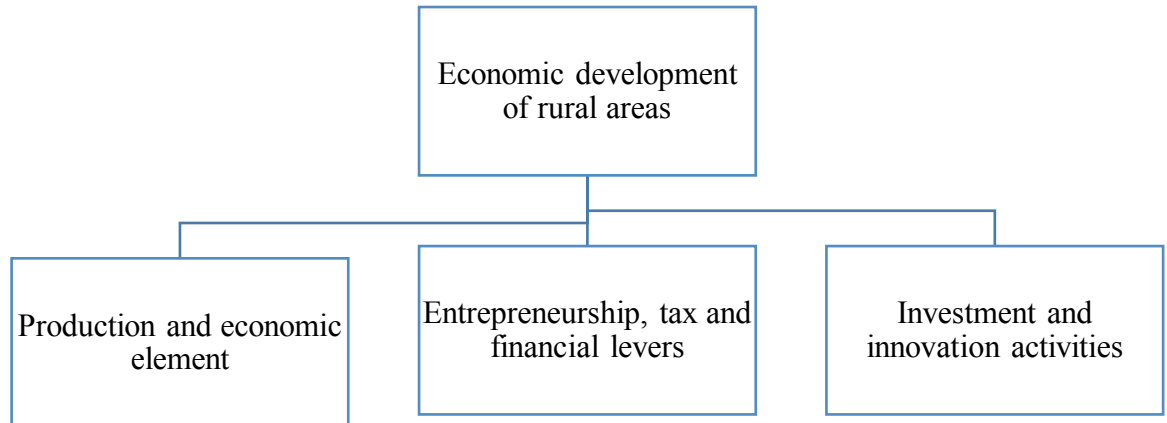


Figure 1.5 – Structure of the scheme of interconnection of elements of economic development of rural areas (compiled by the author according to [9])

The formation of a system of rural credit cooperation in China will allow concentrated mobilization of public finances, savings of the rural population and other sources of financial resources for the development of the agricultural sector on the basis of the processes of specialization, cooperation and integration.

One of the prerequisites for the development of rural credit cooperatives is the formation of new structures in the agricultural sector of China's economy, which is the result of the agrarian reform of the 1990s. However, the biggest constraint on the development of the newly created small agricultural enterprises is the lack of financial resources and ineffective government support. Increasing the volume of commodity production of agricultural enterprises primarily depends on their affordable lending, but bank loans are still not widely available to small agricultural enterprises [60].

Through the development of rural credit cooperatives, it is possible to ensure the availability of financial services for small agricultural enterprises and the rural population, increase their welfare and purchasing power; attract funds to the state credit system; and increase the level of activity of the rural population and territorial communities.

Cooperatives have demonstrated the possibility of rapid emergence and increase of production volumes. Their positive and negative experience should certainly be taken into account for the development of small agricultural enterprises in China [24].

The whole world experience shows that in order to survive, a village and a peasant need cooperation like air. It is impossible for peasants themselves to create the material base of cooperatives, so the state should be their partner. This is an indisputable fact, as evidenced by the experience of Europe, Canada, the United States, and Australia [68].

In order to develop a system of rural credit cooperatives in China, it is necessary to analyze the financial condition of existing credit cooperatives in rural areas and take into account foreign experience in the development of credit cooperative systems, as well as to conduct educational seminars, trainings, international exchanges for managers and specialists with the participation of qualified national and foreign specialists, rural advisory services and scientists.

The development of rural credit cooperation as a form of financial and credit support for small agricultural producers will ensure [33]:

- improvement of the state of the agro-industrial complex;
- increase in employment and income of the rural population;
- development of rural areas;
- formation of the middle class and solving social problems of rural settlements;
- expanding access to credit resources for both small businesses in rural areas and other categories of borrowers.

In turn, the development of rural credit cooperatives is influenced by social, economic, political and legal factors.

It is known that the credit system is formed by a set of banks and other financial institutions that mobilize temporarily available funds and use forms and methods of lending to realize them through the mechanism of credit relations.

However, there are negative factors and trends that hinder the progressive development of the rural credit cooperative system [53]:

1. imperfect legislation regulating the activities of credit cooperative system entities, in particular, limited opportunities to provide financial services to cooperative members;

2. insufficient awareness of the rural population about the activities of credit cooperatives;

3. lack of opportunities for credit cooperatives to provide small businesses and farmers with access to cheap and long-term financial resources, as well as to microcredit; infrastructure necessary to ensure the effective functioning of the credit cooperative system in rural areas;

4. low level of professional activity and technical equipment of the vast majority of cooperatives;

5. the unstable financial condition of some credit cooperatives, the lack of an effective mechanism for maintaining their financial stability and guaranteeing the deposits of their members, in particular on the basis of self-regulation [73].

The primary link of the rural credit cooperative system should be represented by rural credit cooperatives, which are established and operate near the place of residence and business activities of their members and provide them with loans on more favorable, simpler and faster terms than commercial banks.

The advantages of a cooperative loan for small agricultural enterprises include [4, 50]:

- members of a rural credit cooperative are both its clients and shareholders who control its activities;
- simple procedure and low time spent on loan processing;
- assessment of the borrower's creditworthiness based on his personal qualities and the profitability of the products he produces;
- loan collateral favorable to the borrower (surety, personal trust, pledge of movable property);

- lower interest rates on loans compared to commercial banks;
- promptness in providing credit funds;
- territorial proximity of members to the operation of a rural credit cooperative;
- joint and several liability of members of a rural credit cooperative, which in a certain way stimulates timely loan repayment.

The main task of a rural credit cooperative is to organize a local market of credit resources for small agricultural enterprises operating in the area of its operation.

The organization of rural credit cooperatives is based on the principles of self-governance and equality of members, and is most suitable for meeting the needs of small agribusinesses compared to other financial and credit institutions. Thus, by participating in a rural credit cooperative, small agricultural enterprises will be able to develop effectively through access to the credit resources they need.

The main mission of rural credit cooperatives is to organize lending activities, namely, operations to provide loans to small agricultural producers. It is important to provide its members with rational use of the cooperative's services and the opportunity to receive timely and useful information about its activities. And if the members of a rural credit cooperative receive profits from their activities through timely receipt of borrowed funds in the required amount, then the cooperative's activities can be considered effective.

The activities of rural credit cooperatives should be aimed at [32]:

- increasing the volume of credit resources and expanding the range of services provided to members of a rural credit cooperative;
- providing services to its members at cost to meet their economic needs;
- increase the number of members and increase the general fund of rural credit cooperatives;
- promoting the development of entrepreneurial initiatives of its members;

- updating the material and technical base of small agricultural enterprises;
- application of the latest information technologies in the activities of rural credit cooperatives;
- improving the quality of management decision-making;
- conducting information and consulting events among members and working to attract external investors;
- promoting rural development and increasing employment and living standards of the rural population;
- development of partnership as an element of the rural credit cooperative system.

Establishing a rural credit cooperative is a set of activities that should be carried out systematically and consistently. It usually starts with the initiative of one or more people who have organizational skills, experience with financial documents, enthusiasm, practicality, loyalty and determination to implement their project. Later, these people will form an initiative group that will begin to develop the project of the future rural credit cooperative. The sequence of stages of establishing a rural credit cooperative is presented in Table 1.2.

A rural credit cooperative acts as a tool to meet the needs of its members, on the one hand, in issuing the necessary loans, and on the other hand, in placing temporarily available funds. The scope of activities of rural credit cooperatives is limited to: managing their own and borrowed funds and loans of their members, informing and educating their members, controlling financial transactions, and building the credibility and trust of cooperatives in rural areas.

The importance of developing a system of rural credit cooperatives is emphasized at the international level. Thus, in 2012, the UN General Assembly proclaimed the International Year of Cooperatives as its slogan: “Cooperatives build a better society”, thereby emphasizing the socio-economic importance of cooperatives in the development of countries around the world [42].

Table 1.2 – Stages of establishing a rural credit cooperative (compiled by the author according to [8, 31, 78])

No	Stages of establishing a rural credit cooperative
<i>Preparatory stage</i>	
1.	Create an initiative group (5–8 people)
2.	Conduct research and analyze the feasibility of establishing a cooperative (draw up a business plan)
3.	Develop an action plan for the establishment of a rural credit cooperative and conduct outreach to potential members
4.	Hold the first organizational meeting and form an organizing committee
5.	Determine the range of potential members and the territorial boundaries of the cooperative, as well as identify a bank to open a current account
6.	Prepare the necessary premises and equipment for the cooperative
7.	Determine the main goals and objectives of the cooperative
8.	Justify and determine the amount of share and entrance fees, cooperative funds, and the powers of governing bodies
9.	Involve specialists with skills and experience in financial and credit institutions to work in the cooperative
<i>Establishment stage</i>	
1.	Hold a general meeting with all the necessary documents
2.	Approve the cooperative's charter and execute constituent documents
3.	Select management and control bodies of the cooperative
4.	Register the cooperative and register with the tax authorities
5.	Make a seal and open a bank account

Agricultural service cooperatives in modern conditions are a tool for increasing the realization of the potential of rural areas, so the state is interested in their development. However, for each type of cooperative, the legislation provides for restrictions that do not allow any of them to realize the benefits of association and thus realize their potential.

Production cooperatives, as enterprises established and operating for profit, can unite only individuals and on the basis of their compulsory labor participation in the cooperative's activities, and therefore even farms that have acquired the status of a legal entity cannot formally become members of a production cooperative. They involve the unification of households that mostly have a small area of land and keep small livestock, and thus the resource potential of the cooperative will be obviously insignificant [46].

The basis for cooperative development should be a combination of an effective financial business model and a social model, which will ensure the development of villages and rural areas. The state chooses the concept of development – agricultural development or rural and rural development. Cooperation can develop sustainably only if it becomes a priority of state agricultural policy, and the most powerful tool of state influence on cooperative relations is legislation.

As a tool for rural and rural development, agricultural cooperation needs state support through creating conditions for the successful implementation of the cooperative idea in rural areas, expanding state programs to support the development of agricultural cooperation with additional involvement of other financial resources from non-state funds [81].

Receiving partial compensation for loans, seeds, advisory services, machinery, and equipment is not a guarantee for the development of cooperatives.

The existing taxation systems for cooperatives in foreign countries take into account, on the one hand, the status of cooperative enterprises and the target audience for their services, and on the other hand, create tax preferences for those types of cooperatives in whose activities and development the state is interested. In Germany, farmers' cooperatives with a full cycle of production and related supply cooperatives are exempt from taxes; the German tax system has introduced benefits for cooperatives that use environmentally friendly technologies and alternative energy sources. The taxation system for agricultural cooperatives in France provides for granting them the status of a non-profit organization, which ensures the absence of double taxation of the results of their activities; exemption from income tax; exemption from the tax on the use of natural resources; and exemption from the tax on the use of natural resources [58].

The main state assistance should be provided in several areas: advisory services; clear and transparent mechanisms for obtaining subsidies and compensations; cheap lending, including preferential lending for the processing industry; creation of a land cooperative bank; and innovation programs.

To establish cooperation as a state priority, it is necessary to develop cooperative education [12].

The successful experience of cooperation will help people regain confidence in their self-sufficiency and earn decent incomes.

### **1.3 Methodical approaches to assessing the effectiveness of socio-economic development of rural areas**

The earliest cooperative financial organizations originated in Europe, and research on cooperative finance also began early in Europe, with relevant publications emerging as early as the 19<sup>th</sup> century. Before delving into the study of cooperative finance, gaining a systematic understanding of cooperative economics or systems will help us better understand the essence of cooperative finance.

The earliest ideas of cooperative economics can be traced back to early utopian socialists in Europe, particularly notable figures such as Charles Fourier in France and Robert Owen in England. In Fourier's ideal society, people collaborate in labor and life, enabling the free development of talents and interests, with shared happiness among all. The fundamental unit of this harmonious society, termed "phalanx" by Fourier, is essentially a cooperative society characterized by "common production, joyful labor, and fair distribution". Building upon Fourier's ideas, Owen proposed the concept of establishing cooperative communities. Unlike Fourier's phalanx, which acknowledged private property, Owen's cooperative communities were based on principles of joint labor, joint consumption, joint ownership of property, and equal privileges, aiming to eliminate the system of private property. Though Owen's ideas and visions for a future society were based on rational utopianism, they contained many rational and positive elements [56]. His criticism of the pitfalls of private ownership, envisioning the elimination of three major differences, and advocating

for education combined with productive labor and equitable distribution based on needs, are all positive aspects within his utopian system. Many principles proposed by Owen for cooperative communities, such as management systems, distribution systems, and labor organization, are still widely adopted today.

Furthermore, Europe also fostered cooperative economic ideas within Christian socialism, state socialism, and Marxist ideology. William King is a representative figure of Christian socialist cooperative economic thought. He viewed cooperatives as potent weapons for overthrowing capitalism and abolishing the wage system, aiming not only to limit or avoid exploitation by middlemen, increase labor productivity, and enhance the power of the working class, but also to reform the entire economic organization of society. Labor, capital, and knowledge are the three main elements of cooperatives, with labor serving as the foundation. The working class, through establishing cooperatives, aggregate labor results into capital, yet a lack of knowledge can hinder the cooperative movement of laborers. Therefore, laborers need education to acquire the necessary knowledge for cooperation and to propel the cooperative movement forward.

Marxist economic thought perceives cooperatives as an intermediate link toward the complete transition to communism. According to Marx's theory of social ownership, cooperative factories where workers, as a collective, realize "the value added by their own labor" are enterprises of social ownership, not private ownership [65].

From the post-war period to the 1960s, prevalent cooperative finance theories in European countries mainly included traditional cooperative finance theory based on sociality, integrative cooperative finance theory based on collectivity (where cooperative finance organizations are a combination of operating enterprises and public organizations, with members fully reliant on the cooperative organization, managed by experts), and market-based cooperative finance theory based on individualism (where cooperative finance organizations are seen as enterprise organizations under the assumptions of neoclassical

economics, with members not reliant on the cooperative society, managed by experts). As cooperative finance organizations gradually acquired commercial functions, the latter two theories gained prominence after the 1970s. Since the 1990s, the social functions of cooperative finance organizations have gradually declined, making market-based cooperative finance theory more persuasive.

Credit cooperatives represent the fundamental form of cooperative finance, originating in Europe in the 19<sup>th</sup> century and spreading to regions outside Europe, including some Asian and American countries, in the early 20<sup>th</sup> century. After the end of World War II, credit cooperatives experienced accelerated development and widespread adoption worldwide. However, the development of credit cooperatives as financial service institutions targeting rural economies, low – to middle-income groups in urban areas, and small and medium-sized enterprises has been uneven across different countries [13].

The International Cooperative Alliance (ICA) 100<sup>th</sup> Congress held in Manchester, United Kingdom in September 1995 produced and adopted internationally recognized cooperative principles, comprising the following 7 items (Fig. 1.6).

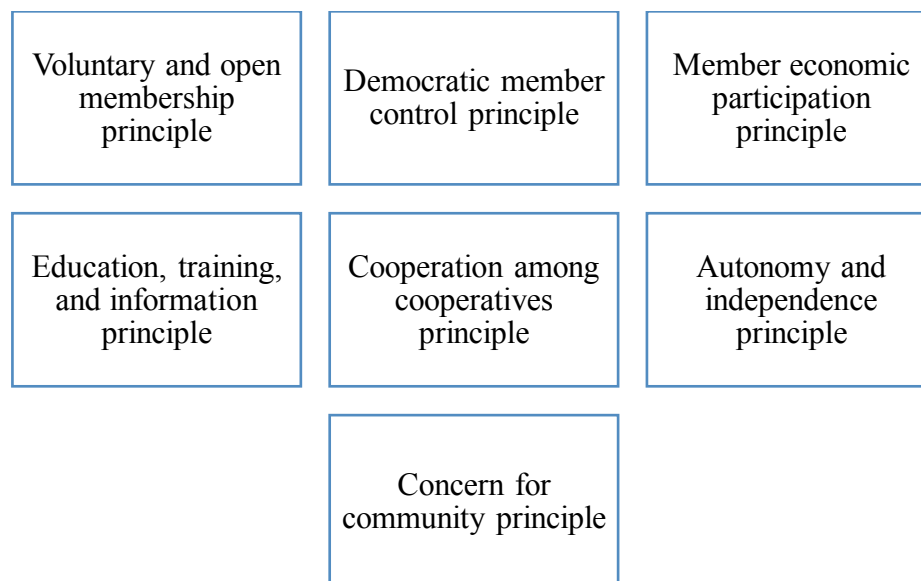


Figure 1.6 – The basic principles and characteristics of cooperative finance (compiled by the author according to [76])

From this, it can be understood that the cooperative economy is a non-profit economic situation where participants voluntarily join, democratically manage, and provide mutual assistance services. Its purpose is not to generate profits but primarily to serve the members of the cooperative organization.

In contrast to commercial finance and policy finance, cooperative finance reflects more on mutual assistance purposes and social benefits.

China's definition of cooperative finance mainly lies in the "Regulations on the Administration of Rural Credit Cooperatives", defining rural credit cooperatives as rural cooperative financial institutions established with the approval of the People's Bank of China, formed by members' shares, implementing democratic management by members, and mainly providing financial services to members [21].

The main characteristics of cooperative finance can be reflected in the following aspects:

**Low information costs:** in general, there is often serious information asymmetry between fund suppliers and demanders, making it difficult to reach transactions through direct financing and relying on the information collection and processing capabilities of financial intermediaries, thereby increasing the operating costs of relevant financial institutions. Cooperative finance, however, is different. Compared with traditional financial institutions, cooperative finance operates in a more closed community, where participants have closer connections, such as geographical or interpersonal relationships, significantly improving the situation of information asymmetry.

**Low management costs:** On the one hand, cooperative financial organizations have relatively simple organizational structures, coupled with the formation of a familiar society, resulting in lower internal communication and management costs. On the other hand, the purpose of cooperative organizations is to serve members, rather than the primary goal of profit for commercial institutions, hence lower expenditures on labor costs [17].

Low financial service supply costs: Taking financing interest rates as an example, rural cooperative finance has lower fund supply costs than other financial institutions, with smaller interest rate spreads, making it more suitable for serving vulnerable market groups.

Government support to a certain extent: although cooperative financial organizations themselves cannot obtain high profits, they have a significant role in increasing basic income for low-income individuals, improving production efficiency, and alleviating social conflicts. Therefore, they often receive support and preferential policies from the government.

Domestic and foreign experiences show that most participants in cooperative financial organizations are the weak in financial activities, unable to fully enjoy the services of commercial finance, while also having the demand for fund mobilization. Due to its lower operating costs than commercial finance and the advantage of accessibility of financial services, cooperative finance has become an important choice for these groups to engage in financial activities. The emergence and development of cooperative financial organizations are not necessarily limited to rural areas. As long as there are relatively weak groups and suitable environments, appropriate cooperative financial organizations will appear. Due to the relatively lagging development of rural finance in China, the demand of farmers for financial services has not been met. Therefore, cooperative financial organizations in China are more focused on setting up and operating in relatively backward and closed rural areas [23].

The improvement of rural financial service efficiency is a crucial part of China's rural financial development, which is directly related to the effectiveness of agricultural supply-side structural reform and whether China can achieve the national strategic goal of building a well-off society in an all-round way. In recent years, with the strong support of China's agricultural policy, China's "agriculture, rural areas and farmers" cause has made great progress, but at the same time, a series of new problems have emerged, among which the rural

financial problem is one of the key problems in the “agriculture, rural areas and farmers” cause, but also one of the weakest links in China’s financial system.

One of the root causes of rural financial problems lies in the unreasonable allocation of rural financial resources. As a result, China has embarked on a long-term rural financial reform. Since 2004, the central government has made the work of “agriculture, rural areas and farmers” the top priority of the national work for 14 consecutive years, fully demonstrating the great importance of the Party and the country to the development of “agriculture, rural areas and farmers”. In 2017, the Central No. 1 document was released on the basis of a profound analysis of China’s agricultural and rural development changes, pointing to the structural reform of the agricultural supply side to solve the problem, and actively exploring an effective path for financial services to serve the reform of the agricultural supply side [35].

Financial services are a key dimension of financial development. Improving the efficiency of rural financial services and achieving full coverage of rural financial services is an important policy goal of China’s current rural finance. As an important part of financial development level, financial efficiency has attracted the attention of many scholars at home and abroad. Western scholars have found that there is a problem of inefficient supply of rural finance in Central Asian countries, while the low efficiency of rural finance in Mexico is mainly due to the imperfect financial system. Through empirical analysis, Chinese scholars found that there is a positive correlation between rural financial efficiency and foreign trade of agricultural products. With the transformation of China’s agricultural production mode, the role of finance in promoting rural economy is becoming more and more obvious, and the difference of financial development level in different regions is gradually decreasing, and it begins to shift to balanced development.

In order to better determine the efficiency among decision-making units operating under the “multiple input, multiple output” mode, Charnes, Cooper, and Rhodes proposed the DEA (Data Envelopment Analysis) method in 1978. In 1993,

P. Andersen improved the CCRR model developed by Charnes, Cooper, and Rhodes, overcoming its limitation of comparing only single decision-making units. The improved model, known as the Super Efficiency DEA model, allows for effective comparison and ranking of decision-making units.

The mathematical form of the super-efficient DEA model is as follows [34]:

$$\left\{ \begin{array}{l} \min [\theta - \varepsilon(\sum_{i=1}^m s_i^- + \sum_{r=1}^s s_r^+)] \\ \text{s. t. } \sum_{j=1}^n X_{ij}\lambda_j + s_i^- \leq \theta X_0 \\ j \neq k \\ \sum_{j=1}^n Y_j \lambda_j - s_r^+ = Y_0 \\ \lambda_j \geq 0, j = 1, 2, \dots, n, s_i^- \geq 0, s_r^+ \geq 0 \end{array} \right. \quad (1.1)$$

The idea behind using the super-efficiency DEA model for research analysis is as follows: exclude the decision-making units (DMUs) to be evaluated. Compared to the traditional DEA model, for ineffective DMUs, their reference production frontier remains unchanged. Therefore, the efficiency values obtained by the super-efficiency DEA model are the same as those obtained by the traditional DEA model. However, for effective DMUs, their reference production frontier will move backward. As a result, the efficiency values obtained by the super-efficiency DEA model will be greater than those obtained by the traditional DEA model. In the traditional DEA model, the efficiency value of effective DMUs is 1, so in the super-efficiency DEA model, the efficiency value of effective DMUs will be greater than 1.

**Malmquist Index.** The Malmquist productivity index analysis is a dynamic analytical method that integrates the concept of distance functions and utilizes panel data to longitudinally compare the efficiency of rural financial services. This method facilitates the dynamic comparison and analysis of the total factor productivity index, which reflects the efficiency of rural financial services. Furthermore, it decomposes this index to analyze the underlying factors driving its changes.

Originally applied to analyze changes in consumption, the Malmquist productivity index was first proposed by Sten Malmquist in 1953. Subsequently, this concept was adopted by researchers like Fare for production analysis. In this analytical method, changes in productivity are attributed to two main factors: technological change, representing shifts in the production frontier; and technical efficiency change, indicating variations in the distance between the production frontier and actual output. Both technological change and technical efficiency change can be calculated using distance functions, allowing for the assessment of productivity changes over time from period  $t$  to  $t+1$  based on input-output relationships. Fare and others define the Malmquist index as [28]:

$$M_0(x_t, y_t, x_{t+1}, y_{t+1}) = \left[ \frac{D_0^{t+1}(x_{t+1}, y_{t+1})}{D_0^t(x_t, y_t)} \times \frac{D_0^t(x_{t+1}, y_{t+1})}{D_0^{t+1}(x_t, y_t)} \right]^{1/2} \quad (1.2)$$

The Malmquist productivity index can be decomposed into two main components: technical efficiency change and technological change. Technical efficiency change can further be divided into pure technical efficiency change and scale efficiency change. Therefore, the formula can be rewritten as follows [66]:

$$M_0(x_t, y_t, x_{t+1}, y_{t+1}) = \frac{S_0^t(x_t, y_t)}{S_0^t(x_{t+1}, y_{t+1})} \times \frac{D_0^t(x_{t+1}, y_{t+1})}{D_0^t(x_t, y_t)} \times \left[ \frac{D_0^t(x_{t+1}, y_{t+1})}{D_0^{t+1}(x_{t+1}, y_{t+1})} \times \frac{D_0^t(x_t, y_t)}{D_0^{t+1}(x_t, y_t)} \right]^{1/2} \quad (1.3)$$

The terms in the formula represent respectively the scale efficiency change, the pure technical efficiency change, and the technological change. The Malmquist productivity index can be expressed as the product of these three terms. The technical efficiency change index (EC) is a relative efficiency change index, mainly used to measure the degree to which each decision-making unit catches up with the production frontier between two adjacent periods. When  $EC > 1$ , the level of organizational management has improved; when  $EC < 1$ , the level

of organizational management has declined. The technological change index (TC) measures the degree of technological change between decision-making units in two adjacent periods, reflecting the progress or innovation in production technology. When  $TC > 1$ , the production frontier moves outward, indicating technological progress; when  $TC = 1$ , the production frontier remains unchanged, and thus there is no change in production technology; when  $TC < 1$ , the production frontier moves backward, indicating technological regression.

The principle of the window Malmquist index is similar to that of the smoothing index in statistics. Panel data is still selected for data analysis to improve accuracy. To increase the precision of the results, the number of decision-making units is increased. In the window Malmquist index analysis, different periods of the same decision-making unit within the window are considered as different decision-making units. While retaining the characteristics of traditional Malmquist index data analysis, it dynamically reflects the continuous changes in rural financial service inputs and outputs over different periods, thereby reflecting the dynamic changes in technical efficiency over time and effectively addressing the problem of biased technical efficiency [2]. The window Malmquist index can also reconcile the current Malmquist, serial Malmquist, and global Malmquist indices and use this to compensate for their respective shortcomings.

Exploratory Spatial Data Analysis (ESDA) method. ESDA, a fusion of graphical and statistical methods, serves as a robust tool to elucidate the spatial layout and interactions of rural financial service efficiency. It provides a dual-layered analytical approach. Firstly, it encompasses a global perspective, evaluating the overall spatial correlation and disparities of rural financial service efficiency using metrics such as Moran's I and Geary's C indices. Secondly, it delves into local spatial analysis, utilizing metrics like G statistics, Moran scatterplots, and LISA maps to gauge localized spatial patterns.

Through spatial autocorrelation analysis, we endeavor to unravel whether significant inter-provincial correlations exist in the efficiency of rural financial services across China's grain-producing regions. Specifically, Global Moran's I

serves as a cornerstone in describing the spatial correlation and discrepancies in rural financial service efficiency throughout these regions [69].

Moran's I index ranges from -1 to 1, with values closer to 1 indicating a stronger positive spatial auto-correlation, implying a significant positive correlation in rural financial service efficiency among neighboring provinces and a higher degree of spatial clustering. Conversely, values closer to -1 suggest a stronger negative spatial auto-correlation, indicating a significant negative correlation in rural financial service efficiency among neighboring provinces and a greater degree of spatial disparities.

### **Conclusions to section 1**

The results of a critical review of the theoretical and methodical foundations of management of socio-economic development of rural areas give grounds for drawing the following conclusions:

The issue of finding ways to develop rural areas in a sustainable and effective manner is quite relevant today. Ensuring the sustainability of rural development depends on the quality of the mechanisms for their regulation, which are primarily determined by the parameters of rural resource management. Last but not least, it depends on the ability to use the potential of business entities.

A sharp change in the priorities of the state's agricultural policy has a significant impact on rural development of the state's agricultural policy priorities has a significant impact on rural development. In particular, if at the beginning of the reforms it was about the benefits of specialized farming based on private land ownership, now it is about returning to state support for large agricultural producers.

In addition, the level of development of rural areas is affected by the unsatisfactory protection of private property rights, the delay in completing land reform, limited funding for social infrastructure facilities that were previously

on the balance sheet of agricultural enterprises, the lack of practical measures to create additional jobs and increase incomes in rural areas, the existence of price disparity, and the insufficient development of agricultural market infrastructure.

In the current conditions of reforming the Chinese economy, a significant role is given to improving financial and credit support and services for agricultural producers, including small agricultural enterprises. In this regard, attention should be paid to the formation of an effective system of rural credit cooperation, as a set of interacting cooperative structures that implement credit relations in order to meet the financial needs of small and medium-sized enterprises in rural areas.

The establishment and development of rural credit cooperatives should be viewed as comprehensive measures to form a functional system that will include close interrelationships between its components at all levels of the hierarchy. The most important argument in favor of developing a rural credit cooperative is that it will allow accumulating and concentrating financial resources of small businesses and the rural population without significant state financial support and directing their work to improve their economic activities. And a rural credit cooperative can become a full-fledged participant in the credit system with a set of characteristics unique to it.

## SECTION 2

### EVALUATION OF SOCIO-ECONOMIC DEVELOPMENT OF RURAL AREAS

#### 2.1 Analysis on efficiency of rural finance service in China

The data on the number of rural financial institutions and employees in these institutions from 2010 to 2015 in 13 provinces are sourced from the “China Regional Financial Operation Report” of the People’s Bank of China. The data on agricultural loans come from the Guotai An database. Per capita agricultural value added, per capita rural net income, and per capita rural consumption expenditure are sourced from the “China Statistical Yearbook”. The total rural fixed asset investment data are sourced from the “China Fixed Asset Investment Statistical Yearbook” (Table 2.1).

Based on the data in the table, let's analyze the situation from 2010 to 2015. Overall, the efficiency of rural financial services in the main grain-producing areas showed a steady upward trend during this period. Looking at the data from each province, it's evident that the efficiency values of most provinces are above 1, indicating relatively high efficiency in rural financial services in these regions. Particularly noteworthy is Jiangsu Province, where the efficiency value has consistently remained at a high level, reaching 2.860 in 2012, suggesting that Jiangsu Province’s performance in rural financial services is significantly better than other provinces [30].

However, there are also some provinces with relatively low efficiency in rural financial services, such as Shandong Province and Sichuan Province, where the efficiency values have been below 1 for most years. This could be attributed to factors such as the level of economic development and the development of financial infrastructure in these regions. Additionally, in some provinces, there was a decline in the efficiency of rural financial services from

2014 to 2015, which may have been influenced by macroeconomic conditions, policy adjustments, and other factors.

Table 2.1 – Efficiency of rural financial services in provinces in 2010–2015 [25, 49]

Province	2010	2011	2012	2013	2014	2015	Average
Anhui	1.121	1.093	1.130	1.040	1.010	1.050	1.147
Hebei	0.475	0.473	0.465	0.521	0.492	0.493	0.587
Henan	0.762	1.026	0.741	0.687	0.644	1.028	0.824
Heilongjiang	1.074	1.154	1.327	1.387	1.194	1.435	1.228
Hubei	1.412	1.356	1.345	1.347	1.492	1.642	1.333
Hunan	1.009	1.001	1.011	1.006	1.037	1.020	1.059
Jilin	0.932	1.089	0.805	1.045	0.686	1.265	1.015
Jiangsu	1.625	1.598	2.860	4.179	3.748	1.950	2.066
Jiangxi	0.727	0.713	2.002	1.143	0.752	0.578	0.858
Liaoning	1.154	1.040	0.778	1.000	1.060	1.000	0.995
Inner Mongolia	1.083	0.804	0.625	0.638	1.076	1.061	0.955
Shandong	0.670	0.574	0.551	0.592	1.005	0.544	0.731
Sichuan	0.652	0.633	0.578	1.004	1.044	0.494	0.784
Average	0.976	0.966	1.017	1.199	1.172	1.043	1.045

Based on the data and table provided, let's analyze the period from 2010 to 2015. From the perspective of individual provinces, the efficiency of rural financial services remained relatively stable during this period, fluctuating around the overall mean value. However, when comparing provinces horizontally, there are significant disparities in rural financial service levels among the 13 provinces in China's main grain-producing areas. Based on the classification of average values, these provinces can be divided into three categories: relatively high-

efficiency regions (such as Jiangsu, Anhui, Heilongjiang, Jilin, Hubei, and Hunan, with average values greater than 1); moderate-efficiency regions (such as Henan, Jiangxi, Liaoning, and Inner Mongolia, with average values ranging from 0.8 to 1.0); and relatively low-efficiency regions (such as Hebei, Shandong, and Sichuan, with average values ranging from 0.5 to 0.8). It is evident that there is a significant gap between provinces with high and low efficiency.

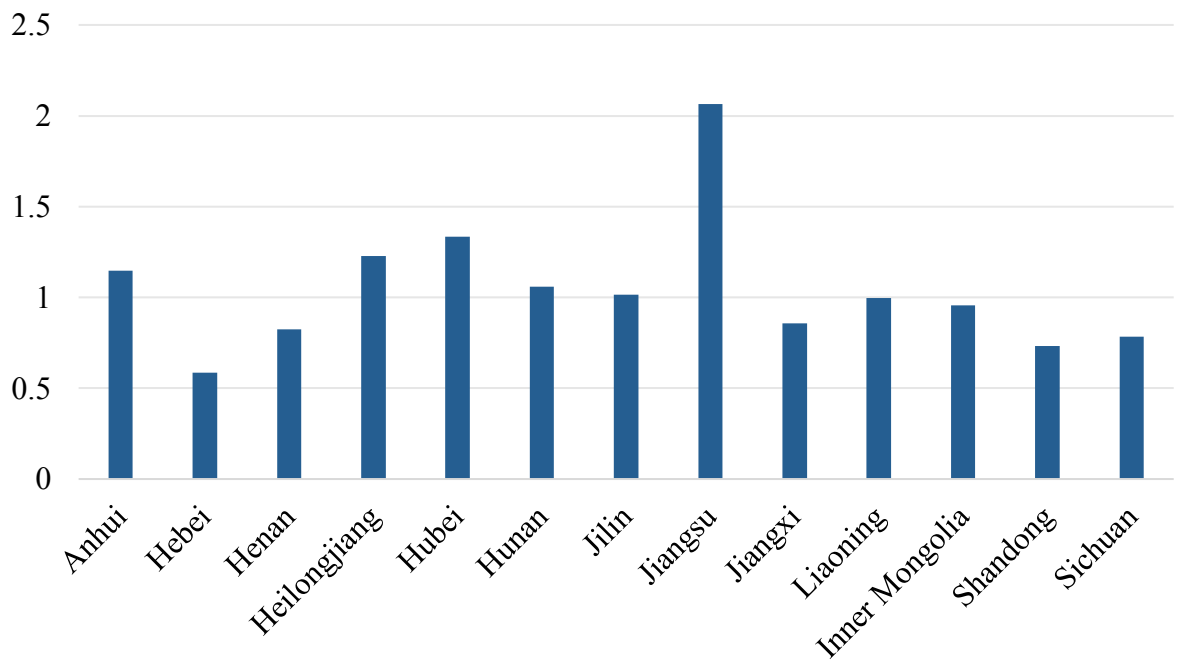


Figure 2.1 – Average efficiency of rural financial services from 2010 to 2015 (compiled by the author according to [47])

Jiangsu Province stands out as the most efficient province with a value of 2.066, far exceeding others, which aligns with Jiangsu's actual situation. This exceptional performance can be attributed to several factors. Firstly, Jiangsu's advantageous location in the eastern coastal area of China provides convenient transportation and geographical clustering. Secondly, the stable and efficient operation of its economy forms the basis for the high efficiency of rural financial services. There is a close relationship between economic operation and financial service development, with each complementing the other. Additionally, the development of science and technology plays a crucial role in enhancing rural

financial service efficiency. Technological advancements directly drive the development of financial service-related technologies such as computer technology, cloud services, and communication technology, leading to increased efficiency and reduced transaction costs. Jiangsu Province has relatively high levels of investment and achievements in scientific and technological research compared to other provinces, further contributing to its leading position in rural financial service efficiency among the 13 provinces in China's main grain-producing areas during the 2010–2015 period.

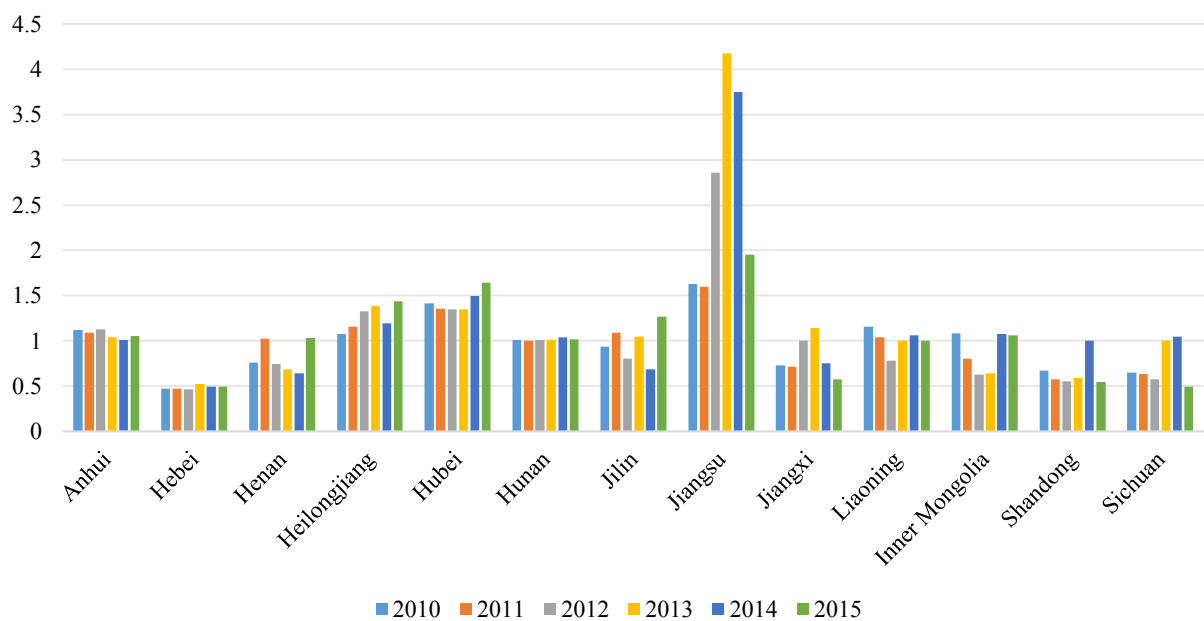


Figure 2.2 – Efficiency of rural financial services by province, 2010–2015 (compiled by the author according to [82])

Drawing from provincial panel data, an analysis of China's regions reveals the overall Malquist productivity index and its decomposition. Over the period from 2010 to 2015, the annual average growth rate of total factor productivity (TFP) in rural financial services within China's regions stood at 2%. Technical efficiency and technological progress contributed to this growth at rates of 4% and 1% respectively. Notably, the enhancement of technical efficiency emerges as the primary driver behind the improvement in TFP, while the impact of technological progress remains relatively subdued.

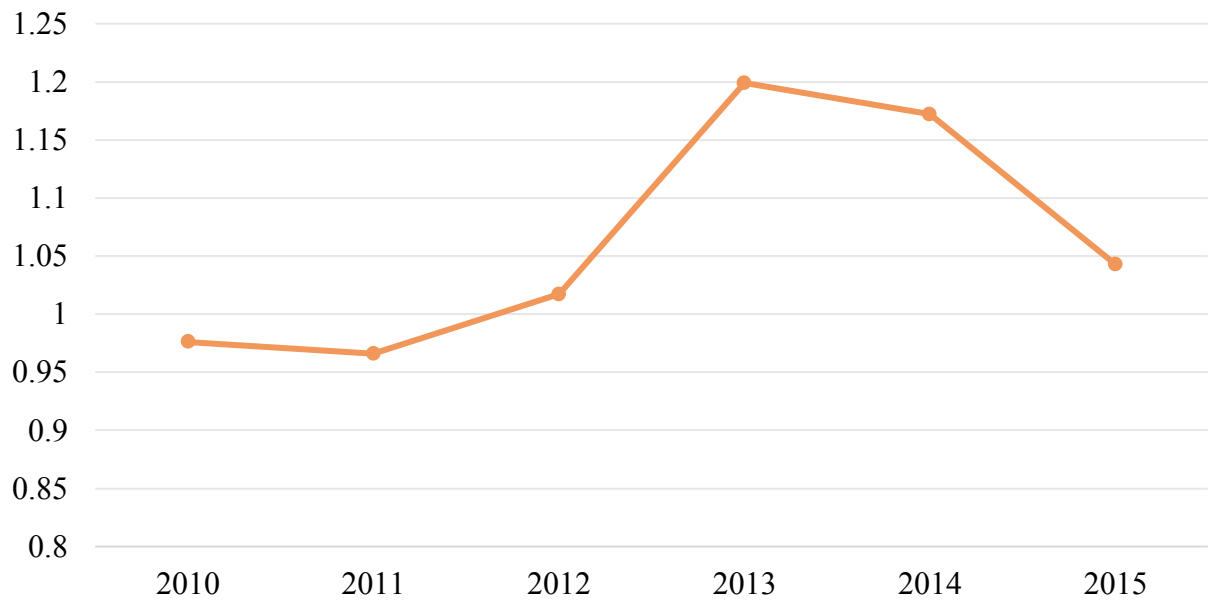


Figure 2.1 – Average service efficiency of rural finance in 2010–2015 (compiled by the author according to [55])

This underscores that China's regions lack a distinct advantage in terms of the technological, educational, intellectual, and informational resources pertinent to rural financial services. The pool of innovative resources appears comparatively less abundant, signaling a need for heightened efforts in fostering indigenous innovation. Simultaneously, the input-output structure of rural financial services within China's regions exhibits relative rationality, characterized by a higher efficiency in resource allocation (Table 2.2).

The overall total factor productivity (TFP) and its components for rural financial services in China's provinces and major agricultural regions, including the Northeast, the Huang-Huai-Hai, and the Yangtze River Basin, from 2010 to 2015, were analyzed. The variations in indices among regions demonstrate a significant disparity in rural financial services TFP across the country. The average growth rates of rural financial services TFP in these three major regions were as follows: 19.8% for the Northeast, 10.2% for the Huang-Huai-Hai region, and 8.2% for the Yangtze River Basin. The growth in rural financial services TFP in these regions was mainly driven by technological progress, with relatively low contributions from changes in technical efficiency. The relatively

high growth in TFP in the Northeast can be attributed to its widespread use of advanced technologies and large-scale production, which has stimulated the supply of financial services.

Table 2.2 – China’s main grain-producing areas overall Malmquist in 2010–2015 (compiled by the author according to [7])

Year	Total factor productivity MI	Technical efficiency EC	Technical progress TC
2010	1.08	0.89	1.25
2011	1.20	1.01	1.20
2012	1.22	1.08	1.15
2013	1.07	1.15	0.92
2014	1.10	1.07	1.03
2015	1.06	1.00	1.11

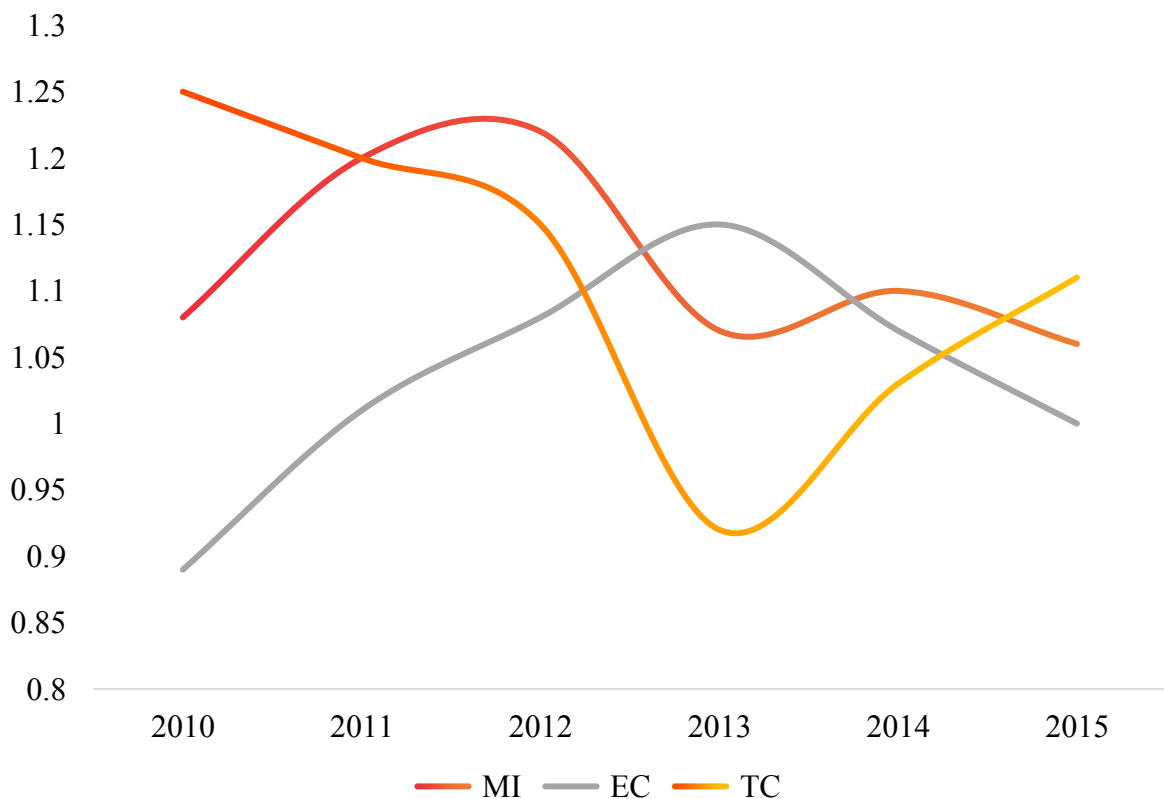


Figure 2.2 – Total factor productivity and its decomposition in areas of China during 2010–2015 (compiled by the author according to [7])

Table 2.3 – Malmquist productivity index and its decomposition of rural financial service efficiency in China (compiled by the author according to [44])

Region	MI	EC	TC
Anhui	0.931753	0.916982	1.026774
Hebei	0.988653	0.93384	1.133495
Henan	1.050146	1.035462	0.998255
Heilongjiang	1.162537	1.060002	1.105434
Hubei	1.135876	1.062407	1.070616
Hunan	1.059471	0.988474	1.073294
Jilin	1.245959	1.105939	1.235543
Jiangsu	1.377696	1.2078	1.193101
Jiangxi	1.010842	1.009804	1.016788
Liaoning	1.187875	1.016401	1.202429
Inner Mongolia	1.195677	1.038167	1.185715
Shandong	1.267734	1.146434	1.164746
Sichuan	0.973938	0.997889	0.987929
Northeast region	1.198012	1.055127	1.18228
Huang-Huai-Hai region	1.102178	1.038579	1.098832
Yangtze River region	1.081596	1.030559	1.061417

Based on panel data from 2005 to 2015 for the 13 provinces in China's main grain-producing regions, this study utilizes the Super Efficiency Data Envelopment Analysis (DEA) model, Window Malmquist Index, and Exploratory Spatial Data Analysis method to analyze the efficiency of rural financial services in China's grain-producing regions. The findings are as follows [11, 40]:

Overall, rural financial services in China's grain-producing regions were effective during the study period, with minimal fluctuations and generally stable development. There were some disparities in development among different regions, with higher efficiency observed in the Yangtze River Basin and Northeast China, while the efficiency was relatively lower in the Huang-Huai-Hai region. There were significant differences among provinces, with Jiangsu Province

ranking first due to its superior geographical location and relatively high level of financial development.

The total factor productivity of rural financial services in China's grain-producing regions showed a growing trend from 2010 to 2015. This growth was primarily driven by improvements in technical efficiency, with technological progress playing a certain role, albeit smaller than that of technical efficiency.

There exists a positive correlation among the efficiency of rural financial services in China's grain-producing regions. There is a certain degree of clustering among regions, although the degree of clustering is not high. The correlation is strengthening, but at the current stage, it is still not high. The spatial differences in the overall efficiency of rural financial services are gradually decreasing [64].

The emergence of rural credit cooperatives has multifaceted reasons. Overall, rural financial services in China maintained a relatively stable development during the study period, yet there were disparities among regions, with some areas experiencing relatively lower efficiency in rural financial services. These regional disparities and inefficiencies prompted reforms and improvements in the rural financial system.

The total factor productivity of rural financial services in China showed a growth trend during the study period, primarily due to improvements in technical efficiency, with technological progress also playing a certain role. This indicates that advancements in technology play a crucial role in enhancing efficiency in rural financial services. Credit cooperatives, as a new type of financial service institution, often introduce more advanced technologies and management models, thereby enhancing the efficiency of financial services.

According to the research findings, there exists a positive correlation among the efficiency of rural financial services in China, and there is a certain degree of clustering among regions. This implies that in some areas, rural financial services are more prominent, and these areas are often where rural credit cooperatives have rapidly developed and flourished.

Therefore, the emergence of rural credit cooperatives can be seen as a response to the insufficient efficiency of rural financial services and the imbalance in financial development among regions. They provide rural areas with more convenient, flexible, and tailored financial services, filling the gaps left by traditional financial institutions and promoting the development of rural economies and the financing needs of farmers.

In conclusion, the improvement in the efficiency of rural financial services in the main grain-producing areas is crucial for promoting rural economic development and increasing farmers' income. However, there are significant differences between provinces, which require further in-depth analysis to explore effective pathways to enhance rural financial services efficiency and better support the sustainable development of rural economies [45].

Enhancing rural financial services efficiency stands as a pivotal task in China's rural financial development, directly impacting the effectiveness of agricultural supply-side structural reforms and the realization of the national strategic goal of comprehensively building a moderately prosperous society. In recent years, alongside increased government support for agriculture in China, significant progress has been made in rural development. However, this progress has also brought forth several new challenges, with rural financial issues emerging as a particularly prominent aspect of the "three rural" issues and representing one of the weakest links in China's financial system.

One of the primary reasons for rural financial issues stems from improper allocation of rural financial resources. To address this, China has embarked on continuous rural financial reforms. Since 2004, the central government has consecutively designated the "three rural" issues as a key focus in its No. 1 policy document for 14 years, demonstrating the high level of attention given by the Party Central Committee and the State Council to rural development. During the "Two Sessions" in 2016, General Secretary Xi Jinping pointed out that, in the current new situation, the primary contradiction in China's agriculture has shifted from inadequate overall supply to a structural contradiction characterized

by simultaneous phases of oversupply and insufficient supply. The No. 1 policy document of 2017 was issued based on a profound analysis of the significant changes in China's agricultural and rural development, proposing solutions to agricultural supply-side structural reforms and actively exploring effective approaches to financial services for such reforms [39].

Ensuring national food security and stabilizing the supply of agricultural products have become top priorities for the government in recent years, with grain-producing areas being the key focus of national agricultural policies and support. In 2016, approximately 76% of the total grain output in China came from grain-producing areas. Food security not only supports rapid economic development but also serves as the cornerstone of social stability and harmony. To transition from being an agricultural power to an agricultural powerhouse, it is crucial to enhance the efficiency of rural financial services.

## **2.2 Diagnostics of the economic potential of the agricultural sector in rural areas**

The policies outlined in the documents “Opinions of the CPC Central Committee and the State Council on Further Strengthening Rural Work and Increasing Agricultural Comprehensive Production Capacity” and “Opinions of the CPC Central Committee and the State Council on Promoting the Construction of Socialistic New Countryside” propose encouraging the establishment of various types of community financial institutions and fostering small-loan organizations within counties. To address the issues of inadequate financial supply and insufficient competition in rural areas, the China Banking Regulatory Commission (CBRC) issued a series of documents around 2007, including the “Interim Provisions on Rural Credit Cooperatives”. Rural credit cooperatives primarily source funds from four main channels: member shares, internal deposits from members, social donations, and financing from

banking and financial institutions, with internal financing being the primary source. The specific details are as shown in the table below (Table 2.4).

Table 2.4 – Basic information of agricultural credit cooperatives (compiled by the author according to [16, 41])

Project		Agricultural cooperative credit society
Nature of Business		Community banking financial institutions
The requirements of establishment	Registered capital	Township (town) $\geq 300,000$ yuan; Village $\geq 100,000$ yuan
	The number of share holders	$\geq 10$ persons
	Shareholder's qualifications	Farmers and small rural businesses
	Equity structure	A single farmer or a single rural small business holding $\leq 10\%$
	Executives	The chairman and manager shall have a high school or secondary school education or above, and shall pass the corresponding qualification examination before taking the post
	Hardware facility	Business premises, security facilities and other business related facilities that meet the requirements
Capital source		Capital, membership deposits, social donations and integration into other banking financial institutions
Business scope	Line of business	Limited to members' deposits, loans, settlement and agency business; The remaining funds can be deposited in banks and purchased Treasury and financial bonds
	Loan requirement	Loan balance of the same borrower $\leq 15\%$ of net capital; The loan balance of the top ten households is less than 50% of the net capital
	loan interest rate	[0.9; 4]
	Else	No branch offices shall be established
Risk prevention	Capital adequacy ratio	capital adequacy ratio $\geq 8\%$
	Asset loss reserve ratio	Asset loss reserve ratio $\geq 100\%$
Institutional framework		Membership meeting, Council, Board of supervisors
supportive policy		At the end of the previous year, 2% of the loan balance will be provided to rural mutual funds that meet the conditions

Rural credit cooperatives adhere to the basic principles of community, mutual assistance, democracy, and mass participation. In the process of operation,

to prevent capital outflow, they generally limit their scope to members and adhere to the purpose of serving members and seeking common interests, thereby avoiding the one-sided pursuit of profit and commercialization. In terms of member management, they typically require voluntary admission, free withdrawal, democratic decision-making, one person one vote, and adhere to the principles of being run, managed, used, and benefiting the people, thus preventing the phenomenon of being run by officials. The establishment of rural credit cooperatives represents an institutional innovation in the development of rural finance in China. On the one hand, it formalizes some previously informal financial organizations, achieving standardized operation [77]. On the other hand, compared with other financial institutions, credit cooperatives also fully leverage advantages in terms of information and supervision costs. However, from the perspective of actual operation, rural credit cooperatives also reveal some bottlenecks and problems, such as limited capacity to absorb deposits, insufficient funding sources, weak profitability, small loan scale, and difficulty in meeting financing needs. Additionally, to control risks, credit cooperatives adopt regulatory policies similar to commercial banks, which to some extent restrict the role of cooperative finance.

During the business operation process, only members are allowed to invest, and non-members are strictly prohibited from investing. The expected annualized return on liquid shares is 0.42%, while for non-liquid shares including 3-month, 6-month, and 1-year periods, the expected annualized returns are 3.05%, 3.25%, and 6% respectively.

Regarding loans, the maximum lending amount cannot exceed 5% of the capital. Borrowers are required to use the loan for legal purposes, and the loan usage fee (interest rate) is set at 4 yuan/day/10,000 yuan, or the loan interest rate can be fixed at 12.3%. For student loans, the standard is one year's tuition, with an interest rate of 7%, and applicants must provide their ID cards and admission notices. Members can obtain interest-free loans of up to 50,000 yuan

within 7 days for temporary borrowing. Loan categories include planting, breeding, living expenses, student assistance, and member poverty alleviation loans [18].

In terms of operation and risk management, taking a cooperative in L county as an example, the borrowing limit for users is generally 20,000 yuan or less. Borrowers must present identification documents (ID card, household registration booklet, marriage certificate), and two guarantors (spouses) with the ability to repay are required to guarantee the loan. Borrowers and guarantors must come to the cooperative to discuss and sign the loan contract.

For risk control, the cooperative requires [27, 51]:

- Non-farmer members and social organizations may not borrow more than 80% of their total shares.
- Farmers' credit needs within their share amount are implemented under the credit system. Loans exceeding shares require guarantees from cooperative members. The maximum amount borrowed per household member shall not exceed 6 times their total shares.
- The loan amount for a single household shall not exceed 10% of the total shares.
- The loan amount for the top 10 households shall not exceed 60% of the total shares.
- Loans within three months shall not be less than 30% of the total share capital.
- The cooperative's shares are divided into qualification shares, investment shares, and liquid shares, with a national social public share. Qualification shares are 200 yuan per household for farmer members, and qualification shares for non-farmer members are 500 yuan.
- The investment shares of a single household shall not exceed 10% of the total share capital, and liquid shares shall not accrue dividends for less than one month.
- Implement a mechanism of self-responsibility, mutual responsibility, and joint responsibility, with 40% of the net risk capital guaranteed

by members. Loans are secured by 3-5 households in joint guarantee mode, with guarantors jointly liable for loan repayment.

Ruyang County is located in Luoyang City, Henan Province, located in the west of Henan Province, Funiu Mountain district, the upper reaches of the North Ruhe River, 74 kilometers away from Luoyang city. Ruyang County is famous for its long history and rich cultural heritage, especially for the birthplace of the famous Chinese historical wine – Dukang wine, known as the “hometown of wine ancestors”. As of October 2016, Ruyang County has jurisdiction over 8 towns, 5 townships, and a total of 216 administrative villages with a total area of 1,332 square kilometers (Fig. 2.4).

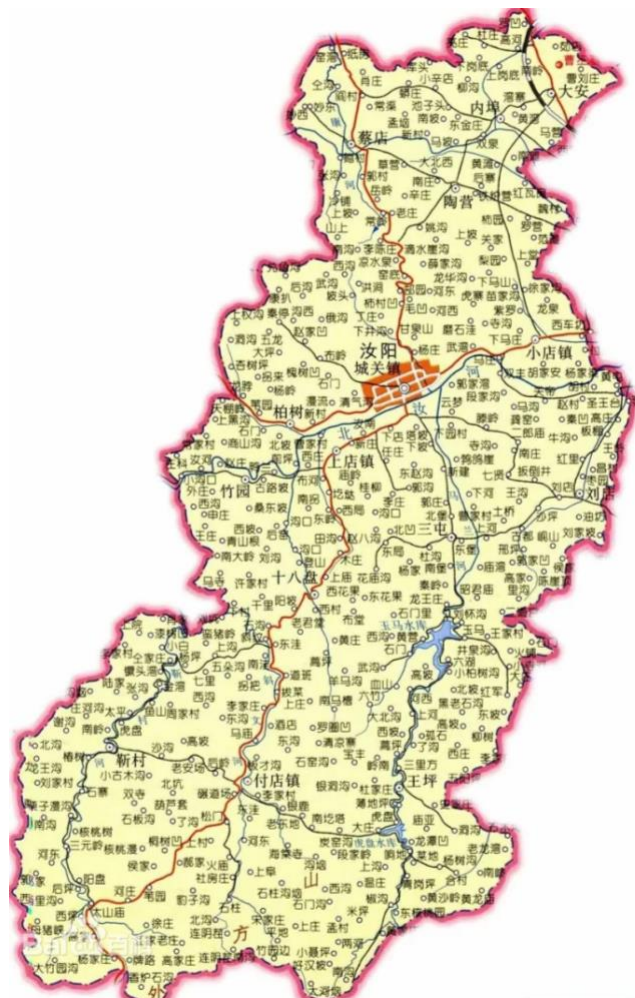


Figure 2.4 – Map of Ruyang County [20]

The main economic indicators of Ruyang County in 2016: per capita disposable income: In 2016, the per capita disposable income of urban and rural residents in Ruyang County was 14 287.8 yuan, an increase of 9.5% over the previous year. Among them, the per capita disposable income of urban residents was 32 295.7 yuan, up by 7.0 percent, while the per capita consumption expenditure of urban residents was 14 985.79 yuan, down by 10.44 percent. The per capita disposable income of rural residents was 14 287.8 yuan, an increase of 9.5%, while the per capita consumption expenditure of rural residents was 11 477.61 yuan, an increase of 15.88% (Fig. 2.5).

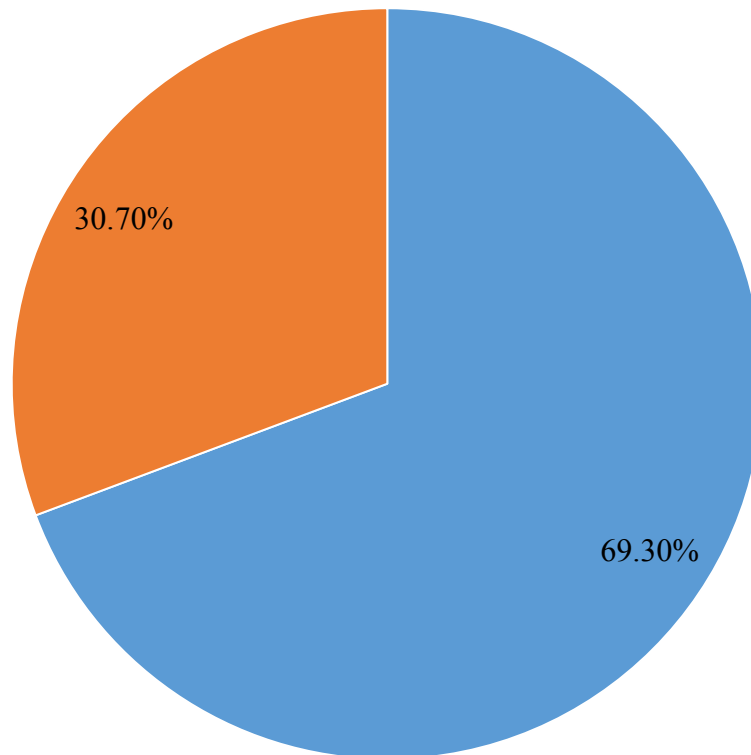


Figure 2.5 – Per capita disposable income of urban and rural residents [15]

General public budget: in 2016, the cumulative general public budget revenue of Ruyang County is 1 449.17 million yuan, an increase of 13.7%. Among them, the accumulated tax revenue was 1 005.12 million yuan, an increase of 6.1%, and the proportion of tax revenue reached 69.4%. Local general public

budget expenditure was 2 793.1 million yuan, down 25.9 percent, of which education expenditure was 603.6 million yuan, down 25.9 percent; Spending on social security and employment was 325.74 million yuan, down 21.2%. The expenditure on general public services was 314.45 million yuan, down 14.9 percent; the expenditure on health was 104.39 million yuan, down 76.3 percent (Fig. 2.6).

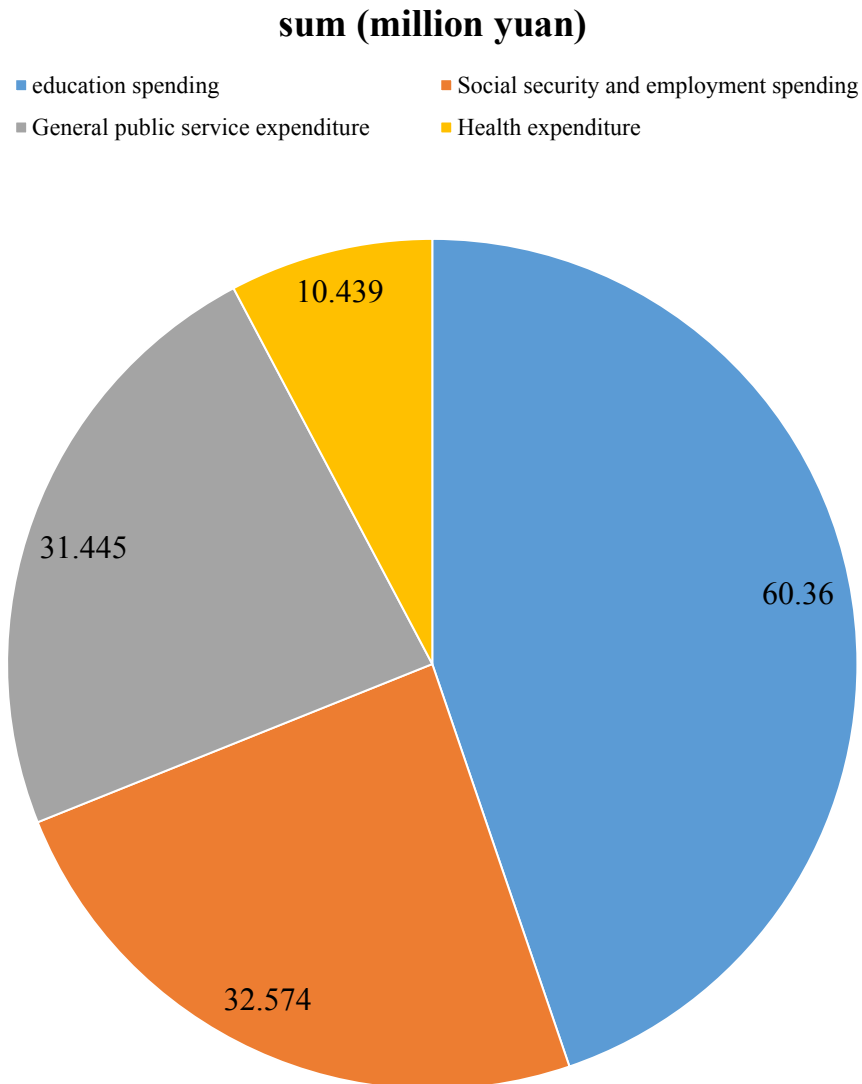


Figure 2.6 – The proportion of general public budget expenditure [37]

Deposits and loans of financial institutions: In 2016, the deposit balance of financial institutions in Ruyang County was 1682368 million yuan, an increase

of 7.02%, of which unit deposit was 2 247.94 million yuan, a decrease of 22.7%. The loan balance of financial institutions was 107.9514 million yuan, an increase of 18.19%, of which short-term loans were 466.625 million yuan, an increase of 1.49%, and medium and long-term loans were 581.825 million yuan, an increase of 41.88%.

Although Ruyang County has unique advantages in history, culture and geographical location, it lags behind in financial level. According to the data, the deposit balance of financial institutions in Ruyang County grew more slowly, and the unit deposit even declined. At the same time, although the balance of loans to financial institutions increased, the growth rate was relatively low, especially the growth of short-term loans was only 1.49 percent. This shows that Ruyang County has some challenges and problems in the financial field, and the level of financial services has not fully met the needs of local economic and social development [38].

The financial backwardness of Ruyang County may be affected by many factors. First of all, the geographical location is remote and the economic development is relatively lagging, resulting in relatively low financial demand. Secondly, there may be deficiencies in the services of financial institutions, and the degree of innovation of financial products and services is not high, which is difficult to meet the needs of the masses. In addition, there may be some problems such as inadequate financial supervision and risk control ability, resulting in certain constraints on financial institutions in terms of business expansion and risk control. Introduction of Ruyang County:

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Considering the low level of finance in Ruyang County, the establishment of rural credit cooperatives has become a crucial initiative, and its importance is self-evident. As a new form of financial organization, rural credit cooperatives show the characteristics of flexible and convenient service, which is in sharp contrast to the insufficient service and narrow coverage of traditional financial institutions in rural areas. Rural credit cooperatives can better meet the financial needs of rural residents and provide them with more convenient and flexible financial services. The introduction of this new form of financial organization will help fill the gap of rural financial services and provide feasible ways and effective solutions for Ruyang County to solve many problems in the financial field.

Rural Credit Cooperatives (RCCs), approved by the People's Bank of China, are rural cooperative financial institutions composed of members who invest in shares, practice democratic management, and primarily provide financial services to their members. RCCs are independent legal entities responsible for their entire assets and liabilities, enjoying civil rights under the law and protection of their property, legitimate interests, and lawful business activities by national

law. RCCs are divided into various departments such as cooperative societies, international financial departments, training schools, and credit departments. They are dual-led by the China Banking Regulatory Commission and the State Council.

Chinese Rural Credit Cooperatives are independent legal entities responsible for their entire assets and liabilities. Their main task is to mobilize idle rural funds and provide financial services for agricultural, rural, and economic development. In accordance with national laws and financial policies, they organize and regulate rural funds, support agricultural production and rural development, support various forms of cooperative economy and members' household economies, and limit and combat usury [63].

Under the dual leadership of the State Council and the China Banking Regulatory Commission, rural credit cooperatives mobilize idle funds in rural areas and invest in agricultural production and comprehensive development. Rural credit cooperatives are currently the most reliable, financing-capable, and localized financial service organizations in rural economic development.

The agricultural economy has always been a vital component of the national economy, directly impacting farmers' livelihoods and regional economic stability. Through data analysis and reasoned arguments, we delve into the rural economic foundations across different regions.

Primarily, by analyzing data from various regions, we uncover the existence of economically lagging areas. These areas exhibit weak rural economic bases, low farmer incomes, and inadequate financial services. Addressing these issues, the development of agricultural credit cooperatives emerges as a necessity [84].

Agricultural credit cooperatives serve as primary channels for rural financial services, facilitating small loans, providing financial management services, and supporting farmer cooperative organizations. Especially in underdeveloped regions, their development can alleviate farmers' financial constraints, promote rural industrial upgrading, and increase farmers' income.

Taking Ruyang County as an example, situated in central China, its rural economy revolves around agriculture and animal husbandry, with farmer incomes

primarily derived from agricultural production. The organizational structure of Ruyang County's rural credit cooperatives is relatively robust, typically comprising a board of directors, a supervisory board, and a financial oversight committee, with clearly defined responsibilities and standardized operations. Moreover, the asset structure of these cooperatives appears stable, primarily consisting of deposits, loan assets, and investment assets, maintaining a balanced balance sheet.

However, despite the relatively sound organizational and asset structures, shortcomings persist in financial risk management within Ruyang County's rural credit cooperatives. Firstly, as these cooperatives predominantly operate in rural areas with weaker market competition, there may be inadequate risk identification and a lack of sensitivity to external environmental changes. Secondly, due to lower management standards and risk awareness in some rural credit cooperatives, issues such as poor internal management and high loan risks may arise [72].

To address these issues, several strategies can enhance the financial risk management of rural credit cooperatives in Ruyang County. Firstly, fostering risk management awareness and enhancing staff capabilities in risk identification and assessment can establish a robust risk management framework and internal control mechanisms. Secondly, intensifying monitoring and research on external environments can enable timely adjustments to risk management strategies, mitigating adverse impacts from external environmental changes. Lastly, strengthening internal management, streamlining loan approval processes, and controlling loan risks are crucial to ensuring the financial stability and sustainable operation of rural credit cooperatives.

In conclusion, while agricultural credit cooperatives play pivotal roles in rural economic development, there is room for improvement in financial risk management. By heightening risk management awareness, refining risk management frameworks, intensifying environmental monitoring and research, and enhancing internal management, Ruyang County's rural credit cooperatives can

elevate their financial risk management standards, fostering stable rural economic development.

### **2.3 Influence of systemic factors on the development of rural areas**

In recent years, the Chinese government attaches great importance to the development of “agriculture, rural areas”, and the No. 1 document over the years has promoted the development of rural areas through policy-level guidance. In terms of income, the per capita income of rural residents in China reached 12 363 yuan in 2016, an increase of about 15% over the previous year, a growth rate far exceeding the growth rate of China’s GDP, and in recent years, it has always maintained a higher growth rate than the per capita disposable income of urban residents in China. In terms of consumption, under the influence of the current third consumption upgrade, the per capita consumption expenditure of rural residents has also grown rapidly, reaching 10,130 yuan in 2016 [79]. In terms of production and operation, with the promotion of land ownership confirmation and continuous promotion at the policy level, the scale of land transfer is increasing day by day, and large-scale operation has been greatly developed. As of June 2016, the total area of contracted cultivated land transfer in China has reached 460 million mu, more than 1/3 of the total area of contracted cultivated land. There are more than 2.7 million new business entities such as family farms, large growers, cooperatives and leading agricultural industrialization enterprises, and they have begun to occupy the core position of agricultural production to a certain extent.

However, there is still a large gap between the overall development of China’s rural areas and the requirements of agricultural modernization, which is the weak link in the process of further economic development of our country. Moreover, in the field of agriculture, rural finance, the problem of farmers’ “financing difficulties” has not been solved for many years. The scarcity of financial outlets made it difficult for rural residents to access financial products

and services. With the popularization of the Internet and the sinking of various financial institutions, there is even an oversupply of financial products and services in some rural areas, but it still cannot meet the financing needs of many farmers. The proportion of agricultural loans nationwide has always remained at a very low level, and the proportion of total loans has continued to decline. For example, in the middle and late 1990s, the reform of China's rural financial system advanced rapidly, and gradually established a rural formal financial organization system with agricultural Bank, Agricultural Development Bank and rural credit cooperatives as the axis. However, driven by commercialization, agricultural Bank is getting farther and farther away from agriculture and farmers [74].

The business diversification of agricultural development banks is seriously insufficient, and it is impossible to connect farmers and rural micro and small enterprises and provide credit services for them. There are many problems in the form of organization of rural credit cooperatives and the trend of transformation to joint-stock commercial banks is obvious this year. As a result, the real financial supply from formal financial institutions in rural areas is very limited, and farmers need to spend high capital cost and time cost to obtain this part of credit resources, and a large number of small capital needs can not be met. Due to the high risk of business in rural areas, small scale, lack of collateral, business personnel are mostly reluctant to go deep into the countryside to carry out business, and some banks even gradually eliminate rural outlets. With the popularization of the Internet and the emergence of related enterprises, new financial institutions represented by Internet financial platforms have more access to local areas and provide more flexible products. However, rural areas are different from cities and towns in that they are an "acquaintance society" with less binding rules and rule of law, and more rely on the moral constraints formed by the circle under the local differentiation pattern. The application effect of conventional risk control means is poor. To fully cut into the circle of local people requires the layout of offline service outlets and personnel, while rural production and

consumption data is insufficient, it is difficult to obtain, so enterprises need to deal with various pain points such as lack of credit, high operating costs [17].

Rural finance is the core of rural economy. At present, on the one hand, the financial demand in the process of agricultural production and development becomes strong. On the other hand, although various financial institutions pay more and more attention to rural finance, they cannot achieve ideal results in the process of carrying out rural business. Different from the above application mode of commercial finance in rural areas, part of the early pilot of cooperative finance in rural areas has achieved good results, good operation and sustainable development. This kind of cooperative and mutual finance has attracted the attention of the government and the market, and started a large number of pilots under the guidance of policies, and has developed rapidly. From a conceptual point of view, cooperative finance is organized and managed by groups in the same field, industry and belief within the region, and carries out mutual financial assistance for familiar people within the group, and carries out various intermediary businesses including payment and settlement, credit investigation, supply chain finance and other forms of mutual financial assistance [70, 81]. The cooperative system is the core of cooperative finance, which requires all participating members to make collective decisions to ensure that the goal of the organization is to maximize the welfare of the majority of members, rather than simply pursuing the maximum profit of the organization.

Compared with commercial institutions, rural cooperative financial organizations have a wider coverage and are elected and managed by villagers themselves to avoid the difficulty of sinking financial institutions. It can achieve poverty alleviation goals to a greater extent, take into account the financing needs of small and micro customers, and reduce management costs; Fully integrate into the rural acquaintance society, rely on the local people's extremely familiar and understanding of each other, greatly reduce the cost of risk control, supervision costs and post-loan tracking costs. At present, there are five main forms of rural cooperative finance in China. First, the pilot farmer cooperative finance approved

by the CBRC; Second, credit cooperation within farmers' (professional) cooperatives, which is also the most important form; Third, cooperative finance for the pilot supply and marketing system; Fourth, the poverty alleviation fund mutual aid society carried out by the poverty alleviation system; Fifth, various types of social organizations carried out the pilot financial cooperation between farmers and village communities.

Problems and advantages of rural credit cooperatives in financing [10, 77]:

Rural credit cooperatives face some problems in financing, but they also have certain advantages. First, problems include limited financing scope, inadequate financing publicity and bad debt losses. The limited financing scope means that the funds mainly come from the idle funds of the people, resulting in most of the funds can only serve the people, but can not meet the needs of rural development, resulting in more than 40% of farmers can not get loans. In addition, the poor publicity of the loan policy also leads to some people do not understand the loan policy, coupled with the limitation of educational level, many farmers think that credit cooperatives are only places to save and withdraw money, and do not realize that their main function is to finance and help the comprehensive development of rural areas.

Another problem is losses on bad loans, which are loans that cannot be recovered. Due to the weak economic capacity of farmers, when they suffer natural disasters or agricultural products are unsalable, the money invested in crops can not be collected, resulting in farmers unable to repay the loan, which affects the capital turnover of credit cooperatives, so that they can not continue to provide loans to farmers, even when there is money do not dare to lend to farmers.

However, rural credit cooperatives also have certain advantages. First of all, with the support of national policies, it is committed to promoting rural infrastructure construction, agricultural innovation and development and improving farmers' living standards, and has received corresponding policy support. Secondly, under the guidance of the national targeted poverty alleviation policy, rural credit cooperatives have reduced the obstacles to policy implementation,

provided policy support for poor farmers, and built a working mechanism for the mutual promotion of the government and banks. Third, after years of development, rural credit cooperatives have won the hearts of the people. Finally, its network layout in rural areas has a strong advantage, is currently the most important financial institutions in rural areas [55].

Stimulate the enthusiasm of agricultural production. The loan of rural credit cooperatives can stimulate the enthusiasm of farmers in production and promote the industrialization development of rural areas, which is an important achievement of rural credit cooperatives after financing and lending. Once farmers get loans, their inner joy and yearning for a better life will motivate them to work harder, greatly enhancing their personal initiative and production enthusiasm.

Promote the opening up of rural areas and narrow the gap between urban and rural areas. With the development trend of regional industrialization, the development of rural credit cooperatives will inevitably promote the opening up of rural areas. The rural farming industry provides meat for the cities, while the planting industry provides a variety of fruits and vegetables for the cities, and some deals have led to long-term partnerships through links with town supermarkets and other sellers. The development of rural industries has attracted a large number of investors, making cities take the initiative to connect with rural areas. Although rural areas are passively “opened up”, they are also actively opening up, which is conducive to the sustainable development of rural areas and is conducive to narrowing the gap between urban and rural areas [41].

Optimizing the rural capital structure is one of the important meanings of the financing function of rural credit cooperatives. Rural credit cooperatives raise people's spare money and make these spare money “generate money”, which has the following two functions. First of all, it can preserve and increase the value of people's funds. Secondly, it can optimize the rural capital structure, and farmers will invest or use idle funds for rural infrastructure construction to further promote the development of “agriculture, rural areas and farmers”. Rural credit cooperatives can be said to be the product of the self-development of “three rural

areas” to a certain extent. However, the development of rural credit cooperatives also faces some problems. For example, the proportion of rural credit cooperatives in non-agricultural fields is relatively high in some areas, reaching 40%. The advantages and disadvantages of this phenomenon on rural development need to be further studied.

The “bonding” function of credit unions. Rooted in rural areas, rural credit cooperatives occupy a vital position in the rural market. They primarily serve farmers and small and medium-sized enterprises by providing small loans and joint protection loans for households, with funding sources sourced from surrounding communities. Compared to other services, the deposit and loan market holds a larger share in the rural market, playing a crucial role in adjusting the funds of rural credit cooperatives and helping to alleviate rural financial crises while promoting economic development. Operating locally, rural credit cooperatives are familiar with local financial markets and various financial services. Through long-term business dealings with local farmers and enterprises, they have built strong cooperative relationships and gained support from local farmers and small and medium-sized enterprises. This close connection with farmers and their unique business model enables rural credit cooperatives to develop steadily and sustainably over the long term [27].

The protective function of credit cooperatives. In rural China, informal lending is a common phenomenon, with farmers often unaware of its harmful effects and considering it a primary solution to economic difficulties. However, high-interest lending practices are detrimental to social stability and the development of the country’s financial system. Rural credit cooperatives can play a role in curbing high-interest lending in some respects.

Farmers’ reluctance to address funding issues through rural credit cooperatives stems from two main reasons. Firstly, there is a lack of legal regulations and active promotion of financial services in China, leading to insufficient attention to small loans by institutions like rural credit cooperatives. Secondly, the interest rates on related loans are often too high for farmers to afford.

In case of unforeseen circumstances, farmers, who often lack other sources of income, may be unable to repay the loans. Consequently, rural credit cooperatives may require collateral or guarantors for loans, conditions that farmers usually cannot meet. As a result, farmers often turn to informal lending institutions rather than formal financial institutions like rural credit cooperatives and banks [6].

Rural credit cooperatives should make reasonable improvements. For instance, they could refrain from requiring collateral for loans within certain amounts and periods. By adopting management methods such as “one-time approval, on-demand borrowing, balance control, and revolving use”, with simplified procedures and preferential interest rates, rural credit cooperatives can to some extent curb the prevalence of high-interest lending in rural areas. However, there is still a lack of detailed policy supervision for small loans at the national level, and preferential small loan policies have not been implemented nationwide, indicating ongoing issues in the credit sector.

The stability function of credit cooperatives. Through their business operations, rural credit cooperatives inject funds into comprehensive rural development, effectively preventing capital outflow from rural areas and promoting the development of agriculture, rural areas, and farmers’ livelihoods. The primary service recipients of rural credit cooperatives are farmers, and safeguarding farmers’ livelihoods and investments is a requirement from the State Council and the China Banking Regulatory Commission. Data shows that over 60% of the funds of rural credit cooperatives are invested in “agriculture, rural areas, and farmers”, playing a promoting role in stabilizing agricultural development.

Supported by national policies, the stable development of agriculture and rural society is achieved, and rural credit cooperatives act as a stabilizer to some extent. Specifically, rural credit cooperatives support the development of rural industries, which helps address social and ethical issues such as left-behind children and elderly individuals. With access to loans from rural credit cooperatives, some farmers may choose to stay in their hometowns for development rather than migrating for work. This not only reduces the housing

and transportation pressures brought by rural migrant workers in cities but also allows them to conveniently care for their children attending local schools and elderly family members at home, thus alleviating social and ethical concerns [30].

Since the 18<sup>th</sup> National Congress of the Communist Party of China, the development of rural cooperative societies in our country has been rapid. These cooperatives are growing into important new entities in agricultural operations and are becoming a vital force in modern agricultural construction. By the end of July 2017, the number of specialized cooperatives registered with the industrial and commercial authorities reached 1.933 million, which is 74 times the number at the end of 2007, with an average annual growth rate of 60%. The number of households joining these cooperatives has exceeded 100 million, accounting for approximately 46.8% of the total number of rural households nationwide. Based on specialized cooperation, rural residents have explored various forms and models of cooperation, such as share cooperation, credit cooperation, and reassociation of cooperatives. However, there is currently no specific data available on the number of cooperatives engaged in mutual assistance with funds. According to estimates, there are approximately 190 000 cooperatives engaged in credit cooperation [68].

The methods of credit cooperation relying on rural specialized cooperatives can generally be divided into three categories: internal, external, and hybrid. Internal mutual assistance involves members borrowing and lending within the cooperative, mainly by absorbing member shares or dues to meet temporary fund needs within the cooperative. External mutual assistance involves members borrowing from formal financial institutions when funds within the cooperative are insufficient, with the cooperative providing guarantees. Hybrid cooperation is usually led by leading enterprises or large-scale agricultural households and involves credit cooperation based on the “company + cooperative + farmers” agricultural industry chain.

Compared with traditional financial institutions conducting financial business in rural areas, credit cooperation relying on rural specialized cooperatives

can also better integrate into and form rural acquaintance societies, reduce information asymmetry, and lower supervision and transaction costs. In addition, credit transactions are linked with processes such as agricultural production, processing, and sales, promoting the circulation of funds.

In recent years, the government has repeatedly guided and regulated the development and management of relevant organizations at the policy level. However, rural financial mutual aid organizations established by rural specialized cooperatives are numerous, with chaotic management and high potential risks. Supply and marketing cooperatives have established rural mutual aid societies, which have a large scale and operate relatively normatively. However, there are flaws in the system design, such as supply and marketing cooperative management personnel concurrently serving as chairpersons of mutual aid societies [20, 65].

The Executive Director of the organization is recruited externally and holds a bachelor's degree. They have been with the mutual aid cooperative since 2013, overseeing the management of the entire mutual aid business. Routine inspections are conducted weekly for the six institutions, and each institution provides monthly reports. Additionally, internal staff meetings are convened monthly, while field staff meetings are held every three months. Regarding staffing, each institution has two members of the management team (a president and a credit group leader), along with two internal staff responsible for data entry and financial management. The number of field staff varies based on the workload of each business department, typically ranging from 6 to 8 individuals. Currently, the organization has a total of 47 employees, including 6 in management positions and 41 credit officers.

The organization holds an annual general meeting to supplement and modify the business management outline, forming a comprehensive internal and external management system. In terms of informatization, the organization utilizes the "Rural Mutual Aid Society Management System" developed by Siping Huiyou Software Technology Co., Ltd. The system manages member shares and loan business, with the A Mutual Aid Society serving as the main system and

the remaining five mutual aid societies uploading their financial data daily. The branch system serves only as a data collector, and financial statements are generated by the main system. Additionally, internal staff maintain paper backups for record-keeping purposes [23].

In 2010, the Mutual Aid Fund Society (headquarters) in Ruyang County commenced preparatory work. By the end of 2010, the society had submitted relevant application materials to the Ruyang County Agricultural Bureau and obtained the “Approval for the Establishment of Ruyang County Mutual Aid Cooperative Society” issued by the Ruyang County Agricultural Bureau on December 28. Subsequently, the society immediately collaborated with the town government to submit a registration application to the Ruyang County Civil Affairs Bureau. On January 19, 2011, the society obtained the “Approval for the Establishment Registration of Ruyang County Mutual Aid Cooperative Society” issued by the Ruyang County Civil Affairs Bureau, officially obtaining the legal status of a corporate body. The superior supervisory unit of the society is the County Agricultural Bureau [59].

With the need for business development, the society subsequently established two mutual aid societies and three credit cooperatives. The first two mutual aid societies adopted the same method as the Ruyang County Mutual Aid Fund Society for civil affairs registration, becoming corporate entities. The latter three farmer credit cooperatives were registered as internal fund mutual aid pilot projects of the cooperatives, but all these institutions are supervised by the Ruyang County Agricultural Bureau. Currently, the society has a total of 47 employees and adopts a headquarters + branches management model. Although each branch is registered separately, they are centrally managed and coordinated by the headquarters (Fig. 2.7).

Based on the income and cost proportions, it is apparent that net interest income serves as the primary revenue source for Ruyang County Rural Credit Cooperative, with its proportion steadily increasing over time. This indicates a relatively singular income source, highly susceptible to interest rate fluctuations,

and thus, poses significant market risk. Additionally, the escalating trend in operating expenses relative to income reflects suboptimal cost control practices.

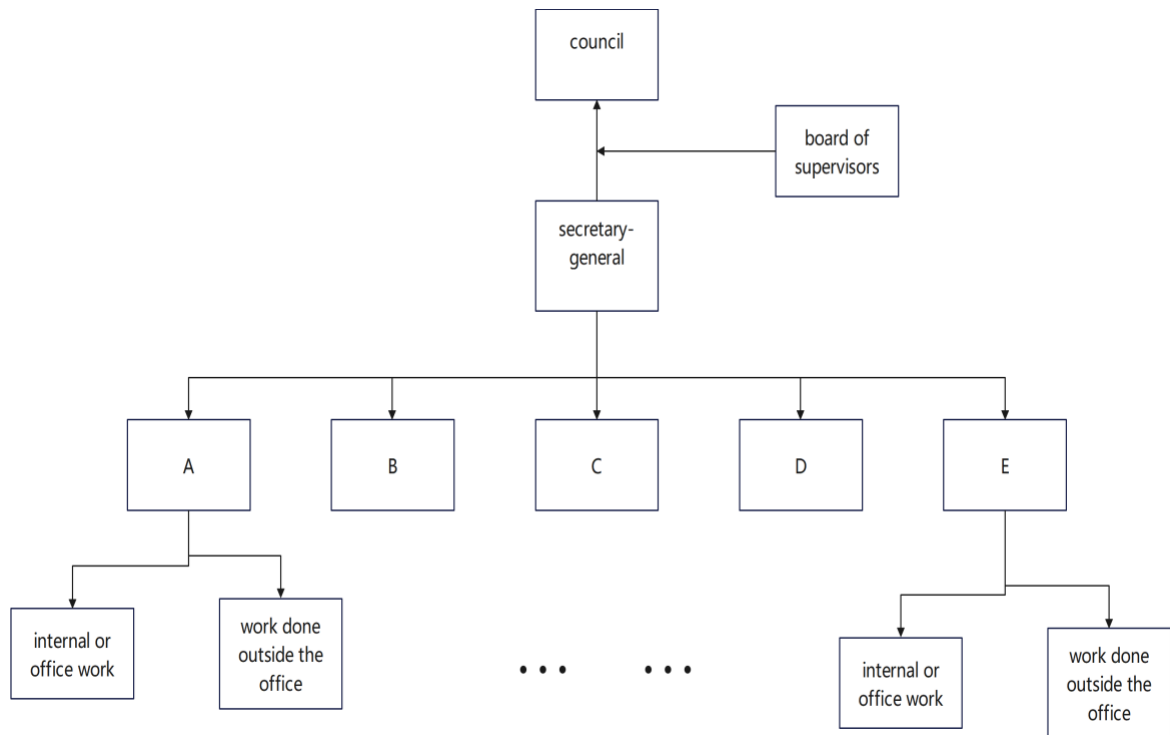


Figure 2.7 – Raying rural credit cooperative organization structure [2]

Table 2.5 – Rural credit cooperatives profit analysis ratio index (compiled by the author according to [33])

Project name	2015	2016	2017	2018	2019
Ratio of net interest income	69.57%	57.06%	59.54%	74.38%	75.65%
Ratio of net income from fees and commissions	-0.38%	3.59%	5.47%	0.62%	0.37%
Investment income ratio	30.81%	39.35%	34.95%	24.89%	23.80%
Cost-income ratio	51.97%	50.41%	34.01%	22.35%	36.70%
Operating profit margin	0.92%	0.74%	0.72%	0.53%	0.70%
Return rate of operating profit equity	13.51%	12.69%	10.97%	7.97%	10.89%
Net profit margin of assets	0.68%	0.56%	0.53%	0.38%	0.52%
Return of equity	10.08%	9.53%	8.06%	5.68%	8.17%

Project name	2015	2016	2017	2018	2019
Change trend of operating income	-	-10.50%	46.03%	24.73%	-13.27%
Trend of changes in operating expenses	-	-19.87%	61.71%	43.21%	-25.41%
Trend of net interest income change	-	-9.38%	52.39%	55.80%	-11.79%
Change trend of investment income	-	41.13%	29.70%	-11.16%	-17.07%
Business and management fee change trends	-	-7.18%	-1.49%	-18.01%	42.39%

Table 2.6 – Asset composition analysis (compiled by the author according to [33])

Property	2015	2016	2017	2018	2019
Deposit of the funds of the central bank	8.77%	8.13%	7.74%	9.38%	7.57%
Deposit inter-bank payments	1.64%	3.31%	15.08%	9.26%	9.19%
Current liabilities	20.79%	16.70%	16.07%	29.00%	37.23%
Financial assets of receivables	25.66%	27.22%	0.19%	0.00%	0.00%
Accounts receivable-other	1.01%	0.24%	0.23%	0.27%	3.19%
Discount	7.40%	8.41%	12.56%	1.96%	3.82%
Trading financial assets	0.00%	0.00%	9.54%	8.67%	4.00%
Financial assets available for sale	0.00%	0.00%	5.28%	0.00%	6.07%
Total current assets	65.27%	64.01%	66.69%	58.54%	71.07%
Medium and long term credit	20.53%	22.29%	23.01%	29.00%	22.44%
Overdue loan	1.33%	0.41%	0.63%	3.47%	2.07%
Hold-to-maturity investment	11.91%	12.52%	3.58%	3.04%	2.58%
Long-term equity investment	0.02%	0.02%	0.01%	0.01%	0.01%
Fixed assets, capital assets, permanent assets, capital assets, equipment	0.67%	0.51%	0.41%	0.34%	0.35%
Construction in process	0.07%	0.08%	0.07%	0.07%	0.09%

Property	2015	2016	2017	2018	2019
Immaterial assets	0.00%	0.00%	5.28%	5.22%	1.12%
Long-term amortized expenses	0.09%	0.06%	0.04%	0.03%	0.02%
Other assets	0.11%	0.10%	0.28%	0.28%	0.25%
Total long-term assets	34.73%	35.99%	33.31%	41.46%	28.93%

The table presents the proportions of each asset type relative to the total assets. Liquid assets remained around 65% from 2015 to 2017 but experienced a significant decrease in 2018, primarily due to substantial reductions in bills discounted and available-for-sale financial assets. In terms of asset operations, the proportion of short-term loans to total assets is relatively lower compared to long-term loans. However, starting from 2019, the proportion of short-term loans increased significantly, surpassing that of long-term loans. Compared to previous years, the proportions of short-term and long-term loans increased by 18.92% in 2018, mainly due to increases in short-term working capital loans and long-term project loans. Additionally, there was a notable increase in the proportion of overdue loans in 2018. Generally, an increase in the proportion of long-term loans may lead to increased credit risk for rural credit cooperatives, potentially resulting in an increase in non-performing loan balances and future non-performing loan ratios. Ruyang County Rural Credit Cooperative needs to take corresponding measures to prevent this. Liquid assets reflect the liquidity of unit assets, and efforts should be made to increase the proportion of long-term assets while ensuring the normal operation of the enterprise, thereby enhancing the yield of total assets (Table 2.7).

From the proportion of current deposits, it can be observed that Ruyang County Rural Credit Cooperative has a relatively small share of current deposits, indicating that a smaller portion of its deposits is available for immediate withdrawal. Despite continuous growth in deposit volume, this smaller proportion may affect the stability of its funding sources [28].

Table 2.7 – Asset flow ratio analysis (compiled by the author according to [44])

Index	2015	2016	2017	2018	2019
The proportion of current deposits	16.48%	16.56%	15.10%	15.18%	13.40%
Liquidity ratio	57.98%	57.00%	65.40%	60.48%	44.18%
Ratio of current assets to deposits	77.45%	78.25%	83.12%	65.39%	51.79%
The proportion of the current assets to the assets	65.27%	64.01%	66.69%	58.54%	41.07%
Reserve ratio	15.95%	10.77%	14.82%	20.28%	11.95%
Deposit and loan ratio	57.81%	57.94%	48.71%	70.74%	73.05%

Looking at the liquidity ratio, while the deposit volume has been increasing annually, the liquidity ratio has been declining. The ratios of liquid assets to deposits and liquid assets to total assets show similar trends to the liquidity ratio, indicating an increasing liquidity risk.

The reserve ratio is higher than regulatory standards but remains relatively low compared to surrounding rural commercial banks. The loan-to-deposit ratio measures the proportion of loans to deposits and is an indicator of the bank's liquidity risk. Loans, being less liquid assets, represent the primary use of funds for Ruyang County Rural Credit Cooperative. The loan-to-deposit ratio suggests that the loan portfolio has been expanding in recent years, nearing the threshold of 75% in 2019, consequently increasing the associated risks.

## **Conclusions to section 2**

Having conducted the evaluation of socio-economic development of rural areas, the following conclusions were drawn:

The primary function of rural credit cooperatives is to provide financial services and support the development of cooperative economies, addressing the issues of idle savings and lack of investment opportunities for the public while restricting usurious lending. They play a significant role in ensuring the economic

stability of rural areas. The fact that many farmers are willing to deposit their money in credit cooperatives demonstrates the trust these institutions have gained among rural communities.

Rural credit cooperatives play a crucial role in financing rural areas, fostering the orderly development of private lending. Rural infrastructure development, agricultural innovation, and improvements in the living standards of farmers are all reliant on the support of rural credit cooperatives, highlighting their vital position in rural development.

While rural credit cooperatives have strong financing and investment capabilities, many farmers still cannot access loans. Surveys show that the loan coverage rate in rural areas is only 59.4%, leaving a significant portion of farmers unable to secure loans. This is primarily due to information asymmetry between the credit cooperatives and farmers. Many farmers lack sufficient collateral when applying for loans and may also be unaware of national policies, leading to reluctance or hesitation in seeking loans.

Additionally, under the national targeted poverty alleviation policy, rural areas are witnessing a trend towards industrial development, with government support for the development of livestock farming and fruit tree planting. However, due to a lack of information resources, many agricultural products struggle to find buyers, resulting in limited sales. This, in turn, leads to business failures and accumulated debts for entrepreneurs, greatly dampening the enthusiasm of farmers for production.

Starting from analyzing the agricultural economic situation, this article employs data analysis and argumentation to examine the rural economic foundation in various regions. It underscores the necessity of developing agricultural credit cooperatives in economically underdeveloped agricultural areas. Using Ruyang County as a case study, the article analyzes the organizational and asset structures of rural credit cooperatives, assesses their financial risk management, identifies relative deficiencies, and proposes strategies to enhance financial risk management for agricultural credit cooperatives in Ruyang County.

## SECTION 3

### IMPROVING THE SYSTEM OF MANAGEMENT OF SOCIO-ECONOMIC DEVELOPMENT OF RURAL AREAS

#### **3.1 Improvement of rural management mechanisms in the context of the national economy**

With the continuous development of rural economy in China, the environment of rural financial market is also undergoing constant changes, presenting new opportunities and challenges for rural credit cooperatives. Rural credit cooperatives exert significant influence on the development of rural economy, and their own sound development can provide strong support for rural economy. Compared with other commercial banks, rural credit cooperatives lag behind in development, with numerous historical legacy issues. Through a series of institutional reforms, they have gradually grown and enhanced their level of financial risk management. The inherent nature of risks constrains the development of financial institutions, with financial risks being particularly important for managers' attention. The impact of financial risks is extensive and is also a key focus for regulatory authorities. Only by continuously enhancing the ability to manage financial risks can rural credit cooperatives guarantee their stable operation.

Rooted in rural areas, the Rural Credit Cooperative of Ruyang County witnesses the diversification of financial demands as rural economy evolves. Faced with increasingly fierce competition, the rural financial market attracts the attention of competitors. As a small to medium-sized financial institution in the county, it should always be vigilant, enhance its operational and risk control capabilities, reduce financial risks, improve overall competitiveness, complete institutional reforms as soon as possible, and transition from a rural credit cooperative to a rural commercial bank. Financial risk, as the primary aspect

of current risk management, directly influences the level of risk. Therefore, how to enhance the level of financial risk management is of paramount importance to the work of the Rural Credit Cooperative of Ruyang County (Fig. 3.1, 3.2).

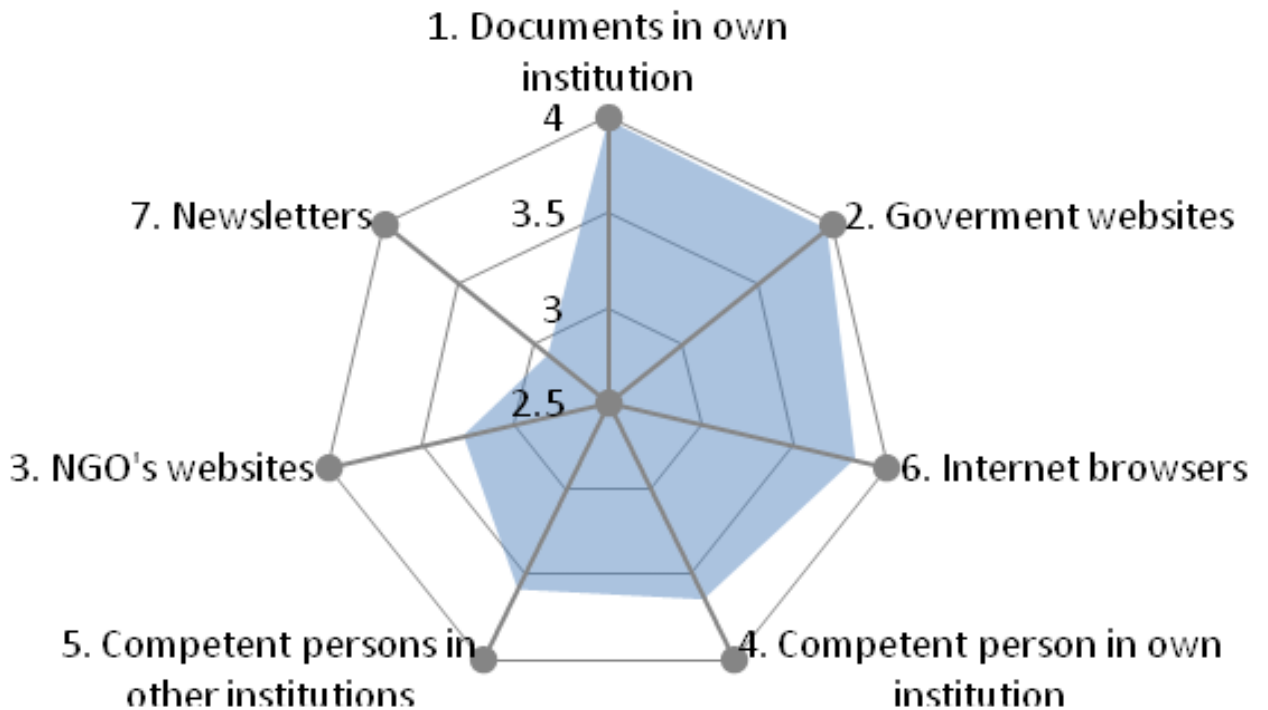


Figure 3.1 – Knowledge sources importance [58]

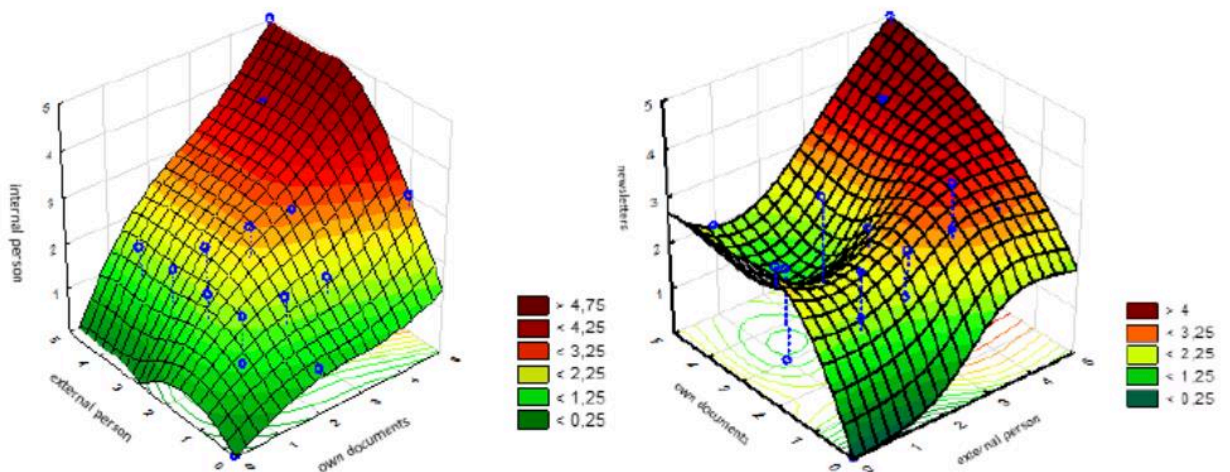


Figure 3.2 – Relations between knowledge sources [58]

Cooperative finance traces its roots to historical systems of societal cooperation and has evolved into rural cooperative finance in China since the early

20<sup>th</sup> century. This evolution was driven by the need to address financial challenges and poverty in rural areas. Cooperative finance is characterized by principles of cooperation, mutual assistance, and mutual benefit, emphasizing social responsibility and sustainable development. Rural credit cooperatives, as representatives of cooperative finance institutions, play multifaceted roles in rural economic development, providing financial services such as savings, loans, and payment settlements, while also undertaking social responsibilities to promote rural economic growth and improve the living standards of rural residents. Despite the advancements, challenges persist, including issues related to management and risk control. Efforts to optimize rural credit cooperatives involve strengthening regulation, improving internal management, and enhancing service levels to better fulfill their role in rural socioeconomic development [34].

The capital increase of Ruyang County Rural Credit Cooperative is also achieved through increasing retained earnings, thereby augmenting the net capital amount. Increasing retained earnings is another crucial means by which Ruyang County Rural Credit Cooperative enhances its capital adequacy ratio. Compared to other equity financing methods, relying on the increase in operating profits to augment retained earnings can lower financing costs, which in turn impacts the unit's profitability. Therefore, for Ruyang County Rural Credit Cooperative to improve its capital adequacy ratio, it should control risks while also focusing on the asset's profitability. Chapter Three reveals, through an analysis of recent years' profitability levels, that Ruyang County Rural Credit Cooperative still lags behind other rural commercial banks or rural credit cooperatives in terms of profitability. The insufficient profitability cannot support rapid growth in retained capital, which is another factor contributing to the relatively low capital adequacy (Fig. 3.3).

In Ruyang County, the rural credit cooperative predominantly relies on income derived from the interest rate spread. With the financial landscape growing increasingly complex and competition within the industry intensifying, depending solely on this singular income stream presents challenges in sustaining long-term profit growth. Therefore, diversifying income sources becomes

imperative to mitigate associated risks. Pursuing innovative intermediary business ventures and expanding profit avenues represent the strategic approach for Ruyang County Rural Credit Cooperative to ensure continuous profit augmentation.

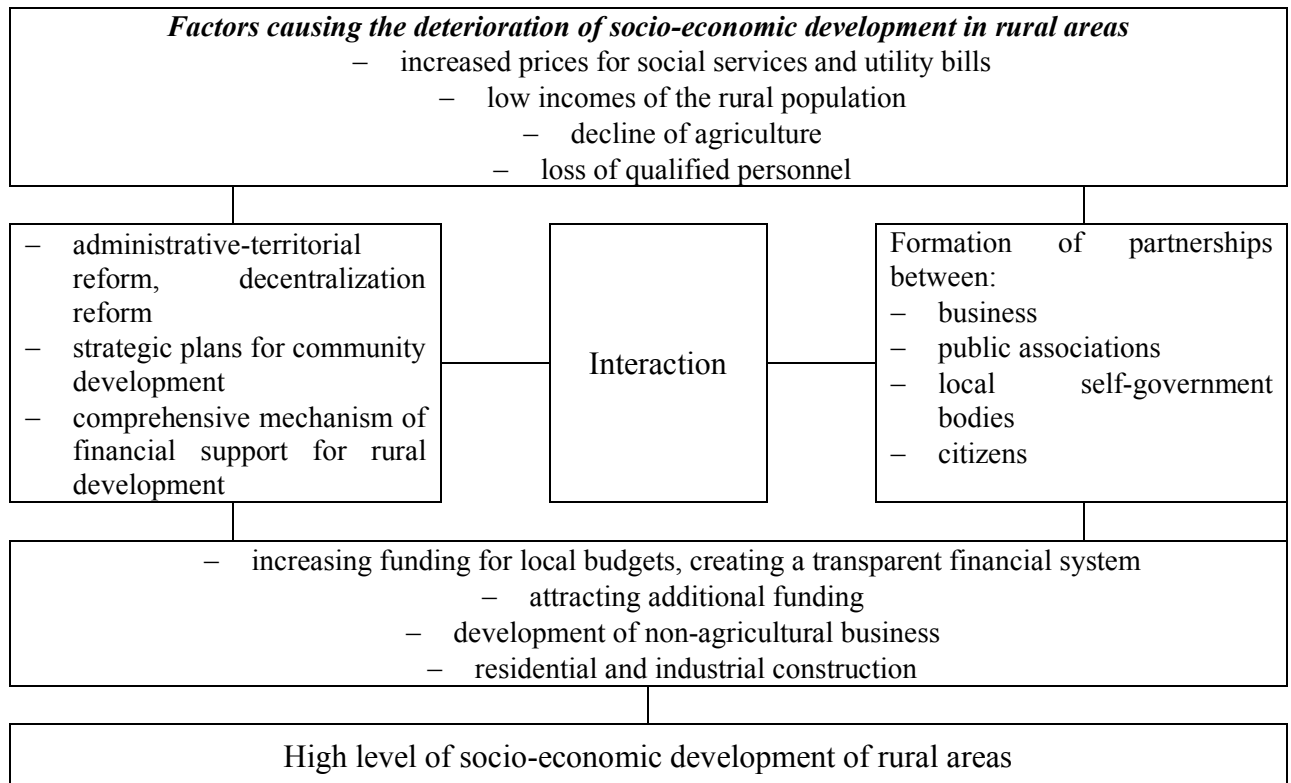


Figure 3.3 – Partnership module for socio-economic development of rural areas (compiled by the author according to [40, 67])

With net interest income accounting for over 70%, it indicates that the main source of income for Ruyang County Rural Credit Cooperative primarily relies on interest rate spread revenue from deposit and loan activities. In the increasingly complex financial environment and amid escalating competition among peers, relying solely on this single income stream makes it challenging to achieve long-term sustainable profit growth. Diversifying income sources becomes essential to mitigate risks. Pursuing innovative intermediary business ventures and expanding profit sources is the strategic direction for Ruyang County Rural Credit Cooperative to ensure continuous profit augmentation.

The analysis of liquidity ratio indicators reveals that in Ruyang County, the liquidity metrics of the Rural Credit Cooperative comply

with the corresponding regulatory standards set by the government. However, there has been a declining trend in liquidity levels in recent years. As a grassroots financial institution serving predominantly rural areas, the liabilities of Ruyang County Rural Credit Cooperative primarily consist of savings deposits, with a significant portion being time deposits. Consequently, the ratio of liquid liabilities is relatively low (Fig. 3.4).

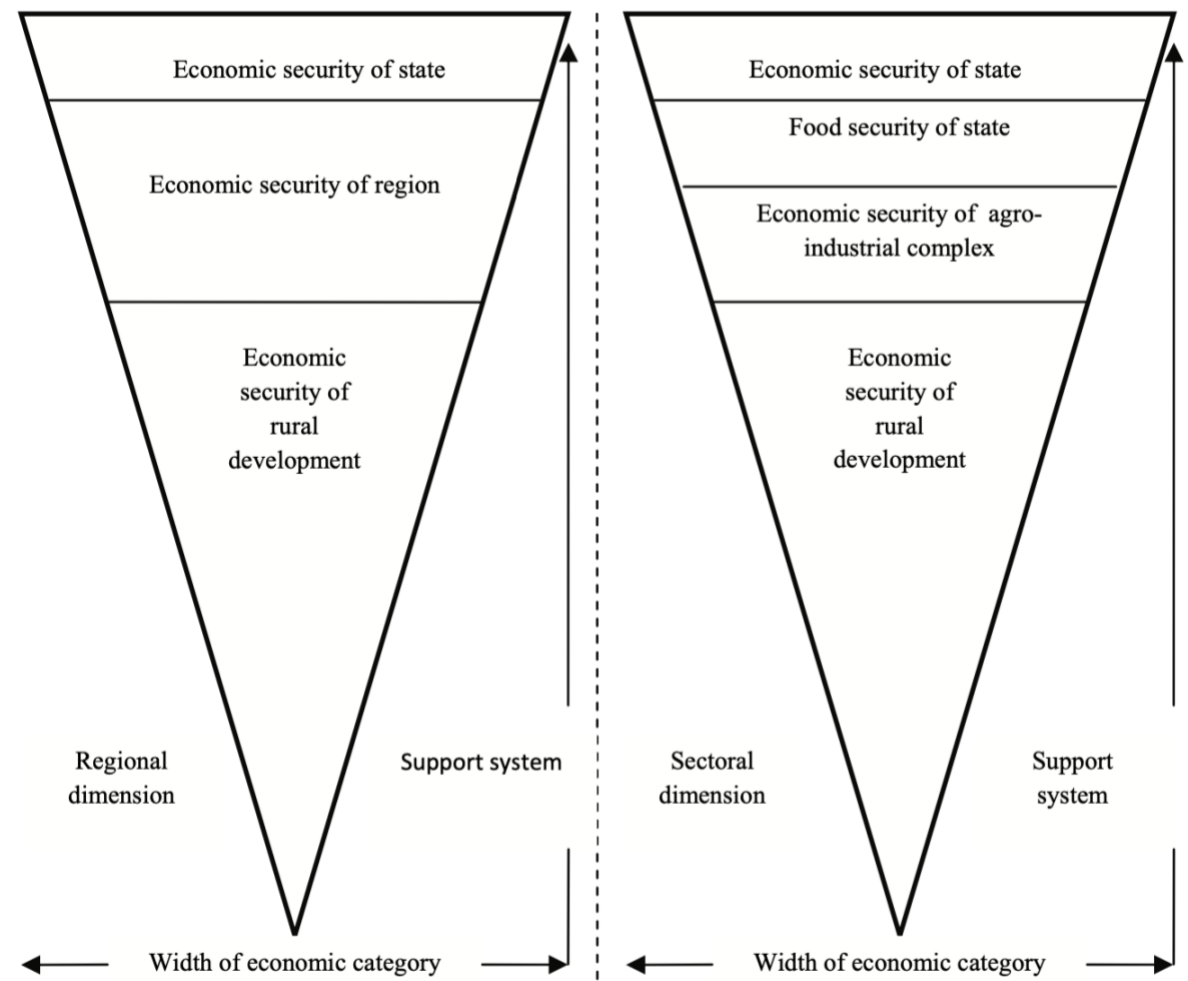


Figure 3.4 – Regional and sectoral dimension of the interdependence of economic security of rural area development and the levels of state economic security [22, 56]

The decrease in liquidity risk primarily stems from the need for Ruyang County Rural Credit Cooperative to strengthen its control over liquid assets.

Failure to do so could lead to a continuous decline in liquidity ratios, posing financial risks for the institution.

Enhance the profitability of the bank's comprehensive business. For Ruyang County Rural Credit Cooperative, the primary source of income, similar to commercial banks, stems from earning interest rate spreads through loan issuance. Strengthening core business capabilities is paramount for enhancing profitability. The cooperative should fully utilize management accounting systems to identify high-profit products. Considering the deposit structure, appropriate incentive policies can be offered for products with significant interest rate spreads. For products with narrower spreads, profitability can be increased by expanding the scale. Furthermore, improving the quality of credit assets, enhancing the disposal of non-performing assets, and optimizing liquidity levels are all interrelated and mutually reinforcing. Balancing liquidity, security, and profitability is crucial. Enhancing operational efficiency, reducing losses during operations, ultimately boosts the cooperative's profitability [32].

Additionally, apart from focusing on profit generation through interest rate spreads on deposits and loans, Ruyang County Rural Credit Cooperative should pay attention to revenue generated from intermediary businesses. Analysis of income sources reveals that intermediary business revenue constitutes a small proportion, indicating significant growth potential. In domestic commercial banks, intermediary business revenue typically accounts for 10%–20% of total operating income, much lower than in Western developed countries where it can reach up to 32%. This gap is even wider for smaller banks with weaker competitiveness. Ruyang County Rural Credit Cooperative can consider seizing new business markets through financial service innovation, diversifying income channels, providing more quality services, and tailoring financial services to specific target customer groups. Additionally, enhancing technological innovation capabilities, refining existing electronic banking information systems, incorporating more value-added services into the system, and increasing the utilization rate

of customer electronic banking through rational means are effective approaches to proportionately increase intermediary business income (Fig. 3.5).

Development Objectives	Mid-term Objectives
<b>1. Improvement of Economic Capabilities</b> ① Average annual income ② Employment rate	<b>1-1 Agricultural Income Improvement</b> ① Average annual agricultural income ② Income growth rate (indicator of average growth conditions)
	<b>1-2 Non-agricultural Income Improvement</b> ① Average annual non-agricultural income ② Income growth rate (indicator of average growth conditions) ③ Employment conditions in non-agricultural industries ④ Number of people engaged in non-agricultural industries
	<b>1-3 Capacity Building for Fostering Industries</b>
	<b>1-4 Development of Infrastructure</b>
<b>2. Improvement of Human Capabilities</b>	<b>2-1 General Health Improvement</b> ① Infant mortality rate ② Average life expectancy ③ Average morbidity rate
	<b>2-2 Improvement of Educational Standards</b> ① Literacy rates ② School attendance rate ③ Advance rate to lower secondary education ④ Advance rate to upper secondary education
<b>3. Improvement of Protective Capabilities</b>	<b>3-1 Conservation of Natural Environment</b> ① Cultivable land area ② Forest area and trees planted ③ Water quality ④ Amount of marine resources
	<b>3-2 Measures Against Natural Disasters</b> ① Number of deaths per disaster ② Number of floods ③ Number of droughts
	<b>3-3 Improvement of Administrative Capabilities for Environment</b>
<b>4. Improvement of Political Capabilities</b>	<b>4-1 Improvement of Central Administrative Capabilities for Decentralization</b>
	<b>4-2 Strengthening of Local Administrative Capabilities for Decentralization</b>

Figure 3.5 – Development objectives chart on rural development (compiled by the author according to [19, 80])

Increase capital inflow. Analyzing the capital sources of Ruyang County Rural Credit Cooperative, capital increase primarily relies on the increase in investor's equity or the retention of earnings to enhance core capital. Strengthening the profitability of Ruyang County Rural Credit Cooperative and increasing profit growth rate can effectively alleviate the risks associated with low

capital adequacy ratio. This method of increasing capital adequacy through internal financing can save financing costs, and it is more proactive and sustainable, maintaining a self-sufficient and sustainable development cycle for the bank. Increasing capital inflow can also explore other capital financing methods, such as utilizing hybrid capital bonds to strengthen subordinate capital, thus expanding capital inflow channels.

Liquidity risk management countermeasures and suggestions. Optimizing liquidity risk management is closely related to asset-liability management (ALM), employing a comprehensive risk management approach that considers credit risk, liquidity risk, market risk, and operational risk. To mitigate liquidity risk, it's essential to improve asset management practices through synchronized asset-liability management to address mismatches in maturity between assets and liabilities. This involves forecasting liquidity needs and establishing a robust liquidity risk warning system [63].

Thus, the main constraints and problems that need to be addressed for the successful development of agrarian cooperation in China are as follows:

- low level of motivation of private farms to unite into cooperatives and insufficient awareness of the advantages and opportunities of the cooperative business model;
- insufficient level of state support for the development of agricultural service cooperatives, which is characterized by a complicated procedure, inaccessibility of credit, distrust of the cooperative movement participants in the cooperative movement to government assistance programs;
- low level of development of the material and technical base of cooperatives, especially in terms of providing modern expensive machinery, failure to use the opportunities and advantages of joint operation of agricultural machinery and equipment;
- insufficient qualifications and experience of the management staff of agricultural cooperatives in the areas of management, marketing,

taxation, strategic development, low level of involvement of Chinese society leaders in the processes of bringing people together and developing the cooperative idea in the agricultural sector.

### **3.2 Development of innovative approaches to the management of socio-economic development of rural areas**

Formation and implementation of the policy of sustainable development of rural areas is determined by its legislative support. However, at the legislative level, there is no clear definition of the powers of some state and regional executive bodies in the field of rural development; the standards for providing the rural population with social services have not been approved by law at the state level; the legal conditions for budgeting for rural development, access of the rural population to land, material and technical, credit and information resources need to be improved; there is no regular state statistical monitoring of rural development.

The issue of rural development in China is now extremely important and requires innovative solutions. The importance of this issue is further enhanced by the fact that rural areas occupy about 90% of the area of our country, and about a third of the total population of China lives there [5].

China's transition to a new worldview paradigm of sustainable development of territories provides a balanced solution to socio-economic tasks and problems regarding the preservation of a favorable environment and environmental potential in order to meet the needs of current and future generations of people [6].

These development priorities were defined by the Concept of Sustainable Human Settlements Development (1999) [1], and the rules and provisions of this Concept were further clarified and improved in the Concept of Rural Development (2015) [2] and the China 2030 Sustainable Development Strategy (2018) [3] (Fig. 3.6).

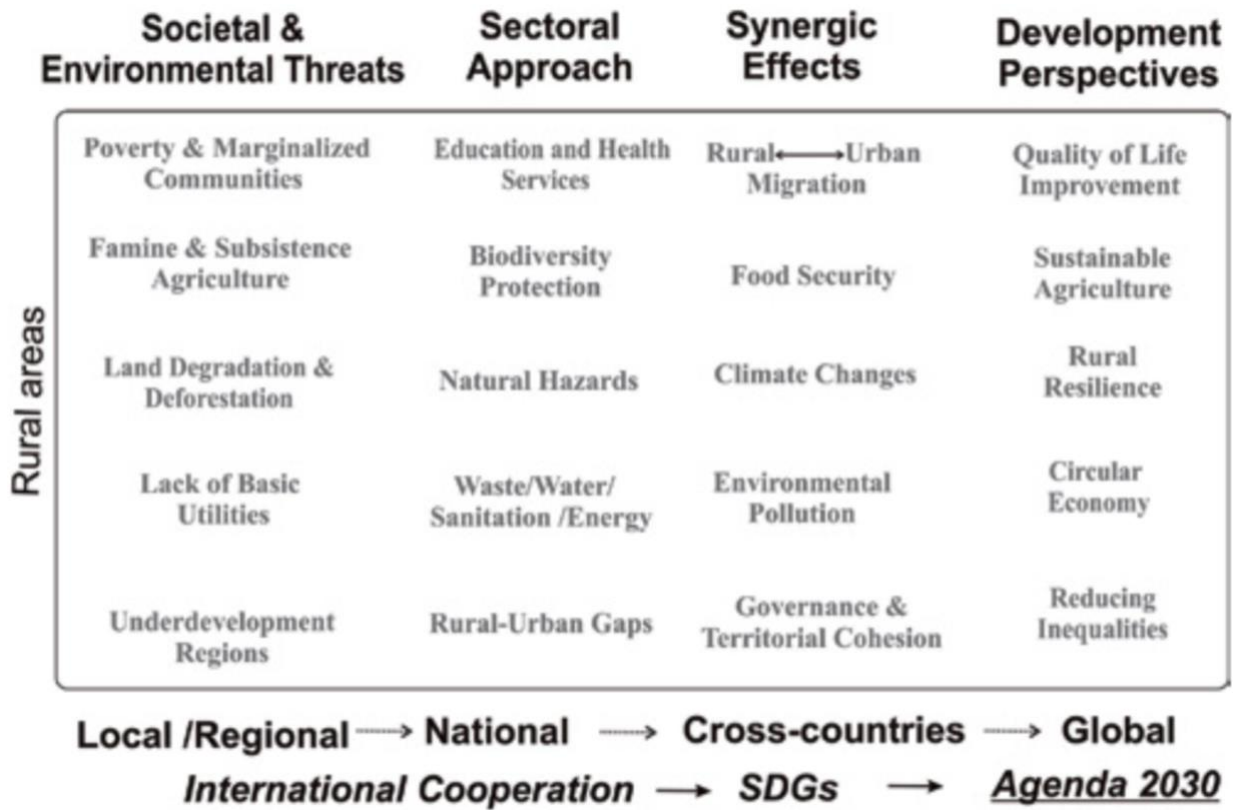


Figure 3.6 – Challenges of rural communities under agenda 2030 framework [36]

Increasing the socio-economic potential of rural areas, making this process sustainable and irreversible is a strategic task of state policy and is enshrined in the Law on State Support for Agriculture in China [4]. This law included sustainable rural development in the state agricultural policy. Currently, the Ministry of Agricultural Policy and Food of China is responsible for rural development.

National sustainable development goals are based on political, economic, social, environmental, moral and cultural values inherent in Chinese society. They determine the focus of the strategy on caring for the common good and protecting China's national interests [7, p. 38]. The transition to sustainable development is a process of changing the value orientations of many people [10, p. 147]. The internationally recognized fundamental values of development are freedom, equality, solidarity, tolerance, respect for nature, and shared responsibility [9,

p. 22]. Transitioning rural areas to a model of sustainable development should be considered a priority in the development of our country [8, p. 34]. It is worth noting that sustainable development of rural areas is of a socio-economic nature that does not destroy its natural basis and ensures the continuous progress of society.

Territorial development based on the principle of the 2015 Rural Development Concept is a political and practical model of development in all countries of the world that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. This model is focused on achieving an optimal balance between the three pillars of development – economic, social and environmental.

It is worth noting that the adoption of the Concept of Sustainable Rural Development completed the process of forming the regulatory framework for rural development policy in China. The key goals and objectives of the Concept of Sustainable Rural Development are shown in Table 3.1.

Table 3.1 – Key goals and objectives of the concept of sustainable rural development [62]

Goals	Objectives
Creating comfortable living conditions in rural areas	To meet the housing needs of the rural population, including young families and young professionals
Stimulating investment activity in the agricultural sector by creating favorable infrastructure conditions	Increasing the level of comprehensive provision of rural settlements with social and engineering infrastructure facilities
Promoting the technologization of jobs in rural areas	Concentration of resources directed to the comprehensive arrangement of rural settlements where investment projects in the agricultural sector are implemented
Increasing the participation of the rural population in solving local issues	Grant support for local initiatives of citizens living in rural areas
Formation of a positive attitude to the rural way of life	Encouragement and popularization of achievements in rural development

The following measures are envisaged within the framework of the Concept Program implementation (Fig. 3.7).

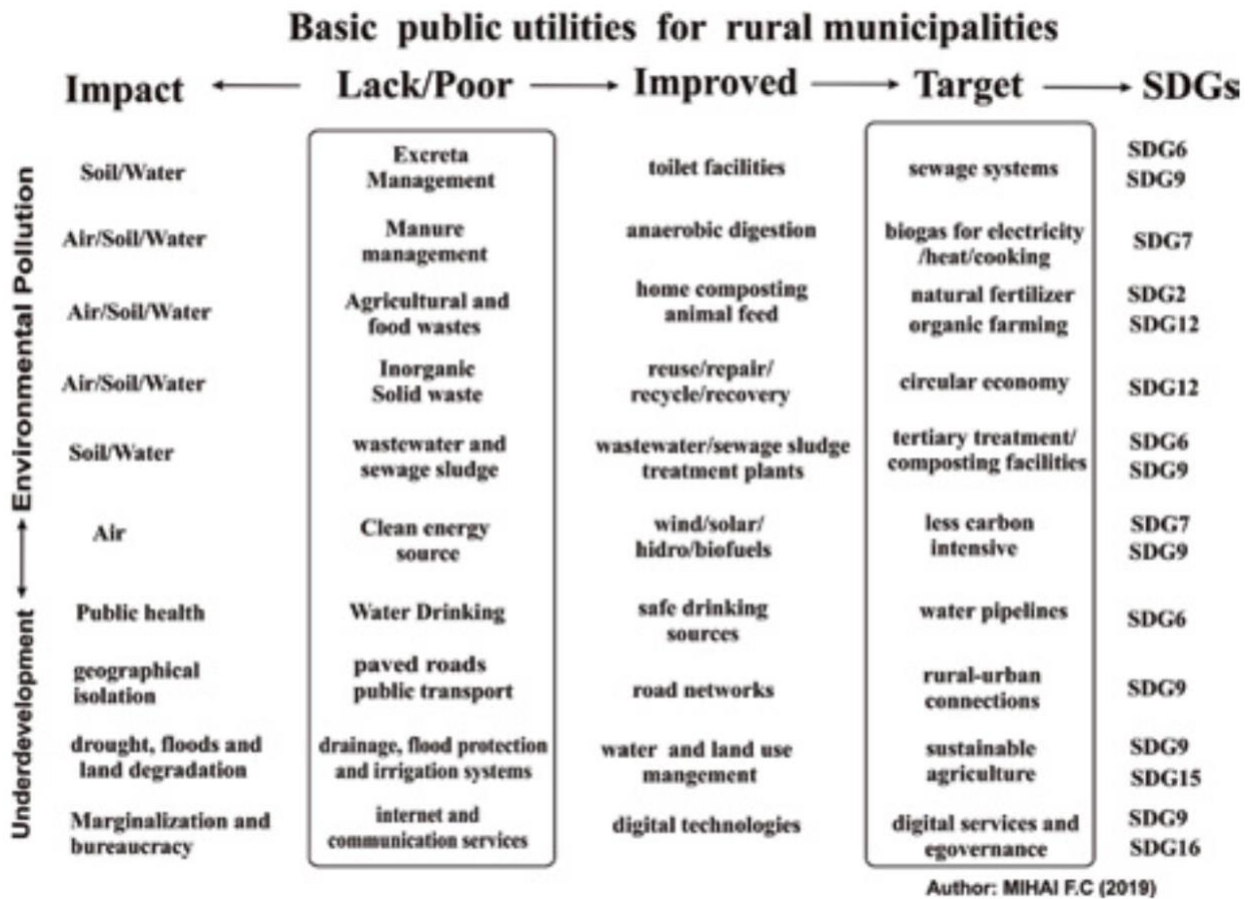


Figure 3.7 – Public utilities as critical infrastructure for sustainable rural development [66]

The Program of the Concept highlights the selection criteria for regional programs on sustainable rural development (Fig 3.8):

- availability in the regional program of measures envisaged in the Program and aimed at creating favorable infrastructure conditions in rural areas for the implementation of investment projects in the agro-industrial complex;
- availability of a register of social and engineering facilities for settlements located in rural areas and projects for the integrated arrangement of sites for compact residential development related to the created (reconstructed) agricultural facilities, in accordance with territorial planning documents, in the form established by the Ministry of Agricultural Policy and Food of China;

- creation of additional high-tech jobs at agricultural enterprises in rural areas where the Program activities are implemented;

### Framework conditions for sustainable agricultural development

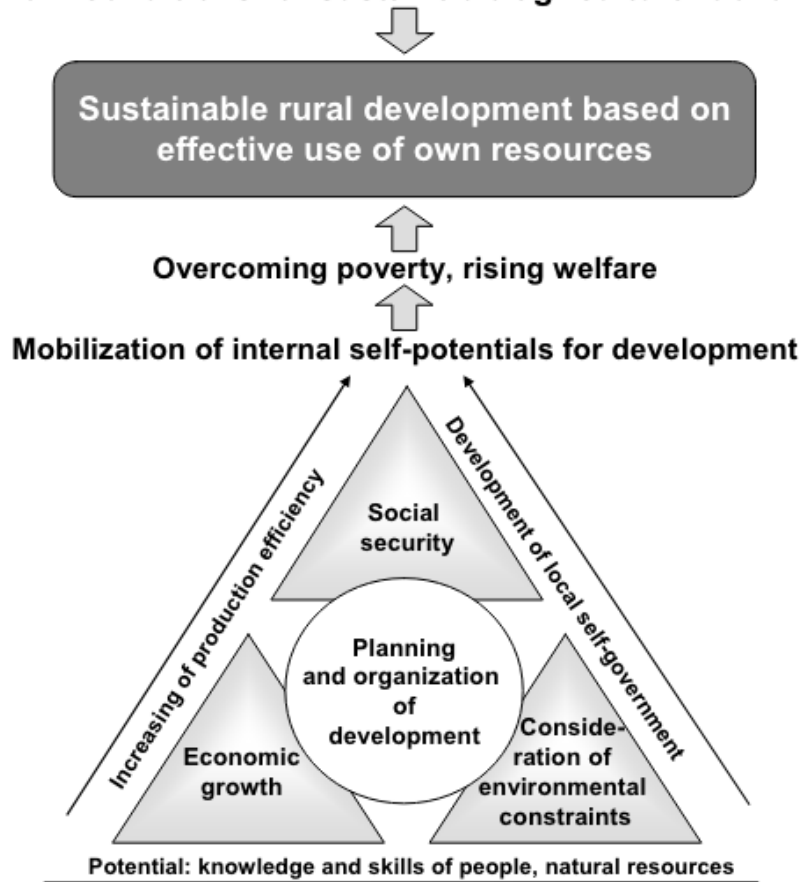


Figure 3.8 – The transition to sustainable development of rural areas [42]

- use of modern technologies in the process of creating social and engineering infrastructure facilities;
- complexity of social and engineering arrangement of settlements located in rural areas, taking into account the existing infrastructure potential and peculiarities of investment projects implementation;
- availability of allocations in the state and local budgets for the implementation of the regional program;
- availability of the regulatory framework necessary for financing and implementing the regional program;

- availability of incentive measures based on the attraction of extra-budgetary funds for the comprehensive development of social and engineering infrastructure and improvement of living conditions in rural areas.

In our opinion, the management of rural development should be based on the implementation of the provisions of an active policy of sustainable development, which requires a regional approach, since the implementation of socio-economic projects and programs in rural areas involves a set of measures in specific territorial structural units that differ not only in resource potential but also in specific development problems, including the peculiarities of labor activity.

The current state of rural areas is in a rather crisis socio-economic situation, so the introduction of innovative effective management solutions and a change in the development vector will help to change the current situation. Thus, after analyzing the above-mentioned legislative and regulatory documents, we can outline the key aspects of managing the development of rural areas in China (Fig. 3.9, 3.10) [12, 31]:

- creation of favorable social, financial and economic conditions for the village to fulfill its production and other national functions and tasks in the system of territorial development;
- stable economic growth in rural areas by increasing the efficiency of agriculture and the contribution (in the financial and economic sense) of rural areas to the country's economy and the welfare of citizens;
- increase in employment, living standards and quality of life of the rural population, as well as bringing rural areas closer to urban living standards;
- slowing down the process of depopulation, improving the demographic situation and increasing life expectancy;
- reduction of inter-regional and intra-regional differentiation between the level and quality of life of the rural population;

- rationalizing the use of natural resources and preserving the natural environment;
- preservation and enhancement of the cultural potential of rural areas.

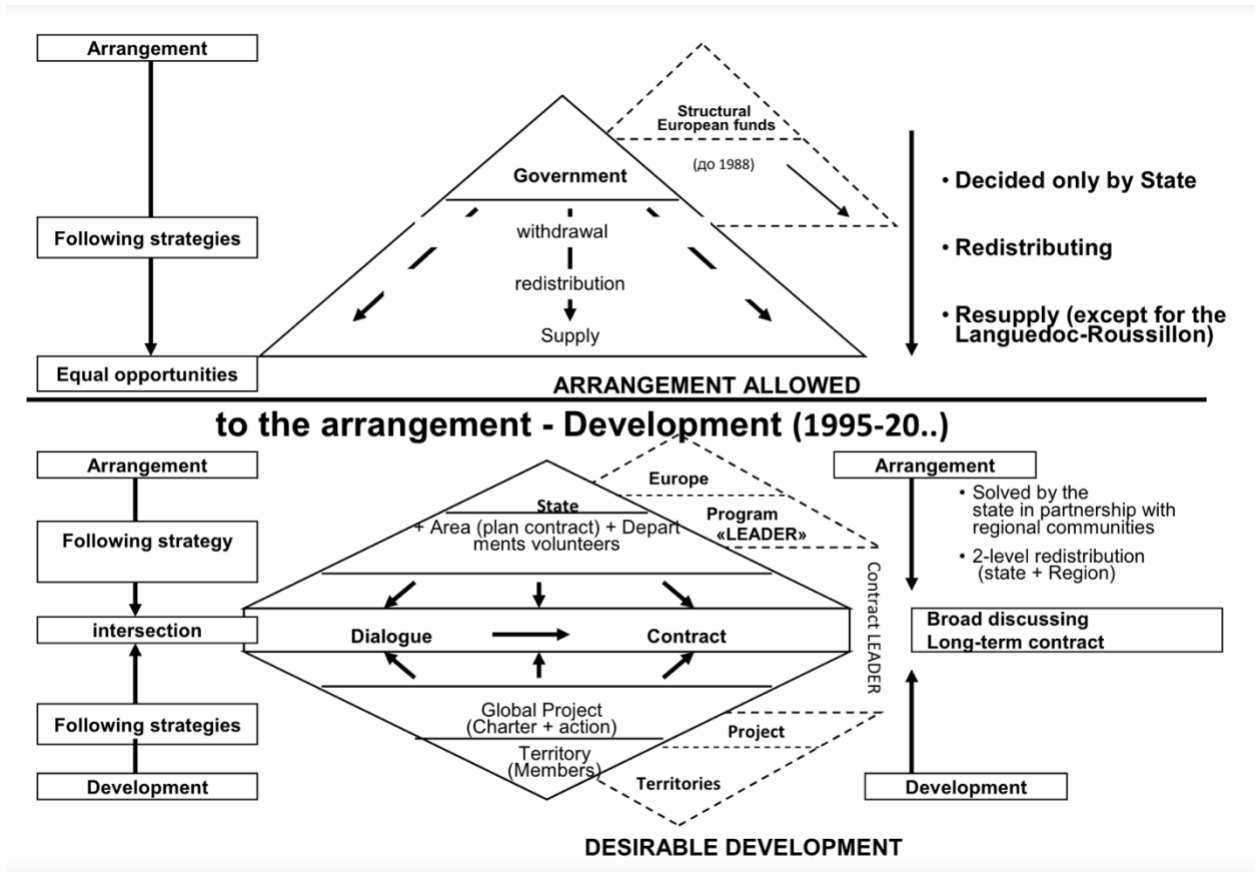


Figure 3.9 – Evolution of policy development in China [45]

At the same time, at the state, regional and local levels, measures that will facilitate the implementation of the rural development management policy and increase the efficiency of its implementation should include [5, 29]:

- inclusion of tasks for sustainable rural development in strategic programs for national and regional development;
- taking into account the tasks of sustainable rural development in the system of territorial planning of rural areas;
- development and implementation of programs that ensure the development of infrastructure, transport and communications in rural areas;

- allocation of a rural component in the target programs of central executive authorities;
- conducting a qualified analysis of environmental problems in rural areas and developing conceptual provisions on the environmental component of rural development;
- development of a list of measures to preserve the diversity of natural populations in rural areas;
- expanding special support measures for rural large and low-income families;
- development of proposals to increase the innovation and investment attractiveness of rural areas.

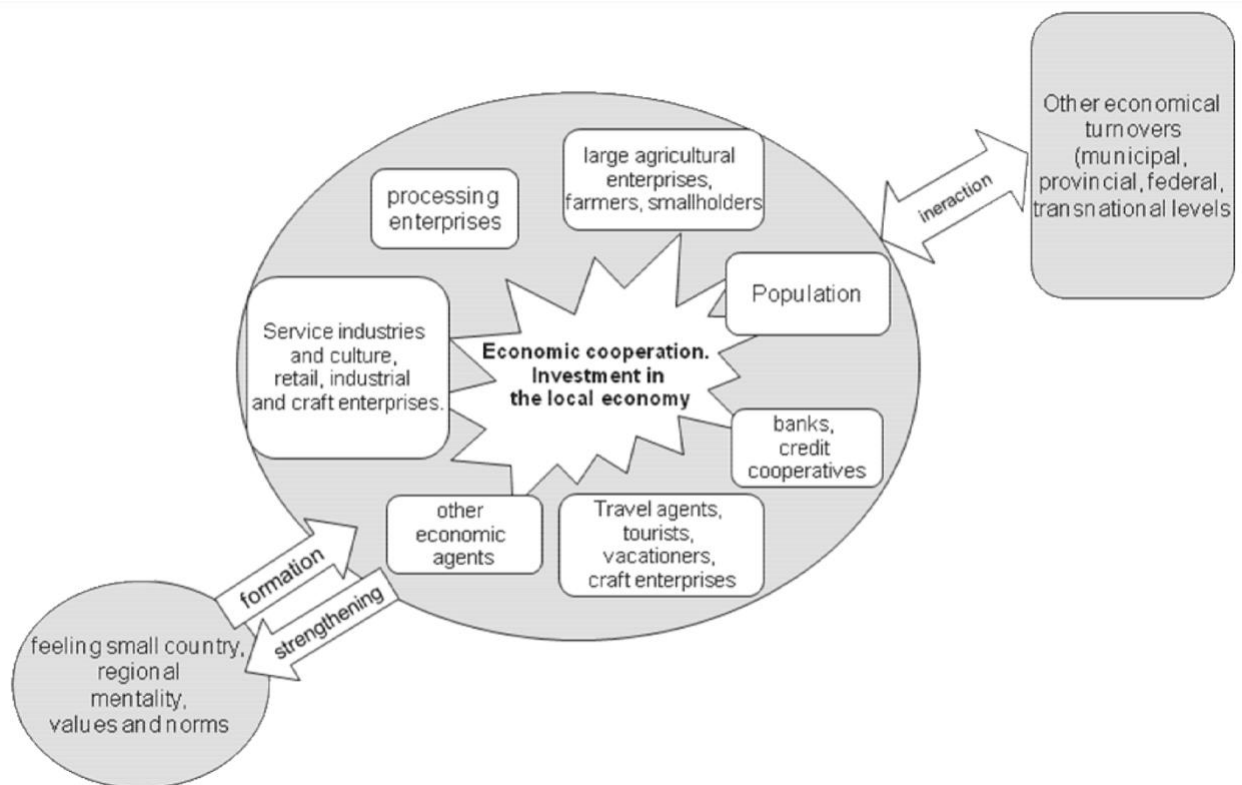


Figure 3.10 – Local economic turnover [71]

These measures will help to improve the development of rural areas, stimulate the socio-economic component of territorial development, and have a positive impact on the living standards of the rural population.

Today, it is necessary to ensure the development of mechanisms to support the development of rural settlements at the expense of enterprises and organizations operating within rural areas; to create favorable conditions for the development of private initiative in rural areas, the development of the service sector; to ensure the sale of products of peasant and farmers' enterprises through the development of their cooperation in the marketing sector; to ensure the development of rural public institutions.

In general, it should be noted that in areas where functional agricultural enterprises have quickly adapted the structure of the agricultural economy to market conditions, and where regional authorities actively support agricultural production through economic instruments, the level of rural development is quite stable [26].

General approaches to the problem of the relationship between pricing and the level of rural development should be considered in the context of economic relations. The functional dependence of rural development will be determined by the factors of the existing territorial pricing system, the availability and distribution of production factors in a particular territory, and the characteristics of the interaction of the existing institutional environment. This dependence is initial, basic and can be clarified in further research.

The current level of specialization of agricultural enterprises was formed under the influence of natural and climatic and market conditions. In addition to their internal resource capacities, the structure of agricultural enterprises' products is also determined by the nature of the development of the processing infrastructure in rural areas. Therefore, these factors have a significant impact on the level of socio-economic development of the territory. The insufficiently high level of capital concentration of agricultural enterprises affects their role and place in the processes of agro-industrial and agro-financial integration. Therefore, the only possible direction for the development of production entrepreneurship in rural areas is to intensify the use of the available natural resource potential. At the same time, it is necessary to abandon the previously prioritized criterion

of the successful functioning of an agricultural enterprise – increasing production [69]. Today, the emphasis should be placed, first, on the social component of rural development – people, then on the natural environment, and only then on production. Such a sequence of consideration of rural development priorities is intended to create conditions for balanced development of rural areas through the implementation of a policy of attractiveness of agricultural production and integrated rural development.

The criterion for assessing the use of the natural resource potential of an agricultural enterprise is the rate of return obtained through the use of available resources. At the same time, the assessment of the level of socio-economic development of rural areas should provide information about its current situation by calculating certain indicators. The economic criterion for the development of rural areas is the ability of the business structures operating there to ensure the production of goods in accordance with market demand under conditions of free competition. Its realization affects the satisfaction of consumer needs of the rural population, determines the level of economic benefit of business entities and the level of well-being of rural residents.

### **Conclusions to section 3**

Having carried out the work on the development of recommendations for improving the system of management of socio-economic development of rural areas, the following conclusions were drawn:

In the context of fundamental changes in the external and internal environment, sustainable rural development requires improving the welfare of rural residents and solving problems related to the improvement of the ecological state of land resources. Particularly important are the issues related to optimizing rural development, substantiating a system of environmental, economic and organizational measures for the reproduction of natural resource potential. There is a need to establish partnerships based on mutual trust between the government,

business, and civil society in rural areas. It is important to realize the effective use of natural resource potential in environmental, economic and social aspects. In addition, it is advisable to focus on issues related to the conservation, rational use and reproduction of land and other resources as the basis for sustainable rural development.

In general, having carried out an economic assessment of sustainable development of rural areas, it can be concluded that the potential opportunities for using natural resource potential to achieve sustainable development are not fully utilized.

In our opinion, the main indicators that should be used for the economic assessment of sustainable development of rural areas and taken into account in the development of rural development plans should be the following: availability of agricultural land in general, production of crop and livestock products per 100 hectares of agricultural land, plowing of agricultural land, the share of intensive crops in the structure of crops, the level of profitability, dynamics of revenue and profit from the sale of agricultural products, and the level of agricultural land. The use of these indicators will allow to identify the cause-and-effect relationships arising from the use of land and resource potential, to activate the internal potential of rural areas for its economic growth.

The proposed measures to improve the efficiency of rural development should be implemented with due regard for the maximum sustainability of rural areas, which will contribute to the active development of productive forces and production relations in rural areas.

## CONCLUSIONS

Sustainable development of rural areas is the key to the successful socio-economic development of China as a whole in the context of globalization transformations. Therefore, China's further progress towards integration into the world space should be focused on achieving a balance of economic, social and environmental vectors of rural development on the basis of sustainability.

The state policy on sustainable rural development should include a number of institutional mechanisms based on stakeholder interaction and the development of a comprehensive policy for the development of agricultural production, improvement of the quality of life of the rural population, overcoming unemployment and environmental protection. The priority measures should include:

- immediate review of the existing institutional support for the implementation of the sustainable development strategy at both the state and rural communities levels;
- introduction of comprehensive programs to support rural employment, stimulate its non-standard forms, including the development of rural green tourism;
- formulating a policy of state support for the agricultural sector, in particular, the livestock industry;
- achievement of decent wages for workers engaged in agricultural production, which should be facilitated by a set of measures to reduce the tax burden, as well as the development of social responsibility of agricultural business;
- development of social infrastructure of Chinese villages based on the interaction of key stakeholders;
- formation of a new model of environmental awareness of citizens and increased funding for environmental protection programs;

- strengthening the influence of local self-government in addressing urgent issues of life and living conditions of the rural population, etc.

Cooperative finance originated from people's collaborative assistance in economic activities, tracing back to ancient societal cooperative systems. In China, the development of cooperative finance began in the early 20<sup>th</sup> century, primarily to address poverty and inadequate financial services in rural areas. With the rapid growth of China's rural economy and the advancement of financial reforms, cooperative finance has experienced significant development. Its fundamental principles and characteristics revolve around cooperation, mutual assistance, and mutual benefit, emphasizing social responsibility and sustainable development.

As representatives of cooperative finance institutions, rural credit cooperatives serve multiple functions. Firstly, they provide financial services including savings, loans, and payment settlements, meeting the financial needs of rural residents and enterprises. Secondly, rural credit cooperatives undertake the social responsibility of promoting rural economic development, supporting farmers' income growth, and improving the living standards of rural residents. Additionally, they contribute to the sustainable development of rural socioeconomic by conducting financial education and community services.

Analysis of the efficiency of rural financial services in China reveals that despite improvements, there are still issues such as inadequate coverage and suboptimal service quality. Dynamic analysis indicates that with the transformation of rural economic structures and the development of financial technology, the models and efficiency of rural financial services are continuously evolving. The emergence of rural credit cooperatives is primarily to meet the financial service needs in rural areas, promoting rural economic development, and is considered both necessary and reasonable.

Through the study of the rural credit cooperatives in Ruyang County, it is observed that their emergence is mainly attributed to support from local governments and the demands of rural residents. However, rural credit

cooperatives also face issues such as irregular management and inadequate risk control. To address these issues, there is a need to strengthen regulation and internal management, improve service levels and efficiency, in order to better fulfill the role of rural credit cooperatives in promoting rural economic development.

The development of cooperative finance and rural credit cooperatives plays a crucial role in the advancement of China's rural economy, albeit encountering challenges and issues. Through in-depth research and continuous improvement, further enhancement of rural financial service levels can be achieved, thereby promoting sustainable development of the rural economy.

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**ANNEXES**



Навчально-науковий інститут «Каразінська школа бізнесу»  
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Державна установа «Інститут економіки та прогнозування НАН України»  
Віденський інститут міжнародних економічних досліджень  
Вільний міжнародний університет Молдови  
Каунаський університет прикладних наук  
Лодзький політехнічний університет  
Познанський університет економіки та бізнесу  
Університет імені Григола Робакідзе  
Університет Йорка  
Університет прикладних наук Голландії  
Університет Менделя в Брно  
Вірменський державний економічний університет  
Національний відкритий університет Індіри Ганді  
Китайський університет трудових відносин  
Глобальний коледж Хайєка  
Університетський центр імені Абдельхафіда Буссуфа в місті Міла

## **ПРОБЛЕМИ ТА ПЕРСПЕКТИВИ ЗАБЕЗПЕЧЕННЯ СТІЙКОГО СОЦІАЛЬНО-ЕКОНОМІЧНОГО РОЗВИТКУ ТЕРИТОРІЙ**

### **МАТЕРІАЛИ**

**Міжнародної науково-практичної інтернет-конференції  
27–28 жовтня 2023 року**



Харків – 2023

**Редакційна колегія:**

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У матеріалах конференції представлені авторські підходи до проблем інноваційного розвитку територій, питань кластерної співпраці, перспектив розвитку людського потенціалу в умовах післявоєнної відбудови України, питань узгодження інтересів стейкхолдерів територіального розвитку при формуванні ефективної взаємодії та підтримці констуктивного діалогу між ними, цифрового та зеленого переходів, зміни підходів до формування локальних точок економічного зростання.

Видання призначене для фахівців системи державного та регіонального управління, органів місцевого самоврядування, представників бізнесу, науковців, викладачів, здобувачів вищої освіти.

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loyalty to the brand. Live broadcasts have also been gaining popularity in recent years. They create an effect of presence and help a brand get closer to its audience.

So, the changes in technology and channels have not affected the basic concepts of marketing, but have only given companies the opportunity to be closer to their audience and understand their behaviour.

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#### **BACKGROUND OF RURAL COOPERATIVE FINANCE DEVELOPMENT IN CHINA**

In recent years, the Chinese government attaches great importance to the development of “agriculture, rural areas”, and the No. 1 document over the years has promoted the development of rural areas through policy-level guidance. In terms of income, the per capita income of rural residents in China reached 12 363 yuan in 2016, an increase of about 15% over the previous year, a growth rate far exceeding the growth rate of China’s GDP, and in recent years, it has always maintained a higher growth rate than the per capita disposable income of urban residents in China. In terms of consumption, under the influence of the current third consumption upgrade, the per capita consumption expenditure of rural residents has also grown rapidly, reaching 10 130 yuan in 2016. In terms of production and operation, with the promotion of land ownership confirmation and continuous promotion at the policy level, the scale of land transfer is increasing day by day, and large-scale operation has been greatly developed. As of June 2016, the total area of contracted cultivated land transfer in China has reached 460 million mu, more than 1/3 of the total area of contracted cultivated land. There are more than 2.7 million new business entities such as family farms, large growers, cooperatives and leading agricultural industrialization enterprises, and they have begun to occupy the core position of agricultural production to a certain extent.

However, there is still a large gap between the overall development of China’s rural areas and the requirements of agricultural modernization, which is the weak link in the process of further economic development of our country. Moreover, in the field of agriculture, rural finance, the problem of farmers’ “financing difficulties” has not

been solved for many years. The scarcity of financial outlets made it difficult for rural residents to access financial products and services. With the popularization of the Internet and the sinking of various financial institutions, there is even an oversupply of financial products and services in some rural areas, but it still cannot meet the financing needs of many farmers. The proportion of agricultural loans nationwide has always remained at a very low level, and the proportion of total loans has continued to decline. For example, in the middle and late 1990s, the reform of China's rural financial system advanced rapidly, and gradually established a rural formal financial organization system with agricultural Bank, Agricultural Development Bank and rural credit cooperatives as the axis. However, driven by commercialization, agricultural Bank is getting farther and farther away from agriculture and farmers.

The business diversification of agricultural development banks is seriously insufficient, and it is impossible to connect farmers and rural micro and small enterprises and provide credit services for them. There are many problems in the form of organization of rural credit cooperatives and the trend of transformation to joint-stock commercial banks is obvious this year. As a result, the real financial supply from formal financial institutions in rural areas is very limited, and farmers need to spend high capital cost and time cost to obtain this part of credit resources, and a large number of small capital needs can not be met. Due to the high risk of business in rural areas, small scale, lack of collateral, business personnel are mostly reluctant to go deep into the countryside to carry out business, and some banks even gradually eliminate rural outlets. With the popularization of the Internet and the emergence of related enterprises, new financial institutions represented by Internet financial platforms have more access to local areas and provide more flexible products.

However, rural areas are different from cities and towns in that they are an "acquaintance society" with less binding rules and rule of law, and more rely on the moral constraints formed by the circle under the local differentiation pattern. The application effect of conventional risk control means is poor. To fully cut into the circle of local people requires the layout of offline service outlets and personnel, while rural production and consumption data is insufficient, it is difficult to obtain, so enterprises need to deal with various pain points such as lack of credit, high operating costs. Rural finance is the core of rural economy. At present, on the one hand, the financial demand in the process of agricultural production and development becomes strong. On the other hand, although various financial institutions pay more and more attention to rural finance, they cannot achieve ideal results in the process of carrying out rural business. Different from the above application mode of commercial finance in rural areas, part of the early pilot of cooperative finance in rural areas has achieved good results, good operation and sustainable development. This kind of cooperative and mutual finance has attracted the attention of the government and the market, and started a large number of pilots under the guidance of policies, and has developed rapidly. From a conceptual point of view,

cooperative finance is organized and managed by groups in the same field, industry and belief within the region, and carries out mutual financial assistance for familiar people within the group, and carries out various intermediary businesses including payment and settlement, credit investigation, supply chain finance and other forms of mutual financial assistance. The cooperative system is the core of cooperative finance, which requires all participating members to make collective decisions to ensure that the goal of the organization is to maximize the welfare of the majority of members, rather than simply pursuing the maximum profit of the organization.

Compared with commercial institutions, rural cooperative financial organizations have a wider coverage and are elected and managed by villagers themselves to avoid the difficulty of sinking financial institutions. It can achieve poverty alleviation goals to a greater extent, take into account the financing needs of small and micro customers, and reduce management costs; Fully integrate into the rural acquaintance society, rely on the local people's extremely familiar and understanding of each other, greatly reduce the cost of risk control, supervision costs and post-loan tracking costs. At present, there are five main forms of rural cooperative finance in China. First, the pilot farmer cooperative finance approved by the CBRC; Second, credit cooperation within farmers' (professional) cooperatives, which is also the most important form; Third, cooperative finance for the pilot supply and marketing system; Fourth, the poverty alleviation fund mutual aid society carried out by the poverty alleviation system; Fifth, various types of social organizations carried out the pilot financial cooperation between farmers and village communities.

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