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DISSERTATION

Management of investment development of the agricultural sector economy of China

Speciality 073 - Management
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Submitted for a scientific degree of Doctor of philosophy

The dissertation contains the results of own research. The use of ideas, results and texts of other authors have references to the relevant source

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ABSTRACT

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Globalization transformations of the economy did not ignore transformations in the agricultural sector of the People's Republic of China. The 20th National Congress of People's Representatives of the Communist Party of China proposed to accelerate the pace of construction of an agricultural state and raise it to an unprecedented height, noting the growing interest of the world community in China's agricultural sector. Against the background of promoting the formation of a new model of economic domination and accelerating sustainable development, investing in the agricultural sector will not only meet today's challenges, but will also become an important part of the internationalization of China's agricultural cooperation, which will contribute to bringing the country to a new level of international cooperation. Against the background of the globalization of the economy and the internationalization of agriculture, cooperation has become the main vector of international agricultural cooperation.

The main directions of managing the development of investment processes in China's agricultural sector are the optimization of the use of agricultural resources in the regions and the realization of complementary advantages of the primary, secondary and tertiary sectors of industry by means of modeling the complex system of the country's agricultural sector.

The aim of the dissertation is to improve the theoretical, methodological and organizational foundations of the investment development of China's agrarian sector in the context of globalization.

According to the goal, the following tasks were completed in the dissertation:

- were deepened the essence, methodological foundations and features of the

investment development of the agrarian sector of the Chinese economy;

- are substantiated the expediency and peculiarities of the application of foreign investment experience in the agricultural sector of China with the aim of their adaptation to the conditions of the post-communist economy;

- was carried out an empirical study of the state of investment development in the agrarian sector of the economy on the basis of a comprehensive analysis of the dynamics, structure and sources of investment receipts, the influence of the state and the globalizing market environment on them;

- were investigated the territorial and organizational factors of the investment attractiveness of agricultural production in the provinces of China, and also were determined the main problems and directions for their solution;

- were proposed a solution to the problem of intensifying the investment development of the agrarian sector of the Chinese economy by optimizing production and economic processes, applying the mechanism of rational attraction of foreign capital, and creating a system of reforms in the agrarian sector.

The object of the study is the process of managing the investment development of the agrarian sector of the Chinese economy.

The subject of the study is a set of theoretical, methodical and applied aspects of managing the investment development of the agrarian sector of the Chinese economy in the context of globalization.

In this dissertation for the scientific degree of Doctor of Philosophy, a variety of research methods are widely used, including a retrospective analysis of the literature, comparative studies, a combination of qualitative and quantitative research, a symbiosis of theory and empirical research, as well as a mathematical method of cost and output balance.

In the introduction, the justification of the research topic is comprehensively analyzed, its connection with scientific programs and topics is reflected, the goal and task of the research, the object, the subject are determined, the scientific novelty and practical significance of the results are indicated, the personal contribution of the recipient of the scientific work is determined, the approbation of the results is noted

on the topic of the dissertation through participation in conferences and other events.

The first chapter provides theoretical explanations of the main definitions of the dissertation research, which is basically a systematization of scientific concepts and the main issues of effective management of agricultural investments in the period of rapid development of the Chinese economy under the influence of globalization. The main attention is paid to the empirical research method of agricultural investment management, which will provide the necessary theoretical and methodological support for this research. Thus, the place of investments in the system of scientific knowledge was determined, which is characterized by the interrelationships of investing with other scientific categories and allows to justify and generalize its methodological principles.

As a result of the synergistic agglomeration of existing political economic theories of development, the practical meaning of the term "investment development" was singled out, which determines its belonging to the totality of economic knowledge, and is considered as a means of overcoming crisis phenomena in the agrarian economy, contributes to the restoration and growth of productive capital, increasing the efficiency of agro-industrial production, introducing achievements of NTP and accelerating the development of agriculture. Investments belong to the most important indicators of the prosperity of the national economy, and the management of investment development is an indicator of changes in aggregate demand, the volume of national production and the level of employment of the population.

Based on the national characteristics of the economic development of the People's Republic of China, the interpretation of investments depends on socio-cultural factors, and if in Western countries it is more often associated with the acquisition of intangible assets or copyrights, then in China it is most often equated with capital investments in land, construction or other material values. Based on the generalization of the existing definitions of the term "investment", a proper one is proposed, which takes into account the priorities and peculiarities of the development of the agrarian sphere of China under the influence of globalization processes. According to this, "management of the investment development of China's

agricultural sector" is a set of economic, social, organizational and institutional measures carried out at the micro, meso and macro levels by all economic entities, regardless of the degree of subordination to the state, which ensure an increase in public welfare as a result of investing capital for a set period in any form and form in objects of the agrarian sphere, taking into account natural-climatic and socio-demographic factors, internal and external risks and other conditions of agricultural production.

In the second chapter, a systematic analysis of investment management in China's agrarian economy and its relationship with the country's economic growth against the background of globalization is carried out by using the data of empirical analysis. Based on the method of entropy weight and the method of fuzzy comprehensive assessment was determined the framework system of agricultural investments and economic growth of agriculture, also was analyzed the impact of international transformation processes on the agricultural investment environment, structure, scale and level of economic development of agriculture in the People's Republic of China.

Assessing the state of global world and Chinese investment development, as well as analyzing the current situation of investment management in the agrarian economy, weak points in the system were identified, and through the analysis of influencing factors and the most common ways of investing in agriculture based on the structural equation model (SEM), the interrelationships were determined the relationship between the economy of agriculture and economic growth against the background of globalization. Based on the input parameters of the agricultural investment environment, the structure and scale of agricultural investments, the changing characteristics and trends of the general economic growth of agriculture were analyzed in order to predict the general changes in the results of the investment development management of the agricultural sector. It was determined that in order to ensure investment activity in the agricultural sector, it is necessary to develop an appropriate strategy, the purpose of which will be to increase the standard of living and social protection of the population of rural areas based on investment activity and

rational use of economic potential. It was established that in order to encourage investments, the state, first of all, is called to ensure the stability of the legislative field, reliable protection of property rights, support of the banking sector, and the use of international investment rules.

The third chapter examines the investment management scheme of China's agrarian economy in the context of globalization. Thanks to the analysis and research of the current situation with the management of the investment environment in the main countries and regions of the world, the determination of the innovative direction of the system of investment management in the agrarian sphere of China against the background of globalization is of perspective importance. First of all, on the basis of the study of the experience of the United States of America, Japan and the European Union, was proposed a conceptual system of complex institutional development of the management of agricultural investments in China, by changing the vector from fully state financing of agriculture to public-private partnership in the field of agricultural investments. First, from the perspective of the status of agricultural investment management in the world was analyzed the management system of the agricultural investment environment in the United States, Japan, and the European Union. Thus, certain conceptual differences were identified, which provide an individual way of managing the development of agrarian investments in each country. For example, the United States is dominated by private enterprises that are very market oriented. Farmers and businesses independently decide the direction and scale of investment according to market demand and price changes to obtain better economic benefits. However, the Japanese government plays an important role in agricultural investment by providing funds and support to agricultural producers through subsidies and loans. The European Union has invested a lot of resources in agricultural science and technology, research and innovation. By funding research projects, creating networks of research cooperation and promoting the transfer of knowledge and technology, the EU aims to improve the efficiency of agricultural production, the efficiency of the use of resources and the quality of agricultural products. Through this analysis, each country's governance system and political

support were identified in terms of policy, law, finance, science and technology, and talent, further underscoring the importance and complexity of managing agricultural investments in the context of globalization.

Secondly, from the point of view of the institutional development of agricultural investment management in China, agriculture is the main source of family income for hundreds of millions of farmers, so a mechanism for attracting investments in the development of the socio-economic potential of rural areas has been determined, which will ensure the creation of an attractive investment climate in the whole the country Through the analysis, it is found that the history of China's agricultural investment management system has undergone many changes and reforms, and now it has formed a relatively complete management system, but it still faces some problems and challenges, including low capital supply, insufficient agricultural scientific and technological innovation, slow implementation land reform and the state of the ecological environment.

Thirdly, a way of managing agricultural investments in the conditions of globalization is proposed. The ideology of optimization of the central system of agricultural investment, respect for the market economy, improvement of agricultural macro-control, integration of agricultural management resources, direction of rational consumption of agricultural products, as well as creation and improvement of regulatory and legal guarantees of agricultural investment is put forward as a red line in this section. These management ways can guarantee the improvement of China's agricultural investment environment, promote the growth of agricultural investment in the People's Republic of China, optimize the capital structure of participants in agricultural production and other aspects that ensure the management of the investment development of the agricultural sector of the Chinese economy.

Therefore, through comprehensive analysis, the dissertation found that China's agricultural investment management has undergone many adjustments and reforms, and has now formed a relatively complete management system, but it still faces some problems and challenges, including insufficient capital supply, insufficient agricultural scientific and technical innovations, problems of the rural land system

and environmental problems. Such specific measures as strengthening agricultural scientific and technological innovation, improving the financial system and promoting the standardization of agricultural investments were proposed. Finally, from the point of view of ways of managing the agricultural investment environment in the conditions of globalization, it is proposed to implement an agricultural investment policy and increase the efficiency of agricultural production: increase non-state financial contributions to promote the development of the agricultural economy; ensuring effective logistics for the supply of agricultural products and increasing farmers' incomes; leading market self-regulation and moderate government intervention in macro-control are certain guidelines for agricultural investment management and development in China.

Key words: agriculture, management, globalization, agrarian economy, investment, China, innovative development, sustainable development, agrarian products, agrarian enterprises, cooperation, state support, state regulation, financing, investment management, agrarian sector, modeling, COVID-19

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АНОТАЦІЯ

Лі Чжуоран. *Управління інвестиційним розвитком аграрного сектора економіки Китаю.* Дисертація на здобуття наукового ступеня доктора філософії за спеціальністю 073 «Менеджмент». Сумський національний аграрний університет, Суми. 2023 рік.

Глобалізаційні перетворення економіки не залишили поза увагою і трансформації в аграрному секторі Китайської Народної Республіки. 20-й Всекитайський з'їзд народних представників Комуністичної партії Китаю запропонував прискорити темпи будівництва сільськогосподарської держави та підняти її на небувалу висоту, відзначивши зростання інтересу світової спільноти до аграрної сфери Китаю. На тлі сприяння формуванню нової моделі економічного панування та прискорення сталого розвитку, інвестування в аграрну сферу не тільки відповідатиме виклику сьогодення, а й стане важливою частиною інтернаціоналізації сільськогосподарського співробітництва Китаю, що сприятиме виведенню країни на новий рівень міжнародного співробітництва. На тлі глобалізації економіки та інтернаціоналізації сільського господарства співпраця стала основним вектором міжнародного сільськогосподарського співробітництва.

Основними напрямками управління розвитком інвестиційних процесів в аграрному секторі Китаю є оптимізація використання сільськогосподарських ресурсів у регіонах та реалізація взаємодоповнюючих переваг первинного, вторинного та третинного секторів промисловості за допомогою моделювання комплексної системи аграрного сектора країни.

Метою дисертаційної роботи є удосконалення теоретичних, методичних та організаційних засад інвестиційного розвитку аграрного сектору Китаю в умовах глобалізації.

Відповідно до мети, у дисертації були виконані такі завдання:

- поглиблено сутність, методичні основи та особливості інвестиційного розвитку аграрного сектора економіки Китаю;

- обґрунтувано доцільність та особливості застосування зарубіжного досвіду інвестування в аграрному секторі Китаю з метою їх адаптації до умов посткомуністичної економіки;

- здійснено емпіричне дослідження стану інвестиційного розвитку в аграрному секторі економіки на основі комплексного аналізу динаміки, структури та джерел надходження інвестицій, впливу на них держави та глобалізаційного ринкового середовища;

- досліджено територіально-організаційні чинники інвестиційної привабливості сільськогосподарського виробництва за провінціями Китаю, визначено основні проблеми та напрямки їх вирішення;

- запропонувано вирішення проблеми активізації інвестиційного розвитку аграрної сфери економіки Китаю шляхом оптимізації виробничо-господарських процесів, застосування механізму раціонального залучення іноземного капіталу, створення системи реформ аграрної галузі.

Об’єктом дослідження є процес управління інвестиційним розвитком аграрного сектору економіки Китаю.

Предметом дослідження є сукупність теоретичних, методичних та прикладних аспектів управління інвестиційним розвитком аграрного сектору економіки Китаю в умовах глобалізації.

У даній дисертації на здобуття наукового ступеня доктора філософії широко застосовуються різноманітні методи дослідження, включаючи ретроспективний аналіз літератури, порівняльні дослідження, поєднання якісних і кількісних досліджень, симбіоз теорії та емпіричних досліджень, а також математичний метод балансу витрат і випуску продукції.

У вступі всебічно аналізується обґрунтування теми дослідження, відображається її зв’язок з науковими програмами і темами, визначається мета і завдання дослідження, об’єкт, предмет, вказується наукова новизна і практичне значення результатів, визначається особистий внесок здобувача наукової роботи,

зазначається проведена апробація результатів за темою дисертаційної роботи через участь в конференціях та інших заходах.

У першому розділі надаються теоретичні роз'яснення основних дефініцій дисертаційного дослідження, що в основному являє собою систематизацію наукових концепції та основних питанньь ефективного управління сільськогосподарськими інвестиціями в період швидкого розвитку економіки Китаю під впливом глобалізації. Основну увагу приділено емпіричному методу дослідження інвестиційного менеджменту аграрного господарства, що забезпечить необхідну теоретичну та методологічну підтримку цього дослідження. Так, було визначено місце інвестицій в системі наукових знань, що характеризується взаємозв'язками інвестування з іншими науковими категоріями та дозволяє обґрунтовувати та узагальнювати його методичні засади.

Внаслідок синергічної агломерації наявних політекономічних теорій розвитку було виокремлено практичне значення терміну «інвестиційний розвиток», що обумовлює його приналежність до сукупності економічних знань, і розглядається як засіб подолання кризових явищ в аграрній економіці, сприяє відновленню та зростанню виробничого капіталу, підвищенню ефективності агропромислового виробництва, впровадженню досягнень НТП і прискоренню розвитку сільського господарства. Інвестиції належать до найважливіших показників процвітання національної економіки, а управління інвестиційним розвитком є індикатором змін сукупного попиту, обсягу національного виробництва та рівня зайнятості населення.

Виходячи з національних особливостей економічного розвитку Китайської Народної Республіки, трактування інвестицій залежить від соціально-культурних чинників, і якщо в західних країнах воно частіше пов'язується із придбанням нематеріальних активів чи авторських прав, то в Китаї найчастіше ототожнюється із капітальними вкладеннями в землю, будівництво чи інші матеріальні цінності. На основі узагальнення існуючих визначень терміну «інвестування» запропоновано власне, яке враховує

пріоритети та особливості розвитку аграрної сфери Китаю під впливом глобалізаційних процесів. Відповідно до цього, «управління інвестиційним розвитком аграрного сектора Китаю» – це комплекс економічних, соціальних, організаційних та інституційних заходів, що здійснюються на мікро-, мезо- та макрорівні всіма суб'єктами господарювання незалежно від ступеня підпорядкованості державі, що забезпечують приріст суспільного добробуту внаслідок вкладення капіталу на встановлений термін у будь-якій формі та вигляді в об'єкти аграрної сфери, із врахуванням природо-кліматичних і соціально-демографічних факторів, внутрішніх та зовнішніх ризиків та інших умов агровиробництва.

У другому розділі проведено системний аналіз управління інвестиціями в аграрній економіці Китаю та його взаємозв'язок з економічним зростанням країни на тлі глобалізації шляхом використання даних емпіричного аналізу. На основі методу ентропійної ваги та методу нечіткої комплексної оцінки було визначено рамкову систему сільськогосподарських інвестицій та економічного зростання сільського господарства, проаналізовано вплив міжнародних трансформаційних процесів на аграрне інвестиційне середовище, структуру, масштаб та рівень економічного розвитку сільського господарства Китайської Народної республіки.

Оцінюючи стан глобального світового та китайського інвестиційного розвитку, а також аналізуючи поточну ситуацію управління інвестиціями в аграрній економіці, було визначено слабкі місця в системі та шляхом аналізу факторів впливу та найбільш поширені шляхи інвестування в сільське господарство на основі моделі структурних рівнянь (SEM) було визначено взаємозв'язок між економікою сільського господарства та економічним зростанням на тлі глобалізації. На основі вхідних параметрів сільськогосподарського інвестиційного середовища, структури та масштабів сільськогосподарських інвестицій було проаналізовано мінливі характеристики та тенденції загального економічного зростання сільського господарства, щоб передбачити загальні зміни результатів управління інвестиційним розвитком

аграрної сфери. Визначено, що для забезпечення інвестиційної активності в аграрному секторі потрібно розробити відповідну стратегію, мета якої полягатиме в підвищенні рівня життя та соціального захисту населення сільських територій на основі інвестиційної активності та раціонального використання економічного потенціалу. Встановлено, що з метою заохочення інвестицій, держава, насамперед, покликана забезпечити стабільність законодавчого поля, надійний захист прав власності, підтримку банківського сектору, використання міжнародних правил інвестування.

У третьому розділі в розглядається схема управління інвестиціями аграрної економіки Китаю в умовах глобалізації. Завдяки аналізу та дослідженню поточної ситуації з управлінням інвестиційним середовищем у основних країнах і регіонах світу, визначення інноваційного напрямку системи управління інвестиціями в аграрну сферу Китаю на тлі глобалізації має перспективне значення. Перш за все, на основі дослідження досвіду Сполучених Штатів Америки, Японії та Європейського Союзу, було запропоновано концептуальну систему комплексного інституційного розвитку управління сільськогосподарськими інвестиціями Китаю, шляхом зміни вектору з цілковито державного фінансування сільського господарства на державно-приватне партнерство в сфері аграрних інвестицій. По-перше, з точки зору статусу управління сільськогосподарськими інвестиціями у світі, було проаналізовано систему управління сільськогосподарським інвестиційним середовищем у Сполучених Штатах, Японії та Європейському Союзі. Так, були виявлені певні концептуальні розбіжності, які й забезпечують індивідуальний шлях управління розвитком аграрних інвестицій в кожній країні. Наприклад, у Сполучених Штатах домінують приватні підприємства, які дуже орієнтовані на ринок. Фермери та підприємства самостійно вирішують напрямок і масштаб інвестицій відповідно до ринкового попиту та змін цін, щоб отримати кращі економічні вигоди. Однак японський уряд відіграє важливу роль у інвестуванні аграрної сфери, надаючи кошти та підтримку виробникам сільськогосподарської продукції через субсидії та позики. Європейський Союз

інвестував багато ресурсів у сільськогосподарську науку та технології, дослідження та інновації. Фінансуючи дослідницькі проекти, створюючи мережі дослідницького співробітництва та сприяючи передачі знань і технологій, ЄС прагне покращувати ефективність сільськогосподарського виробництва, ефективність використання ресурсів і якість сільськогосподарської продукції. Завдяки цьому аналізу була виявлена система управління та політична підтримка кожної країни з точки зору політики, права, фінансів, науки та технологій, а також талантів, що ще більше підкреслює важливість і складність управління сільськогосподарськими інвестиціями в контексті глобалізації.

По-друге, з точки зору інституційного розвитку управління сільськогосподарськими інвестиціями в Китаї, сільське господарство є основним джерелом доходів родини для сотень мільйонів фермерів, тому було визначено механізм залучення інвестицій у розвиток соціально-економічного потенціалу сільських територій, який забезпечить створення привабливого інвестиційного клімату в цілій країні. Завдяки аналізу виявлено, що історія системи управління сільськогосподарськими інвестиціями Китаю зазнала багатьох змін і реформ, і зараз вона сформувала відносно повну систему управління, але все ще стикається з деякими проблемами та викликами, включаючи низьку пропозицію капіталу, недостатні сільськогосподарські науково-технічні інновації, повільне проведення земельної реформи та стан екологічного середовища.

По-третє, запропоновано шлях управління аграрними інвестиціями в умовах глобалізації. Червоною лінією у цьому розділі висувається ідеологія оптимізації центральної системи аграрного інвестування, поваги до ринкової економіки, удосконалення сільськогосподарського макроконтролю, інтеграції ресурсів управління сільським господарством, спрямування розумного споживання сільськогосподарської продукції, а також створення та вдосконалення нормативно-правових гарантій аграрного інвестування. Ці шляхи управління можуть гарантувати покращення сільськогосподарського інвестиційного

середовища Китаю, сприяти зростанню сільськогосподарських інвестицій в Китайську Народну Республіку, оптимізувати структуру капіталу учасників аграрного виробництва та інші аспекти, що забезпечують управління інвестиційним розвитком аграрного сектору економіки Китаю.

Отже, у дисертаційній роботі завдяки комплексному аналізу було виявлено, що управління сільськогосподарськими інвестиціями Китаю зазнало багатьох коригувань і реформ, і на зараз вже сформовано відносно повну систему управління, але вона все ще стикається з деякими проблемами та викликами, включаючи недостатню пропозицію капіталу, недостатню кількість сільськогосподарських науково-технічні інновації, проблеми сільської земельної системи та проблеми навколишнього середовища. Було запропоновано такі конкретні заходи, як зміцнення сільськогосподарських наукових і технологічних інновацій, удосконалення фінансової системи та сприяння стандартизації сільськогосподарських інвестицій. Нарешті, з точки зору шляхів управління аграрним інвестиційним середовищем в умовах глобалізації, пропонується реалізація аграрної інвестиційної політики та підвищення ефективності сільськогосподарського виробництва: збільшення недержавного фінансового внеску для сприяння розвитку сільськогосподарської економіки; забезпечення ефективної логістики постачання сільськогосподарської продукції та підвищення доходів фермерів; провідне саморегулювання ринку та помірне втручання уряду в макроконтроль - є певними орієнтирами для управління сільськогосподарськими інвестиціями та розвитку Китаю.

Ключові слова: сільське господарство, менеджмент, глобалізація, аграрна економіка, інвестиції, Китай, інноваційний розвиток, стійкий розвиток, агропромислова продукція, агропромислові підприємства, кооперація, державна підтримка, державне регулювання, фінансування, інвестиційний менеджмент, аграрний сектор, моделювання, COVID-19

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INTRODUCTION

Relevance of the topic. With the accelerating pace of economic globalization, the international division of labor and capital flow have been intensified, and the global economic development has taken on the characteristics of imbalance under the continuous evolution of the world political and economic pattern. At present, the international political, economic and trade landscape is evolving at an accelerated pace, and destabilizing factors are significantly on the rise. After the outbreak of COVID-19 worldwide in 2020, the global industry and value chain were partially reconstructed, and the international agricultural market became more complex and volatile. Although in the post-epidemic era, countries are trying to get out of the economic recession and accelerate the pace of economic recovery, agriculture, as a basic industry, has been affected more significantly than other industries. In addition to the impact of the global subprime mortgage crisis and two international food crises, the global agricultural investment boom has a profound impact on the development of global agriculture. The excessive capitalization of agricultural development makes international agricultural development face such crises as uneven development of agricultural industry, low efficiency of agricultural production capacity, serious shortage of international food, drastic fluctuation of international food price, serious waste of agricultural resources, and deterioration of agricultural ecology.

Although the reform of agricultural development and investment globalization is difficult, under the guidance of a series of international policies, agricultural economic investment management is gradually standardized and internationalized. WTO Agreement on Agriculture, as a global economic and trade rule in the field of agriculture, is of great significance to promote the development of agricultural globalization. In terms of the internationalization of agricultural investment, the Principles for Responsible Investment in Agriculture and Food Systems issued by the Committee on World Food Security (CWFS) integrates the opinions of all parties. On the premise of encouraging responsible agricultural investment while avoiding food security and agricultural development brought by

investment, the role of agricultural economic development in agricultural investment is highly valued, and the investment capacity of agriculture is required to be strengthened and guaranteed. It is also required to avoid the negative impact of agricultural investment on agricultural development aspects.

As a large population and agricultural country, China has developed its own agriculture in line with international trends, actively encouraged Chinese agriculture to "go global", and sought and used the advantages of international agricultural resource integration to promote agricultural economic growth. In recent years, China has entered a new era of opening-up and a new stage of agricultural development. China's agriculture has accelerated its integration with the world's agriculture, and its overseas investment in agriculture has also grown rapidly. Since 2015, China has become the world's second largest capital exporter. Against the backdrop of shrinking global foreign direct investment and the global spread of COVID-19, China's outward foreign direct investment grew against the trend in 2021, ranking first in the world for the first time.

Drawing on international experience, China pays special attention to the externalities of large-scale agricultural investment, gives full play to the role of agricultural investment internationalization in driving agricultural economic growth and optimizing agricultural industrial structure, and avoids the possible infringement of agricultural development rights and interests, agricultural ecology and other problems. Although the international investment environment is complex and changeable, international trade and investment are still an essential part of China's agricultural foreign cooperation and exchange. Agricultural international trade and investment is an inevitable requirement to accelerate the construction of China's economic double circulation development pattern. In order to build a double-cycle development pattern, together with the domestic and international markets, and accelerate the transformation and upgrading of production capacity of backward industries, it is necessary to integrate into the global industrial chain, transfer the production facilities and supporting technologies with comparative advantages in China to the outside, and bring high-quality agricultural products back to China,

forming a major domestic and international cycle, and realizing the improvement of quality, efficiency and green development of China's agriculture.

Connection of work with scientific programs, plans, topics. The dissertation was carried out in accordance with the directions of research work of the Department of Management named after professor L.Mykhailova of the Sumy National Agrarian University: "Development of management in the context of international integration processes" 2019-2023 (state registration number 0119U001336), within by the author was carried out the topic of Research on Investment Management of Agricultural Economy under the Background of Globalization.

The Aim and Objectives of the study. Based on the background of globalization, this research carries out the research on the investment management of agricultural economic development, and studies the current situation of agricultural economic investment development, the relationship between agricultural economic growth and agricultural investment, and the management method of agricultural economic investment from the perspective of agricultural investment environment, structure and scale, which mainly has the following five research purposes:

First, clarify the previous theories on the investment management research of agricultural economy under the globalization, and lay the theoretical foundation for the empirical analysis and management scheme research of this study.

Second, the entropy weight method and the fuzzy comprehensive evaluation method are combined to study the development status of agricultural economic investment at home and abroad. On the one hand, it provides the current situation reference for the investment management of Chinese agricultural economy; on the other hand, it provides the current development situation empirical case for the investment management of agricultural economy in other regions.

Third, using the structure equation model, from the perspective of agricultural investment environment, agricultural investment structure, agricultural investment scale study the relationship between domestic and foreign agricultural investment and agricultural economic growth and influence path, rich agricultural economy and

agricultural investment management research content, for the rest of the agricultural economic investment relations and influence the path of the empirical framework.

Fourth, the input-output balance method is adopted, on the one hand, it deeply analyzes the dynamic change characteristics of agricultural investment in agricultural investment environment, agricultural investment structure, agricultural investment scale, and the balance change trend with agricultural economic growth, so as to predict the change trend of total agricultural economic investment.

Fifth, in the study of agricultural economic investment management scheme, one is from the perspective of agricultural investment environment construction of different investment environment of agricultural economic growth cross path, the second is from the perspective of agricultural investment structure optimization of diversified cross-border capital flows, three is from the perspective of agricultural investment scale expansion of different agricultural growth pole, four is from the perspective of agricultural economic development mode and the current situation of capital investment and financing channels.

Research methods. The dissertation is methodologically grounded in economic and statistical methodology, as well as the scholarly contributions of global and Chinese scholars. A comprehensive set of methodological tools was used to achieve the defined objectives and address the assigned tasks, which included various approaches:

1.Literature Research Method: Based on the previous literature review research and the current situation, relationship and development trend of investment management in domestic and foreign agricultural economy, the idea and logic of this research are laid, to provide guidance for the writing of this research, and to lay the theoretical review of this research.

*2. Comparative Analysis Method:*Using comparative research method, make the theoretical analysis has a broader vision, on the basis of qualitative analysis, the combination of horizontal and longitudinal empirical research method, comparing the investment management of agricultural economy at home and abroad, make the

analysis results more credibility, and combined with the actual situation of China's agricultural economy development model, put forward targeted Suggestions.

*3.Combination of Qualitative and Quantitative Methods:*In the research, widely collect, analyze and study the investment management data of global agricultural economy, establish combining qualitative and quantitative evaluation index system and evaluation method, adopt entropy power method to standardize the index, then fuzzy comprehensive evaluation of standardized data, analyze the current situation of investment development of agricultural economy. A Method of Combining Theory and Empirical Research**.**

4.Theoretical research-based methods: Theoretical research includes agricultural economic growth theory, agricultural investment management theory and other theories related to the investment status quo evaluation, relationship and development trend of agricultural economy. A variety of measurement methods are used to conduct empirical research to clarify the investment management of agricultural economy at home and abroad.

*5.Input-output Balance Method:*The input-output balance sheet established by Vasililontief is used to carry out the dynamic balance analysis of agricultural capital input and agricultural economic output, analyze the development trend of investment management of agricultural economy, and predict the total investment of agricultural economy.

The information base of the study. The information base of the study was legal acts from official open sources of China, the State Statistics Service of China, National Development and Reform Commission (NDRC), own field research, other types of theoretical, methodical, justice and scientific works from the Internet.

The scientific novelty of the obtained results. The scientific novelty of the obtained results lies in deepening the set of theoretical, scientific-methodical and organizational principles of managing the investment development of the agrarian sector of the Chinese economy and substantiating proposals for increasing its efficiency in the conditions of globalization. The main results obtained personally by the author, which are characterized by scientific novelty and are submitted for

defense, include, first of all, the following:

for the first time:

- was developed a conceptual management system for the development of investment processes in the agricultural sector of China by the method of optimizing the use of agricultural resources in the regions and realizing the complementary advantages of the primary, secondary and tertiary sectors of industry by means of modeling the complex system of the country's agrarian sector.

improved:

- theoretical approach to the definition "management of the investment development of China's agrarian sector" that is a set of economic, social, organizational and institutional measures carried out at the micro-, meso- and macro-levels by all business entities, regardless of the degree of subordination to the state, which ensure the growth of social well-being as a result of investing capital for a set period in any form and form in objects of the agrarian sphere, taking into account natural-climatic and socio-demographic factors, internal and external risks and other conditions of agricultural production;

- a methodical approach to the rationalization of investment processes based on the theory of input-output limitations, which justifies the need to prioritize investment areas aimed at expanding the capabilities of production and material-conducting subsystems in accordance with the flow approach, by increasing their throughput, which will contribute to more efficient use of investment resources;

- theoretical and methodological principles of state regulation of the investment activity of agrarian formations, based on the generalization of foreign experience and the identification of national differences and peculiarities, the consideration of which will allow to ensure a significant improvement of the investment attractiveness of the agrarian sector of the Chinese economy, in particular, an increase in non-state financial contributions to promote the development of the agricultural economy; ensuring effective logistics for the supply of agricultural products and increasing farmers' incomes; the market's leading self-regulation and moderate government intervention in macro-control are certain benchmarks for

agricultural investment management and China's development;

received further development:

- organizational model of complex institutional development of agricultural investment management in China, by changing the vector from fully state financing of agriculture to public-private partnership in the field of agricultural investments;

- a factor model of the dependence of agricultural investment volumes on individual parameters of operational activity, which, based on the input parameters of the agricultural investment environment, creates prerequisites for targeted influence on the structure and scale of agricultural investment development management, in order to predict general changes in the results of investment development management of China's agrarian sector;

- a system of interdependencies, according to which the existence of a connection between the size and intensity of investments, on the one hand, and the "health" of the investment environment, where the ideology of optimization of the central system of agricultural investment, respect for the market economy, improvement of agricultural macro control, stimulation of reasonable consumption of agricultural products, as well as creation and improvement of regulatory and legal guarantees of agricultural investment. These management ways can guarantee the improvement of China's agricultural investment environment, promote the growth of agricultural investment in the People's Republic of China, optimize the capital structure of participants in agricultural production and other aspects that ensure the management of the investment development of the agricultural sector of the Chinese economy.

The scientific and practical significance of the dissertation.

- Scientific significance:

In terms of qualitative research, starting from the concept and research scope, through in-depth discussion of the theoretical logic of international agricultural economic growth and agricultural investment, the investment structure adjustment of different agricultural industries is analyzed under the investment environment under the background of globalization, and the development characteristics of agricultural

investment scale in different periods and the theoretical logic of economic growth are obtained.

In terms of quantitative research, in terms of the index system of investment environment, investment structure and investment scale, combined with the previous research results and according to the actual situation of agricultural economic investment under the background of globalization, a macro comparative research framework suitable for agricultural economic growth and agricultural investment management research is constructed. It provides a case reference for other scholars' research on investment management in agricultural economy under the background of globalization.

In the selection of research methods, a new comprehensive evaluation model for the development of agricultural economic investment management is constructed. The structural equation model (SEM) was used to conduct multiple regression analysis on the indicators of agricultural economic growth (explained variable), agricultural investment structure and scale (explanatory variable) and agricultural investment environment (control variable) under the background of globalization. The development trend and characteristics of the total amount of investment in agricultural economy are predicted, which provides an empirical framework for the research of investment management programs in agricultural economy.

- Significance of practice

From the perspective of macro agricultural economic growth and micro investment subject, it is conducive to steadily promote the globalization of agricultural economic investment management from the practical level. The research of this paper is beneficial to grasp the development status of investment management in international agricultural economy under the background of globalization. It is conducive to promoting the development relationship between international agricultural economic growth and agricultural investment. It is conducive to promoting the level of investment management of international agricultural economy.

Personal contribution of the acquirer. Dissertation research is an independent scientific work of the author. Scientific results, conclusions and

proposals submitted for defense were received by the author personally.

Applicant's personal contribution. The dissertation is completed scientific research. The scientific provisions, conclusions, and suggestions submitted for defense are obtained by the author independently and reflected in published works: 1 in Scopus journal, 4 in Ukrainian journals category B, 7 in materials of conferences.

Scope and structure of the dissertation. The work consists of an introduction, three chapters, conclusions, laid out on 170 pages of the main text, includes 28 tables, 24 figures. The list of used literary sources contains 141 items on 15 pages.

SECTION 1. CONCEPT DEFINITION AND THEORETICAL FOUNDATION

1.1. Related concepts of agricultural investment management

In the current context of globalization and economic development, agricultural investment management has become an important issue in agricultural development. Understanding the relevant concepts of agricultural investment, analyzing agricultural investment environment, constructing scientific and reasonable agricultural investment structure, determining appropriate agricultural investment scale and implementing effective agricultural economic investment strategy are very important to promote agricultural modernization, improve agricultural productivity and farmers' income. The research and exploration of agricultural investment management theory can help guide the decision-making and practice of agricultural investment, and improve the efficiency and sustainability of agricultural investment. This section will deeply explore the theoretical basis and practical application of agricultural investment management, aiming to provide useful guidance and reference for agricultural investment decision makers, agricultural operators and related researchers.

"Investment" is an economic business that often occurs in various economic entities in the modern market economy environment, and it is also one of the words that people use very frequently in economic life. In the life of market economy, investment is a universal economic phenomenon. William Sharpe (2010), an American investment scientist, briefly defined the concept of investment in his book Investment Science as: investment is the sacrifice of certain present value in order to obtain possible and uncertain future value. We can understand it from several aspects. First, investment is an economic activity that now spends a certain value, and it has time. Second, the investment concept is different from the investment concept used in daily life. Third, investment is the formation and dynamics of capital, the greater the total amount of social investment, the greater the total amount of capital in the whole

society. Fourth, the purpose of investment is to obtain various forms of remuneration in the future. Therefore, the concept of investment can be defined as: investment is the economic behavior of capital investment and operation process of various economic subjects (countries, collectives, enterprises, institutions and individuals, etc.) for the purpose of expected benefits (economic benefits, social benefits, ecological benefits, etc.).

Agriculture is the oldest and most basic material production sector in human society. Agricultural production is an economic activity in which human beings consciously use the growth function of animals and plants to obtain food and other material materials necessary for life. Agriculture is usually defined as: Agriculture is a social production sector in which people make use of natural environmental conditions, rely on the physiological functions of animals, plants and microorganisms, and strengthen and control the life activities of organisms through labor to obtain material products needed by society. Agricultural investment refers to the investment of various economic subjects (countries, collectives, enterprises, institutions and individuals, etc.) directly used to develop agriculture and agricultural fixed assets for agricultural production in the process of agricultural expansion and reproduction, which is the workload of agricultural capital construction expressed in the form of money. Agriculture is the foundation of the national economy. Accelerating agricultural development and strengthening the management of agricultural investment have the strategic height of protecting the overall national economy and the basic position of agriculture (Zhu Xi, Shi Qinghua, Li Rui; 2020).

In order to supervise the use of agricultural investment, strengthen the management of funds, analyze the results of investment, and improve the economic benefits of investment, it is necessary to classify agricultural investment differently. According to the agricultural sector, industries can be divided into agricultural investment, forestry investment, livestock investment, fishery investment, and water conservancy investment, namely: agricultural capital construction investment, innovation, transformation and introducing technology patents; business expenses for expanding production and production development, increased working capital;

scientific research expenses, intellectual investment and intellectual investment for professional schools and training cadres. Third, according to the impact of agricultural investment on production, it can be divided into productive investment and non-productive investment.

Agricultural investment has some characteristics different from investment in other sectors of the national economy, which is manifested in:

① Comprehensiveness. Because agricultural production is dealing with nature, the whole agriculture has material circulation and energy conversion, the factors are quite complex. Agricultural investment must adapt to this characteristic, not only focus on a certain aspect, a little, less than the rest (Zhao Qiushi, 2022).

② Variability. Because the object of production is living plants and animals. Production is greatly affected by natural factors. Therefore, agricultural investment must also be according to time, place, situation, investment plan and not fixed fixed model (Stefan Kirchweger & Jochen Kantelhardt, 2015).

③ Long residual action. Land is the basic condition of agricultural production, and the development of land and natural resources has a long-term effect. Therefore, agricultural investment has long-term economic benefits, and the investment payback period is generally longer (Lucas Robert, 2020).

④ Moderation. There are many factors affecting agricultural production, under the condition that the level of science and technology has not yet reached the comprehensive control. Practice is often associated by diminishing pay. Therefore, agricultural investment must choose a moderate amount of investment according to the principle of optimization (Lin Wanlong, 2022).

⑤ Polyphyly.China is still in the primary stage of socialism, and various forms of ownership coexist in the relations of production, making agricultural investment have various forms of fund raising from various sources (Fan&Pardey, 2022).

The environment is relative to a certain central thing. The surrounding thing related with a central thing is called the environment of this central thing. The central

thing is different, and so is the concept of the environment. For example, for human beings, the environment refers to the sum total of the space around the population and the various natural or artificially modified natural factors that directly and directly affect human survival and development (Barro Robert T.& Sala-I-Martin Xavier; 2012).

We introduce the concept of environment into agricultural investment activities. The so-called agricultural investment environment refers to the sum total of the various surrounding conditions and conditions accompanying the whole process of agricultural investment activities. To sum up, the agricultural investment environment includes the natural, social, economic, political and legal elements that affect the agricultural investment activities. For enterprises, the investment environment is a factor that cannot be completely controlled. Enterprises must strive to recognize the environment, and strive to adapt to the environment, use the favorable conditions provided by the environment, and avoid adverse factors (An Zhaoli, 2021).

A good investment environment is an important factor in attracting and retaining investment. The key are formulating reasonable investment policies, improving local government services and paying attention to sustainable development. The development of agricultural investment environment has the following characteristics:

Within a specific space-time range: agricultural investment is limited by time and space, so the research needs to investigate the interaction law of the investment subject and the object in a specific region. The investment environment involves political, economic, natural and social factors, which comprehensively considers and optimizes the coordination of various parts.

Mutual influence and effect: the investment environment is an organic whole, and each part is interrelated and coordinated with each other, and any change may cause the change of other factors. Optimizing the investment environment will affect the evaluation of investors, so the reasonable space-time structure design should be conducted from the perspective of the whole.

Regional particularity: the regional investment environment has both general attributes and independent particularity. When formulating regional investment policies, we should comprehensively consider economic, social, cultural, environmental and other factors, formulate policies in line with local realities, and improve the management level and service capacity of local governments.

Sustainable development: focus on the sustainability of the investment environment, and pursue long-term and stable development rather than short-term economic growth. Environmental protection, social responsibility and sustainable development should be considered, and enterprises should be encouraged to fulfill their social responsibilities and achieve the common development goals of enterprises and society.

Agricultural investment environment is dynamic, multi-level and multi-factor, which can be divided from different angles. The following is the main division of the current agricultural investment environment:

Hard environment and soft environment: According to the material form attribute of agricultural investment environment elements, the investment environment is divided into hard environment and soft environment. Hard environment includes physical elements such as infrastructure, energy and transportation, and plays a fundamental role in supporting the agricultural investment environment. Soft environment mainly refers to non-material factors, such as administrative efficiency, policies and regulations, technical level, etc., which occupy a dominant position in the agricultural investment environment. The hard environment and the soft environment are interrelated and mutually restricted (Dong Chengzhang, 2019).

Investment environment of investors and the investment environment of the investor: According to the different investment subjects, the investment environment is divided into the investor investment environment and the investment environment of the investor. Different interest requirements lead to different evaluations of the investment environment. Investors pay more attention to the investment cost and the maximization of their own interests, while the investors need to comprehensively

consider the relevance of regions and industries.

Macro investment environment, meso- investment environment and micro investment environment: According to different research levels, the investment environment can be divided into three types: macro-, meso- and micro-. The macro investment environment focuses on the role of macro-social and economic variables and historical and cultural reality on social capital movement; the medium investment environment focuses on the status and role of specific industries or industries in specific regions; and the micro investment environment focuses on the geographical location, labor quality and market demand for specific investment projects.

In addition, there are other angles of classification, such as investment environment can be classified from other angles, such as investment stage (investment environment, use environment and tax environment), investment country (domestic investment environment and international investment environment), constituent elements (political environment, infrastructure environment, financial environment, etc.) and factors such as natural geographical environment (Fan S., 2021).

In short, the classification of agricultural investment environment helps to analyze and evaluate the impact of different factors on investment activities, providing investors with accurate and useful information to reduce investment risks and choose suitable investment areas and projects.

The optimization of agricultural investment environment is to attract foreign capital, technology, talent, management and other elements, integrate them into the local economy, realize the rational allocation of resources, optimize the combination and economies of scale, and improve economic benefits. The quality of agricultural investment environment directly affects the safety and income of agricultural investment activities, and becomes the key to regional and national economic competition. The optimization of agricultural investment environment is a complex system engineering, involving a wide range of long-term, arduous and regional characteristics. When optimizing the agricultural investment environment, the following principles should be followed:

Principle of synergy: the investment environment elements echo, cooperate and complement each other, so as to optimize the overall function of the investment environment.

Targeted optimization principle: according to the conditions and development strategies of the region and the country, to formulate targeted optimization plans to meet the requirements of different investment activities.

Adhere to the principle of practice： optimize with reference to international practices and rules, reduce the adverse impact of the difference between foreign investors and host countries, and improve the effect of attracting foreign investment.

Principle of equality and mutual benefit: comprehensively considering the interests of investors and recipients, protecting the domestic economic interests and the legitimate rights and interests of foreign investors, and safeguarding the level playing field and national interests.

These principles can guide the optimization of the agricultural investment environment and ensure the optimization of the quality and effect of the investment environment.

Investment scale and investment structure are two important issues in macro investment management. Investment scale studies the relationship between investment and national economy and the influence on national economic development; the investment structure studies the relationship between investment and national economy. To study the proportion of the investment components, and the impact of the proportion relationship on the development of the national economy. Since the late 1980s, the investment structure has become the most important area of investment regulation. The so-called investment structure refers to the composition of the elements of the total investment in a certain period of time and the quantity and proportion relationship, it is an important aspect of the economic structure (Fu Xiaowei, 2020).

The investment structure can be divided in the following aspects:

Investment subject structure: refers to the relationship between the proportion of different investment subjects in the total investment, including the investment

proportion relationship of the government, enterprises and social organizations.

Nature and structure of investment projects: refers to the relationship of the proportion of different types of projects in the investment, including competitive, basic and public welfare projects, etc.

Investment source structure: refers to the relationship between different sources of funds in the total investment, including budgetary internal and external investment, financial investment, credit investment and foreign direct investment, etc.

Industrial structure of investment: it refers to the proportion of the allocation of investment funds among different industries, reflecting the proportion of investment in various production fields and its impact on economic development.

Regional structure of investment: refers to the distribution and proportion of investment funds among various regions, aiming to realize the reasonable allocation of investment funds and promote the coordinated economic development of various regions.

The use structure of investment: including the investment technology structure and investment reproduction structure, which reflects the proportion of investment in various sectors and industries, as well as the relationship between simple reproduction of reproduction and expansion of fixed assets.

Scale and structure of investment projects: refers to the quantitative proportion of investment projects of different scales, which can be classified according to the total project scale or the total investment of the project.

Two categories of classification: according to Marx's theory, the total social products are divided into the production department of the means of production and the production department of the means of consumption, so as to maintain the relative proportion between them.

The division of these investment structures plays an important role in understanding the benefits of investment activities, regulation mode and economic development.

There is a close mutual relationship and mutual influence between the investment structure and the industrial structure. Investment structure refers to the

proportion of capital in the process of production and social reproduction, which plays a decisive role in the formation and change of industrial structure. At the same time, the industrial structure will also limit and affect the adjustment of the investment structure (Gu Tianzhu, Ji Yueqing, Zhong Funing, 2017).

In the long run, the investment structure is the key factor that determines the formation and change of the industrial structure, and the industrial structure restricts the investment structure. Investment structure can promote the development of industrial structure to a reasonable direction, but it may also hinder the rationalization of industrial structure. Industrial structure determines the relationship between the supply capacity of investment products and the total social demand and the demand structure in the existing investment structure. Under a specific level of productivity, industrial structure is one of the main factors affecting the scale of fixed asset investment. Industrial structure directly affects the structure of social demand, so as to adjust the structure of asset stock and investment increment. If the social demand is greater than the production supply, increase the investment in the industry; on the contrary, if the social demand is less than the production supply, reduce the investment or stop production. This adjustment process has formed the industrial structure adjustment composed by the investment (Han Qi, 2020).

In addition, the investment structure has an overall impact on the industrial structure. As one of the most important factors in economic activities, the increase or decrease of investment demand for all kinds of investment goods will affect the development of the production of investment goods industry. The increase of the total investment will drive the development of the production investment industry, while the decline of the total investment will lead to the contraction of the production investment market. Therefore, the industrial investment structure determines the overall economic structure and the operation mode of the national economy. The industrial investment structure will affect the composition of all the industries producing investment products. The change of total investment is closely related to the change of industrial structure of production and investment products. Different investment needs in different industries, and the driving effect on the production of

investment products industry is also different. Accordingly, industrial structure adjustment needs to be coordinated with investment structure (Jiang Zhao, 2020).

In short, there is a close connection between the industrial structure and the investment structure. The industrial structure is shaped by the investment structure of many years before, and the investment structure plays an important role in the formation and change of the industrial structure. Investment plays a leading role in the adjustment of industrial structure, which will promote the growth of the whole economy. However, the existing industrial structure often limits the subsequent investment structure adjustment to maintain the existing industrial structure and reproduction process. Therefore, the process of industrial structure adjustment is essentially a process of constantly adjusting the industrial structure to adapt to the change of investment structure. The industrial structure limits the formation of a new investment structure, and the development of the industrial structure also needs a coordinated investment structure with it.

Investment scale refers to the total amount of physical and living labor invested in the form of currency invested by the state, department and region in the reproduction activities of fixed assets within a year within a certain period of year. The scale of investment in a certain period must adapt to the level of economic development of a country. Investment scale has two basic meanings, namely, annual investment scale and investment scale under construction (Jonathan Lee, 2018).

Annual agricultural investment scale refers to the unit state, departments, regional related units into the amount of fixed assets reproduction, is a country or region in a year of actual investment in fixed assets, reflects the investment within a year of fixed assets production on the number of human, material resources, financial resources, annual investment scale and the national strength.

The scale of agricultural investment under construction refers to the amount of investment required for all the construction projects of the unit, state, department or regional relevant units constructed in the current year. Including the investment completed in the previous years and the investment needed for the continued construction of this year and the later years, reflecting the anti-short situation of the

actual construction front rolled out nationwide in a certain year. The scale of investment under construction should be adapted to the national conditions of a certain period.

The annual investment scale is mainly affected by the total production and supply of construction materials in the current year and the financial situation of the country or region. The scale of investment under construction shall be decided in accordance with the national strength of the current year, and the construction projects shall be reasonably arranged in accordance with the comprehensive strength of the national strength in a certain period. In addition, the scale of investment under construction is also affected to a certain extent by the subjective factors of the construction project commencement plan (Lee, 2017).

The investment scale should be coordinated with the source of funds to ensure an appropriate total amount of investment. To determine the scale of investment, we should take into account the social supply and demand, the requirements of economic development, the improvement of people's living standards and the order of consumption and investment. The investment scale should be based on the social bearing capacity and avoid the unbalanced relationship between supply and demand of materials. Economic development requires the reasonable arrangement and control of the scale of fixed assets investment to improve the economic benefits. The scale of investment should meet the material and cultural needs of the people and be decided in the order of consumption before and investment after. The principle of leaving room and the principle of looking ahead can ensure the rationality and stable growth of the investment scale. Investment decisions should consider the long-term and realistic, focus on improving economic benefits. Pay attention to the relationship between investment and production, prevent and defuse risks, and ensure the healthy and sustainable development of the national economy (Li Guanghui, 2021).

1.The quantitative standard of the reasonable investment scale

The quantitative standard of reasonable investment scale can be considered from the following perspectives:

Comparison of accumulation growth rate and national income growth rate;

comparison of investment growth rate; comparison of investment product supply and investment product demand balance; accumulation rate level; investment rate level.

Accumulation rate is the proportion of the accumulation fund to the national income in a certain period, and the accumulation fund is the ratio of the means of production and the means of consumption used for the reproduction of social expansion. The accumulation rate below 25% is low accumulation level, 25%~30% is reasonable accumulation level, and higher than 30% is high accumulation level.

The investment rate is the proportion of fixed asset investment in GDP in a certain period of time. The investment rate is lower than 25% is the low investment rate level, 25%~30% is the reasonable investment rate level, and higher than 30% is the high investment rate level.

The purpose of these standards is to ensure a reasonable proportion of investment funds and consumption funds, and to promote the sustainable development of agricultural production and the steady growth of farmers' income.

Table 1.1 - The quantitative standard of the reasonable investment scale

Quantity Standards	Illustrate
Compare the growth rate of accumulation with the growth rate of national income	（1） Accumulation growth rate = the national income growth rate, and the accumulation rate is compatible with the national income （2） Accumulation growth rate < national income growth rate, the accumulation rate is slow （3） Accumulation growth rate > national income growth rate, the accumulation rate is relatively fast
Compare the growth rate of investment with the GDP growth rate	（1） Investment growth rate = GDP growth rate, and investment growth is consistent with the economic growth rate （2） Investment growth rate is < GDP growth rate, while investment growth is relatively slow （3） Investment growth rate > GDP increase rate, investment increase is faster
The balance between investment supply and investment demand	（1） Growth rate of investment goods supply = growth rate of investment goods demand, investment demand growth is moderately （2） Investment goods supply growth rate > the growth rate of investment goods demand, investment demand growth is relatively insufficient （3） The growth rate of investment supply < the growth rate of investment demand, the growth of investment demand is relatively too

	high
The Accumulation Rate Level	（1） Accumulation rate was < 25%, with a low accumulation level （2） 25% < accumulation rate < 30%, reasonable accumulation level （3） Accumulation rate was > 30%, with a high accumulation level
Investment Rate Level	（1） Investment rate is < 25%, low investment rate level （2） 25% < Investment rate < 30%, reasonable investment rate level. （3） Investment rate > 30%, high investment rate level.

Source: prepared by the author

2. Theoretical standards for appropriate investment scale

(1) It is conducive to the balance of total social supply and demand. Due to the large flexibility and strong controllability of the investment, it has always been the most important means to adjust the social total supply and demand, so it is meaningless to talk about the rationality of the investment scale away from the balance of the social total supply and demand. As long as the investment scale is conducive to the overall social supply and demand balance is reasonable, otherwise it is unreasonable. The pursuit of the balance of social total supply and demand is the most important goal of investment scale regulation.

(2) Investment growth rate is equal to or slightly greater than the GDP growth rate. If the investment growth rate is lower than the GDP growth rate, it will affect the speed of economic development; if the investment growth rate is much higher than the GDP growth rate, the investment scale will exceed the capacity of national strength, leading to the price increase of major factors of production and causing inflation.

(3) Coordinate the proportion of investment and consumption. The accumulation rate in a certain period should be moderately reasonable: if the accumulation rate is too high and the proportion of the national income is too large, it will occupy the consumption and reduce the actual living standard; if the accumulation rate is too low, it is not conducive to the sustainable development of the

national economy (Liu Naixi, 2018).

(4) Basic balance of finance, credit, foreign exchange and materials. Moderate investment scale should ensure the balance between the supply and demand of investment products. If the investment scale is too large, it is necessary to expand the support of finance, credit, foreign exchange and materials, causing the fiscal deficit, credit deficit, and the expansion of the investment scale may also make the demand of materials in short supply. In addition, in the case of excessive introduction of foreign capital will also have a certain impact on the balance of payments.

(5) Investment efficiency can be continuously improved. The impact of the investment scale on the investment benefit is mainly reflected in the long expansion of the investment and the construction period, so as to reduce the delivery utilization rate of fixed assets and make the investment benefit cannot be significantly improved. Moderate investment scale should avoid the emergence of the above problems, which can promote the continuous improvement of investment efficiency.

(6) Coordinated growth of consumption and investment. Moderate investment scale should maintain the moderate growth and appearance coordination of consumption and investment, and strive to increase the contribution rate of consumption to the economic growth, so that the growth rate of investment is consistent with the growth rate of the economy.

1.2. Theory of agricultural economic growth

The development history of economic growth theory for more than 200 years is actually the development history of economics for more than 200 years. Economists in different periods have different views on economic growth. Taking the 1928 Ramsey classic work as the watershed, we divide the theory of economic growth in two halves. Before 1928, economic growth theory was in the foundation stage, growth theory is called classical growth theory; after 1928, economic growth theory is mature, mainly neoclassical growth theory and endogenous growth theory.

From the perspective of the development of economics, the classical growth theory has successively crossed the two paradigms of classical economics and neoclassical economics successively, so the classical economic growth theory actually includes many growth theories with completely different characteristics. The theory of "division of labor promotes economic growth" in Adam Smith's "The Wealth of Nations", the population theory in Malthus's "Population Principles", and the two-sector reproduction theory (or Marx's reproduction schema) in Marx's Das Kapital are all growth theories that belong to the classical economic paradigm. The "innovation theory" in Schumpeter's "Theory of Economic Development" and the "Smith's theorem" in Aron Young's "Increasing Compensation and Economic Progress" can be classified into the growth theory of the neoclassical economic paradigm."

Classical growth theory is a rich and colorful thought bank, and these ideas or theories have different analytical frameworks and different research ideas, so it is impossible for any economist to conclude the systematic results from a large number of original materials. However, it is certain that Marx's growth theory, including institutional endogenous variables, and Schumpeter's growth theory, emphasizing the combination of financial factors and industrial capital, do include more abundant ideas than the modern growth theory in the classical growth theory (Luo Jianchao, 2005).

Another important feature of the classical growth theory is the research method. The rich and colorful ideas of classical growth theory largely originate from the different research methods and perspectives of economists. Marx's economic growth theory is completely based on the basis of classical economics, therefore, Marx takes labor value theory and surplus value theory as the main analysis framework. And Schumpeter's theory of growth is based entirely on the analytical tradition of the Austrian school (Paul M. Romer, 2020).

In the view of modern economists, Adam Smith, Malthus, Marx and other classical economists are a generation that completely combines economic theory with growth theory. If the economic growth research is "why some countries far rich in

other countries", "how to explain the real income over time" (David romer, translated in 1999), so, the classical economist is undoubtedly the real growth theorist, classical economics is the first climax of the development of economic growth theory.

However, the rising classical economics paradigm has undergone a major change in nature. The focus of economics research has shifted to "the static market equilibrium", that is, "the price equilibrium that is equal to supply and demand". This shift made the theory of economic growth disappear from the perspective of neoclassical economics, and economists who clearly dismissed the disdain of neoclassical economics, such as Younger and Schumpeter, were able to create excellent growth theories. Therefore, neoclassical economics is a period of low tide of economic growth theory.

Economic growth theory has gone through classical growth theory and modern growth theory, and with the continuous deepening and improvement of economic growth theory research, some very important cores have gradually formed in modern growth theory. Based on a brief review of the evolution history of economic growth theory, this paper classifies and summarizes it, analyzes the main contents and internal logical relations contained in various model assumptions, and finally points out the shortcomings of modern growth theory and its future development trend. These kernels form an integral part of the study of economic growth theory (Robert M.Solow, 2016).

In western economic development theory, before the 1960s, "capital determinism" almost replaced the analysis of all economic development factors in development economics textbooks. Peter Henriet (1997), an American scholar, said: "The traditional theory of economic development attributes the increase in the growth rate of gross national product to four factors: capital accumulation, new resources, technological progress, and population growth. The first key to economic growth is capital accumulation, which increases production by promoting investment."

The primitive accumulation of capital plays a decisive role in the early economic development of capitalist countries. Early Western development experts did not have ready-made economic development theories to refer to at that time, but what

they were familiar with was the growth economics theory of economic development in developed capitalist countries. Capital formation refers to the process by which a country accumulates capital by investing in productive plants and equipment. Obviously, the capital mentioned here refers to the physical capital mainly based on machinery and equipment, excluding human capital (Shen&Geng, 2001).

Among contemporary development economists, there are many people who hold the view of "capital determinism", such as Lewis, Nakes, Rostow and so on. They all believe that development economics emphasizes the special role of capital accumulation in economic development, which is derived from the theory put forward by Adam Smith in The Wealth of Nations, that is, the growth of national wealth is determined by two factors, one is the accumulation of capital, the other is the rational allocation of capital, and the most basic determinant is capital accumulation.

Here we mainly introduce two representative theories of "capital determinism", one is the vicious cycle of poverty theory of Nax and the other is the Great Advance theory of Rosenstein Rodin.

Nachs's vicious cycle of poverty theory

In 1953, American economist Nax put forward the theory of the vicious cycle of poverty in his book The Problem of Capital Formation in Backward Countries. He believes that due to the low per capita income level of developing countries, the capital supply (savings) and product demand (consumption) are insufficient, which limits the capital formation and makes developing countries fall into long-term poverty.

Nakes's "vicious cycle of poverty" theory consists of two aspects:

From the supply side, low income leads to low saving rate, and low saving rate leads to insufficient capital formation, which leads to low production efficiency, and low productivity leads to low income. Forming a vicious circle of "low income → low saving ability → low capital formation → low productivity → low output → low income";

From the demand side, too low income level means low purchasing power,

which leads to insufficient investment attraction, which leads to difficulty in improving productivity, and low productivity inevitably leads to low income. It forms a vicious circle of "low income → low purchasing power → insufficient investment incentives → low capital formation → low productivity → low output → low income".

According to Nakes, the reason for the low per capita income is the scarcity of capital and the source of the scarcity of capital is the low per capita income. The key to breaking the vicious cycle of supply and demand is to inject capital.

The Great Push is the representative of the balanced development theory, which was put forward by the famous British development economist P.N. Rosenstein-Rodan in his article Some Problems of the Industrialization of Eastern and Southeast European Countries in 1943. The theory first appeared in the 1940s to explain the problems of economic development in poor countries.

The Rosenstein-Rodin Big Push theory focuses on coordination issues in economic development. He argues that in poor countries, the isolated development of individual firms or sectors can hardly lead to significant economic growth. Instead, he proposes a strategy of concentrated investment that drives growth across the economy by developing multiple sectors simultaneously. According to the big Push theory, to achieve economic development, poor countries need large-scale investment and coordination arrangements (Yang Yongzhe, 2002). These investments should involve several key sectors at once, such as infrastructure, industry, agriculture, etc., to drive coordinated growth across the economy. By developing multiple sectors simultaneously, the bottlenecks and constraints of individual sectors can be broken, resulting in greater economic benefits. The theory emphasizes the importance of coordination and concentration of investment. If only some sectors invest while others lag behind, it may limit the growth of the overall economy. Therefore, Rosenstein-Rodin proposed the concept of concentrated investment to ensure that the various sectors support and promote each other in the development process.

The central idea of the Big Push theory is to break the vicious cycle of economic development in poor countries through concentrated investment and

coordinated arrangements. With large investments and coordinated efforts, poor countries can achieve a "big boost" in growth that will allow them to escape the poverty trap and achieve sustained development (Yang Xiaokai (2019).

The question is posed and the primary core of economic growth theory is the idea of "equilibrium" of economic growth. As an abstract philosophical concept, equilibrium not only reflects the deepening of human's understanding of the law of social development, but also contains people's prediction and judgment of the trend and direction of future economic and social development. Modern economic growth theory is framed by equilibrium analysis. Thus, the issue of "equilibrium" has always been a central topic for the theory of economic growth. Since the concept of equilibrium has formed the fundamental and most core idea of the mainstream economic system, the core of economic growth theory cannot be separated from the concept of equilibrium naturally (Zhang Donghui, 2004). The concept of equilibrium originated from classical political economy, but the content and form of the concept of equilibrium have undergone significant changes, so equilibrium has become the object of study in modern economics. In the Arrow-Debreu static general equilibrium, the concept of equilibrium inherits the connotation of Walrasian equilibrium. Therefore, the transition from static to dynamic equilibrium concept has become a major revolution in the history of modern western economic theory, and has formed two schools of neoclassical macroeconomics and microeconomics. The evolution of the equilibrium concept from static to dynamic conditions has been an important task since the 1960s (Charles M. Tiebout, 1956). This progress has allowed for a clearer understanding of the impact of changes in demand due to market failures on production when uncertainty increases. This work not only contributed to the dynamic development of the equilibrium concept, but more importantly, the way to promote the dynamic development of the equilibrium concept led to the rational expectations school (the real business cycle school). The concept of expectation first emerged in the field of economic theory and became one of the foundations of the theoretical system of economics.

Needless to say, it is precisely because of the concept of expectations that the

concept of equilibrium can be extended to the study of economic growth. Therefore, it is of great significance to introduce the concept of expectations into the problem of economic growth and establish an equilibrium model. The so-called equilibrium refers to the "market clearing" in which the demand and supply of each market are equal, and the market is Pareto optimal. This is also one of the basic assumptions of economics: "There is never an either-or situation in the market." The theoretical equilibrium of economic growth is commonly known as "balanced growth". Equilibrium is one of the basic categories in economic analysis and research. On the basis of elaborating the connotation of equilibrium, the theory of economic growth is separated from the theoretical point of view, which has two characteristics: the market will always clear, and the market clearing is always optimal (Chen, Xiujie, Wang, 2018).

Another important core of modern economic growth theory is the "optimal" idea of economic growth. The so-called optimum is to maximize the total social output and social welfare. Starting from the "equilibrium" core of economic growth theory, the concept of "optimum" has been seen by us. As a theory of economic growth, growth refers to the full use of all potential resources, of course, on the premise of full employment, resource allocation in the realization of Pareto optimal state. From this point of view, the theory of economic growth does contain the concept of "optimality," and the "optimality" of the theory of economic growth is not only at a certain point in time, or the whole period.

1.3 Introduction of the empirical methods of investment management of agricultural economy

Improving the economic effect of agriculture is the core problem of agricultural construction and one of the keys to promote the rapid development of agriculture. Therefore, starting from the characteristics of agricultural production and China's national conditions, combined with the current reality, it is the need of

economic construction in the new era to study the economic effect of agricultural investment, but also the own requirements of agricultural development. The grand goal of economic construction has been set, how to achieve the goal method appears very important. So it is of urgent practical significance to adopt appropriate and feasible methods to study the economic effect of agricultural investment.

Agricultural investment economic management research is a very complex problem. Therefore, the research methods must be diversified and flexible, and both quantitative and qualitative analysis methods, such as mathematical statistics and optimal programming, should be used. Mathematical analysis and induction, deduction, analysis, synthesis, abstraction, generalization and other methods. Abstract method is an important method for Marx to study political economy. There are many factors involved in our study of the economic effects of agricultural investment. Therefore, the abstract approach is also applicable in studying the economic effects of agricultural investment (Chen Zexiu, 2020).

The current situation of agricultural investment economy is a highly comprehensive and abstract concept, which must be fully reflected by a series of evaluation indicators. Among the many index systems, the most basic and important is the comprehensive evaluation of agricultural investment effect. Because each index has different classification nature, different contents, calculation units and so on, different plans compete with each other, it is very difficult to compare the best, so objectively, a multi-index comprehensive evaluation method is needed to solve the problem (Dai Xinling, 2020).

This comprehensive evaluation method is to make a scientific and comprehensive analysis and judgment of the evaluated objects according to certain principles, so as to determine their advantages and disadvantages in order and rank them. At present, the comprehensive scoring method, arrow method, sequence method and other qualitative scoring method, relative value comprehensive scoring method. These methods each have their own characteristics and their own scope of application. With agricultural investment, the fuzzy comprehensive evaluation method:

Fuzzy comprehensive evaluation method is a kind of comprehensive bid evaluation method based on fuzzy mathematics. On the basis of analyzing the defects of traditional bid evaluation method, the improved AHP and fuzzy comprehensive evaluation method are put forward. Based on the membership theory in fuzzy mathematics, this comprehensive evaluation method turns qualitative evaluation into quantitative evaluation, that is, using fuzzy mathematics to evaluate the things or objects constrained by many factors. Its core is to use mathematical methods to mathematizing the uncertain information, and use the obtained data to establish a mathematical model to calculate the weight and evaluation value of each index, so as to reach the final conclusion. It is characterized by clear results and strong systematic characteristics, which can well solve fuzzy problems and difficult to quantify, and is suitable for solving all kinds of uncertain problems (Chow, 2013).

-The definition of related terms of fuzzy comprehensive evaluation method

Evaluation factor (F): refers to the evaluation content of the bidding project (such as price, various indicators, parameters, specifications, performance, conditions, etc.).

In order to facilitate weight allocation and evaluation, according to the nature of evaluation factors, evaluation factors can be divided into several categories (such as business, technology, price, accompanying service, etc.), and each category is regarded as a single evaluation factor, which is called the first-level evaluation coefficient (F_1). The first-level evaluation factors are the most important first-level evaluation factors. The first-level evaluation factor can set subordinate second-level evaluation factors (for example, the first-level evaluation factor "business" can have subordinate second-level evaluation factors: delivery time, payment terms and payment methods, etc.). In this way, each first-level evaluation factor and the corresponding second-level or third-level evaluation factor can form a whole - multi-level evaluation system. The second-level evaluation factor can set the third-level evaluation factor (F_3) of subordinates. In this way, a second-level indicator is formed -a correspondence between the first-level indicator and the second-level indicator (Dai, 2003).

Evaluation factor value (F_v): refers to the specific value of the evaluation factor. In the project bidding, due to the incomplete understanding of the information provided by the bidding enterprise or the existence of certain errors and other reasons, the evaluation results will often be biased. If a bidder's technical parameter is 120, the evaluation factor value of the bidder is 120.

Evaluation value (E): refers to the size of the evaluation factor. On this basis, another best evaluation factor value - excellence can be obtained after appropriate adjustment. The best evaluation value of the evaluation factor is 1 (100 points when using the percent system); Underexcellence evaluation factors, according to the degree of underexcellence, its evaluation value is greater than 0, or even equal to, less than or equal to 1 (100 points when using the percent system), that is, $0 \leq E \leq 1$ ($0 \leq E \leq 100$ when using the percent system).

Average evaluation value (E_p): refers to the average evaluation value of a certain evaluation factor by the members of the evaluation committee.

Average evaluation value (E_p) = sum of evaluation value of all bid evaluation committee members = number of judges

Weight (W): refers to the position and importance of the evaluation factor. In the analysis of the influencing factors, they can be divided into different levels. The sum of the weights of level 1 evaluation factors is 1; The weight of the second-level evaluation factors is greater than that of the third-level evaluation factors, and their importance is greater than that of the first and second levels. The sum of the weights of each evaluation factor in the next stage is 1.

Weighted average rating value (E_{pw}): is the weighted average rating value. Is a comprehensive evaluation method, which expresses the view and attitude towards an index by the relative advantage shown by the evaluated object in a certain index, that is, commonly referred to as comparative advantage or comparative disadvantage. Weighted average rating value (E_{pw}) = average rating value (Ep) × weight (W).

Comprehensive evaluation value (E_z): refers to the sum of weighted average evaluation value (E_{pw}) of evaluation factors at the same level. It reflects the relative importance of different levels of evaluation factors in the same level, that is, the

evaluation factors that play a leading role or have a greater impact on the level. The comprehensive evaluation value shall be corresponding to the superior evaluation factor (Frank H.Knight, 2019).

The basic equation of the open model is the material balance, $x = Ax + y$, where x is the vector of gross outputs, Ax the vector of intermediate inputs, and y is the vector of net outputs. The latter comprises the commodity components of household and government consumption, investment, and net exports. The material balance can be solved to determine the gross outputs, x, that are required to sustain the production of alternative bills of final demands, y. The solution is obtained by applying the so-called Leontief inverse, $(1 - A)^{-1} = 1 + A + A_2 + ...$, to the equation: $x = (1 - A)^{-1}y = y + A_y + A_{2y} + ...$ The total output equals the final demand itself plus the direct input requirements given by the input-output matrix plus the indirect requirements.

The second equation of the open model is the financial balance, $p = p_A + v$, where *p* is the row vector of prices, p_A the row vector of material unit costs, and *v* the row vector of value-added coefficients, representing the factor costs per unit of output of each product. The financial balance can be solved to trace the effects of changes in the factor costs (such as wages, rental rates, and taxes) on all the commodity prices. The solution is $p = v + v_A + v_{A2} + ...$ Price equals unit factor costs plus the unit factor costs of the direct input requirements plus the unit factor costs of the indirect input requirements.

To clarify, one must consider the statistical roots of an input-output matrix. These are an input matrix or use table $U = (uii)i= 1, ...,M;j = 1, ..., n$ and an output matrix or make table $V = (v_{ii})^i = 1, ...,M;j = 1, ...,n$. Here m is the number of products and n is the number of activities (firms or industries). The first column of the use table depicts the inputs of the first activity (typically agriculture) and the first column of the make table depicts the outputs of that activity (en Raa, 2005).

- *Characteristics of fuzzy comprehensive evaluation method*

Mutual comparison: the optimal evaluation factor value is taken as the evaluation value 1; For the remaining sub-optimal evaluation factors, the

corresponding evaluation value shall be obtained according to the sub-optimal degree.

Membership function: according to the characteristics of various evaluation factors, the functional relationship between evaluation value and evaluation factor value is established. On this basis, the membership degree method in fuzzy theory is used to comprehensively evaluate the project bidding documents. There are many methods to determine this kind of functional relationship (membership function), such as F statistics, various F distributions, and so on. In practical work, the fuzzy comprehensive evaluation method or analytic hierarchy process is generally used to assign weights to each evaluation factor, and then the relative importance of each influencing factor to the evaluated person is expressed by calculating the score of each index. Of course, we can also invite experienced bid evaluation experts to evaluate and directly evaluate the value.

Research method on the relationship between agricultural investment and economic growth

- *Concept definition of structural equation model*

Structural equation modeling (SEM) is a multivariate statistical technique that combines factor analysis with path analysis. It takes the influencing factors as a whole into comprehensive consideration, and describes the interrelation between the independent variables in a system. Its strong performance is the quantitative study of the interaction between multivariate variables (Gao,Ji,Huang, 2013).

By establishing the interrelation among its influencing factors, the interaction mechanism among various factors can be revealed, so as to achieve the purpose of predicting or controlling the development and change of a certain thing. Over the past three decades, SEM has been widely used in social and behavioral sciences, and in recent years has been gradually applied to market research as a means of studying the relationship between agricultural investment and economic growth.

Because agriculture has the characteristics of large input and small output, it is particularly important to quantitatively analyze the economic effect of agricultural investment. Structural equation modeling (SEM) is one of the modeling methods

used in the analysis of economic effect factors of agricultural investment. This method is a quantitative analysis method based on system dynamics theory, which is mainly used to explain and predict the interaction between agricultural investment and economic development in a region or country and its mechanism of action. The purpose is to explore the causal relationship between agricultural investment and economic growth, and the causal model is used to analyze this relationship, path diagram and other forms of expression (Han Donglin, 2007).

- *Variable analysis of structural equation model*

The model consists of two types of variables: one is the observation variable, which can be investigated through interviews or other channels and is in rectangular units; The other category is measurement variables, which cannot be directly observed and measured and are described by triangles or squares. One is structural variables, that is, those variables that cannot be directly observed, also known as latent variables, which are represented by ellipses. Among them, the larger the proportion of each variable is, the more it can reflect the level of customer satisfaction. There is some relationship between the variables, and this relationship can be calculated. For example, when a person buys something in a supermarket, the product of his price and the time he needs is satisfaction, that is, the more satisfied he is with what he buys, the more he likes it. The calculated values are called parameters. Therefore, these potential variables must be taken into account in the evaluation of agricultural investments. If the parameter values can be calculated scientifically, it can be found that there is a path relationship between agricultural economy and agricultural investment, which can guide the improvement or increase of investment and realize the rapid growth of agricultural economy (Han Qi, 2020).

- *Functional analysis of structural equation model*

One is to be able to three-dimensional, multi-level display driving force analysis. This multi-level causal relationship is more in line with the true shape of human thinking, and it is not what traditional regression analysis can achieve. According to the degree of abstraction of different properties, SEM divides properties into several layers to analyze.

The second is that SEM analysis can add properties that cannot be measured directly to the analysis. Take consumer loyalty, for example. This paper uses this approach to study the factors that influence consumer loyalty. Thus increasing the scope of data analysis, especially suitable for some more abstract inductive properties.

Third, SEM analysis can quantitatively describe the causal relationship between various properties, so that they can be compared with each other at the same level, and at the same time, the same model can be used to compare each market segment or each competitor (Jin DeHuan, 2002).

Management research methods for agricultural economics and economic growth

Agricultural input-output method is a comprehensive balance method, through the use of mathematical methods and modern computing technology to analyze and test the quantitative dependence of production and consumption of each department (product) in agricultural production. It is mainly suitable for the systematic dynamic quantitative evaluation of agricultural production processes in order to determine the best options or improvement measures.

This method uses input-output table and coefficient calculation to scientifically abstract the proportion relationship between each department (product) in input and output and convert it into mathematical expression. It is reflected in production and distribution, as well as the transfer between technology and economy, which can reveal the situation of various sectors of the national economy, the internal connection of industrial structure, and the equilibrium relationship between production and consumption (Jing Yuqin, 2007).

The core of the input-output method is the input-output table, which should be prepared with precise segmentation of material production sectors and immaterial production sectors. It can clearly reflect the direct and indirect connections between various sectors and industries in the national economy, as well as the use and equilibrium of production and distribution. The theoretical basis of the input-output method is mainly derived from the general equilibrium model proposed by Walras in

The Essentials of Pure Political Economy. It includes the compilation of input-output tables, the establishment of a system of linear algebraic equations, the comprehensive analysis of the complex connections between the various sectors of the national economy and the macroeconomic proportion relationship, as well as the industrial structure and other basic issues (Klaus Deininger, 2011).

The input-output method simplifies the general equilibrium model, reduces the number of equations and variables, and improves the calculation accuracy through the classification combined statistical method. It omits the role of production factor supply and the difference between intermediate and final product prices, but still follows the assumptions of general equilibrium models, allowing general equilibrium theory to be applied to a wider range of situations.

Through the compilation of input-output table and the establishment of the model, it can clearly reveal the state of each sector of the national economy and the internal relationship of industrial structure; In particular, it can reflect the direct and indirect correlation of various sectors and industries of the national economy in production, as well as the production and distribution of various sectors and industries, and the balance of production and consumption (equilibrium) (Liu Jia,2010).

Therefore, input-output method is an important and effective analysis method, which plays a very significant role in studying economic system. For this reason, the input-output method is also called the sectoral linkage balance method. Input-output method has been widely used in the field of macroeconomics and has become an important economic analysis method. In addition, the input-output method can also be promoted in various parts of the national economy, each department, each enterprise and other similar problems are analyzed (Liu Naixi, 2018).

First, input-output method is a powerful tool to study the law of economic structure change. The so-called industrial structure is the quantitative proportion of various industrial sectors that constitute the basic unit of economic activities in a country or region and their interrelations. When dealing with regional problems, it reflects the internal connection of the region; When applied to an industry, it reflects

the internal relationship between various products in the department; When applied within an industry, it reflects the interlinked relationship between different industries. When used in a company or enterprise, it reflects the internal connection of its internal process (Luo Jianchao (2005).

Theoretically, the input-output table reflects the relationship between various sectors, which is the technical and economic connection of production (Leontief, 1936). This link is a system of inputs, outputs, and related data. Therefore, the first part of the table is the core of the input-output table. Therefore, the second, third and fourth parts all belong to the aspect of economic evaluation. It has four main characteristics: first, it is considered from the national economy as an organic whole, and comprehensively studies the quantitative relationship (technical and economic ties) among specific sectors. Because there is a certain degree of mutual correlation and restriction between different industries, this connection is not simply shown as a direct contrast between input and output, but the whole national economic system as a unified object to investigate. Integrity is the biggest feature of input-output method. Therefore, this macro determines that the input-output table is a comprehensive and widely used analytical tool. The second is the input-output table, which reflects the product movement among various sectors from the two aspects of production, consumption and distribution, that is, it not only reflects the formation of product value, but also reflects the movement of use value (Qi, 2018). This comprehensive analysis makes it more comprehensive to reveal the interconnection between the units and their internal proportional structure in the whole national economy. Third, from the method, it passes through various coefficients. On the one hand, it reflects the specific technology and the situation of production organization, the technical and economic relations between various sectors of the national economy, etc.

On the other hand, it reveals the relationship between different industries and their influence on the development of the whole national economy. On the other hand, it is used to determine and reflect the quantitative association of total and intermediate products, total and final products of society. Therefore, the input-output table not only has the function of analyzing macroeconomic problems, but also can

reveal the extent of the impact of industrial structural changes on the quality of the entire macroeconomic operation. The fourth is to combine mathematical methods with electronic computing technology (Qiao Haishu, 2002).

The input-output method simplifies the general equilibrium model. That is, the classification and combination statistical method combines thousands of products and many production units into a limited product sector or industry, which significantly reduces the number of equations and variables, thus better solving the difficulties in practical calculation. At the same time, because of the statistical method of classification and combination, the input-output table has a high precision, which can reflect the connection and relationship between the various parts of the economic system. In addition, the input-output model still follows the assumption of the general equilibrium model, that is, the input coefficients are assumed to be fixed.

Conclusions to section 1

The purpose of this chapter is to define the basic concepts of this study, analyze the current research situation, the basis of research theories and methods, to clarify the scope, direction, and focus of this research. This chapter first introduces the related concepts and basic problems of agricultural investment management and agricultural economic growth theory.Secondly, we comprehensively consult and collect the relevant literature, We have understood the scope of agricultural economy, the different views of classical economic growth theory and modern economic growth theory, as well as the basic problems of economic growth, such as the driving source of economic growth, convergence, the relationship with trade and the impact of technological progress on economic growth. Finally, this paper explains the basis of relevant theories and methods. We focus on the empirical method of investment management of agricultural economy. This chapter will provide the necessary theoretical and methodological support for this research.

SECTION 2. EMPIRICAL ANALYSIS OF INVESETMENT MANAGEMENT OF AGRICULTURAL ECONOMY UNDER GLOBALIZATION

2.1. Evaluation of current situation of investment management of agricultural economy under globalization

At present, although the world economy has partially recovered from the shadow of COVID-19 to a certain extent, and achieved global economic growth and investment development, due to the influence of inflation and a variety of uncertainties, the monetary policies of various countries have been wandering in quantitative easing and overall contraction. Countries continue to implement proactive fiscal policies. Despite various uncertainties and the risk of a global recession, the world economy has come out of the bottom of the economic recovery.

Therefore, the International Monetary Fund, the World Bank, the Organization for Economic Cooperation and Development, and the United Nations Conference on Trade and Development（UNCTAD）forecast that the global economy will grow by 4.9%, 4.9%, 4.5%, and 4.5% in 2022, respectively. At the same time, for the economic judgment of developed economies and emerging market and developing economies, the forecast results given by the four authoritative institutions are between 4.3%-4.5% and 4.9%-5.1% respectively. Among developed economies, the United States has the largest growth rate of 5.2% annually, while India has the highest growth rate among emerging markets and developing economies. GDP growth could reach 8.5% for the whole year.

Five basic characteristics can be obtained by analyzing the economic growth forecasts of the four authoritative institutions.

First, the economic growth rate will decrease significantly after 2022, indicating that there is a risk of recession in the global economy. Second, in the post-epidemic era, economic growth will peak in 2022 and then fall sharply. It is a historical choice to experience the global economic recession crisis, and it is

objective and inevitable to achieve sustainable economic development. Third, there is the possibility of polarization of global economic growth after 2022, and the gap between the economic growth of developed countries and emerging markets and developing countries will further widen. Fourth, although the economy has shown a sustained recovery, it has not returned to the normal level before the outbreak of COVID-19. Fifth, the slowdown in overall economic growth does not mean that the economic growth of all countries has peaked. There are still many countries in the world, especially emerging markets and developing countries, whose economic growth will show a trend of rapid growth after 2022, and the imbalance of economic growth between countries and regions is very obvious. To sum up, the macro policies of different countries and regions after 2022 may undergo great changes, and the outlook for the world economy and investment should keep a positive attitude in macro-prudential, to meet the impact of uncertain factors on the development of the world economy and investment.

Overall, the development of the world economy and investment situation under globalization will be affected by the following major factors.

The first is the COVID-19 pandemic, which may occur intermittently and locally. The virus has a strong ability to mutate, which will have varying degrees of impact on the world economy and investment development.

The second is inflation. The rise of commodity prices in 2022 will extend from the local inflation caused by oil and gas to the global inflation caused by the overall price rise. On the one hand, it is an obstacle to the recovery of the world economy caused by the monetary contraction policy; on the other hand, the inflation caused by the continuous quantitative easing will increase the burden on people's lives around the world.

The third is that macro policy.The Fed and the central bank's continued interest rate hike policies have kept inflation high, the convergence of quantitative easing leads to the increase of investment and financing costs in the financial market, which increases the instability factors of world investment, and the continuous increase of fiscal policy makes the fiscal deficit ratio of various governments keep

rising, and the high debt barely makes the economic growth recovery.

The fourth is the industrial chain and supply chain. Combined with the rising prices of raw materials, the global industrial chain and supply chain are facing increasing pressure.

The fifth is the debt and currency crisis. The US Federal Reserve and central banks continue to raise interest rates, resulting in a significant increase in debt service financing costs, increased economic recovery and development, resulting in increased risk of debt default, increased risk of capital outflow, increased depreciation pressure on exchange rates, increased risk of refinancing and debt repayment, and setbacks in the process of global economic recovery.

Based on the above analysis of the forecast of global economic development and investment, this study makes an in-depth analysis of the current situation of world economic and investment development, as shown below:

- Outlook of world economic, Development and investment

Firstly, the global economy has recovered, and the economic development of emerging and developing countries is better than that of developed countries. From the analysis of GDP, PPP and GNS indicators in Figure 2.1, it is found that: First, the IMF forecasts that the combined GDP of the developed world will grow from 58,123.77 billion in 2019 to 76,025 billion in 2025. The total GDP of emerging and developing countries increased from 77,517.67 (Billions) in 2019 to 114,100.19 (Billions) in 2025, which indicates that the economic aggregate of developed countries is expected to grow less and their economic recovery is worse than that of emerging and developing countries.

Secondly, the IMF predicts that the PPP index of developed countries will increase from 42.85% in 2019 to 39.99% in 2025, and that of emerging developing countries will increase from 57.15% in 2019 to 60.01% in 2025, indicating that the global purchasing power level will continue to rise in the world economic recovery. But emerging and developing countries also face higher risks of rising prices than developed countries.

Finally, the IMF forecasts that the GNS index of developed countries will

increase from 23.45% in 2019 to 24.04% in 2025, and the PPP index of emerging developing countries will increase from 32.14% in 2019 to 34.42% in 2025, indicating that in the process of world economic recovery and development, the PPP index of emerging developing countries will increase from 32.14% in 2019 to 34.42% in 2025. Although the level of national saving has increased, it is still at a low level.

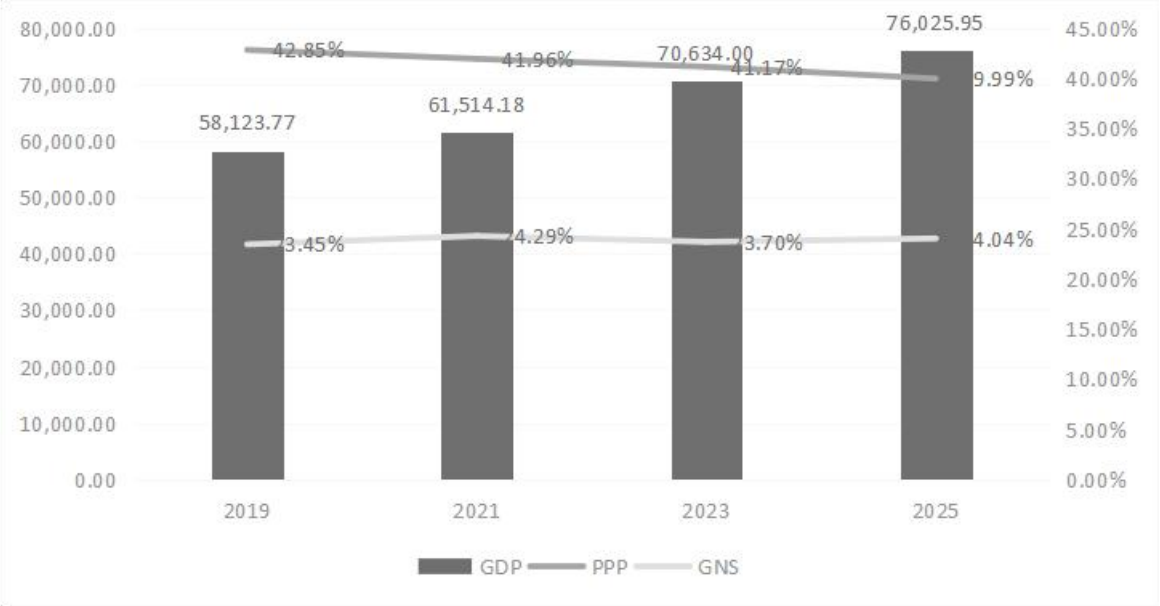


Figure 2.1- Developed countries GDP, PPP and GNS indicators forecast

Source: Data are from the forecast data of IMF, and all indicators are integrated according to different weights to obtain the final value of GDP \ PPP \ GNS in developed countries over the years.

According to the Harrod-Domar growth model, investment is a key driver of economic growth.

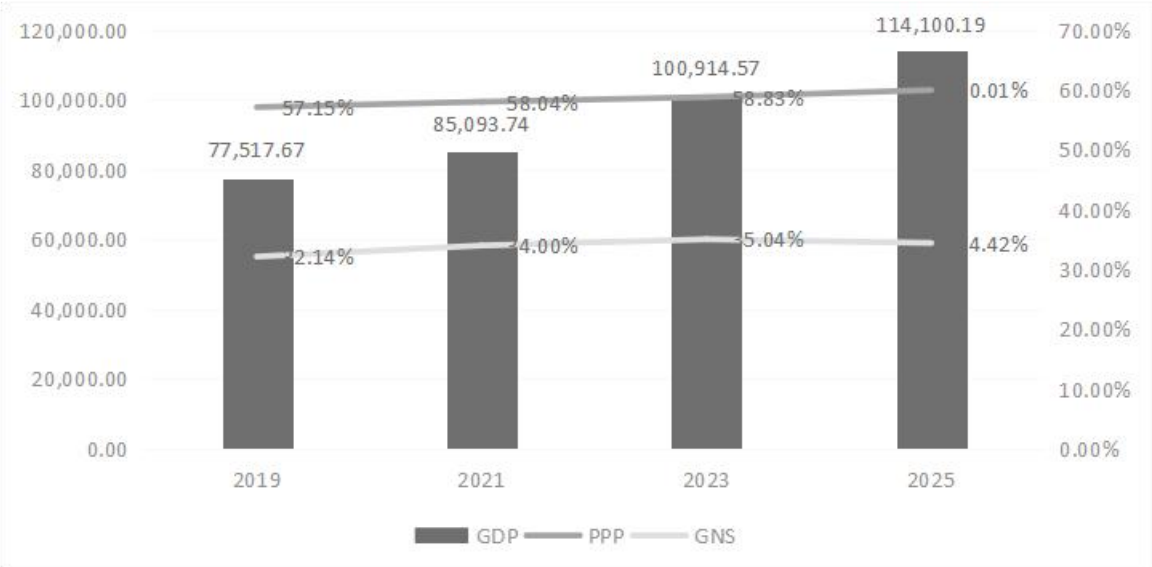


Figure 2.2 - Developing countries GDP, PPP and GNS indicators forecast

Source: Data are from the International Monetary Fund IMF forecast data. All indicators are integrated with different weights to get the final value of GDP \ PPP \ GNS of emerging developing countries over the years.

Developed countries face challenges such as lower economic growth expectations and lower savings levels, while emerging developing countries are more positive in terms of economic growth, purchasing power enhancement and savings levels. However, factors such as specific economic conditions and policy measures can also have an impact on these projections.

The global inflation rate is generally beyond the limit, and the inflation rate of emerging developing countries is higher than that of developed countries. From Table 2.1 I, ACP index analysis: IMF forecast I in developed countries, ACP index from 1.40% in 2019 to 1.98% in 2025, emerging developing countries I, ACP index from 5.13% in 2019 to 4.63% in 2025, which shows that the inflation level in developed countries, the inflation level of emerging developing countries is reduced, but rising space is still larger, in fact the global inflation rate is generally beyond expected level.

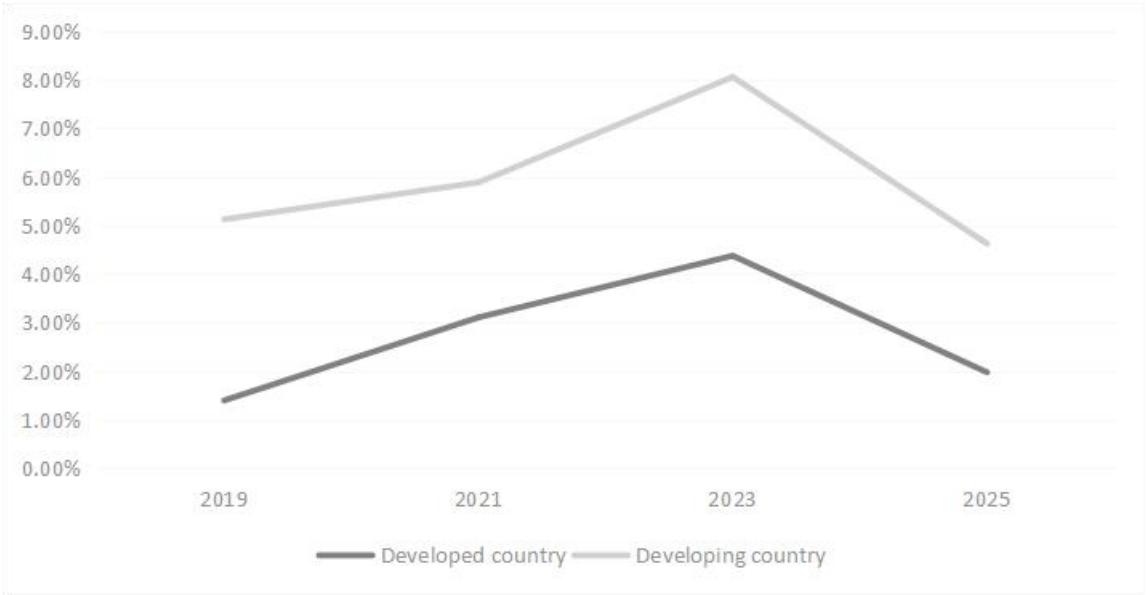


Figure 2.3 - Developed and developing countries I, ACP projections

Source: The data comes from the forecast data of IMF. All indicators are integrated according to different weights to get the final I and ACP from developed and emerging developing countries over the years.

The global unemployment rate is at a high level, and the job market of emerging developing and developed countries is generally affected by the epidemic.

According to the analysis of the UR index of Table 2.1, it can be seen that the UR index from 2019 to 2025 was 4.83% in 2019,5.60% in 2021,4.95% in 2023 and 5.14% in 2025, which indicates that under the shadow of the COVID-19 crisis and the global economic recession, the global job market fluctuated greatly, not reaching the expected level, and the unemployment rate basically maintained at a high level of 5%.

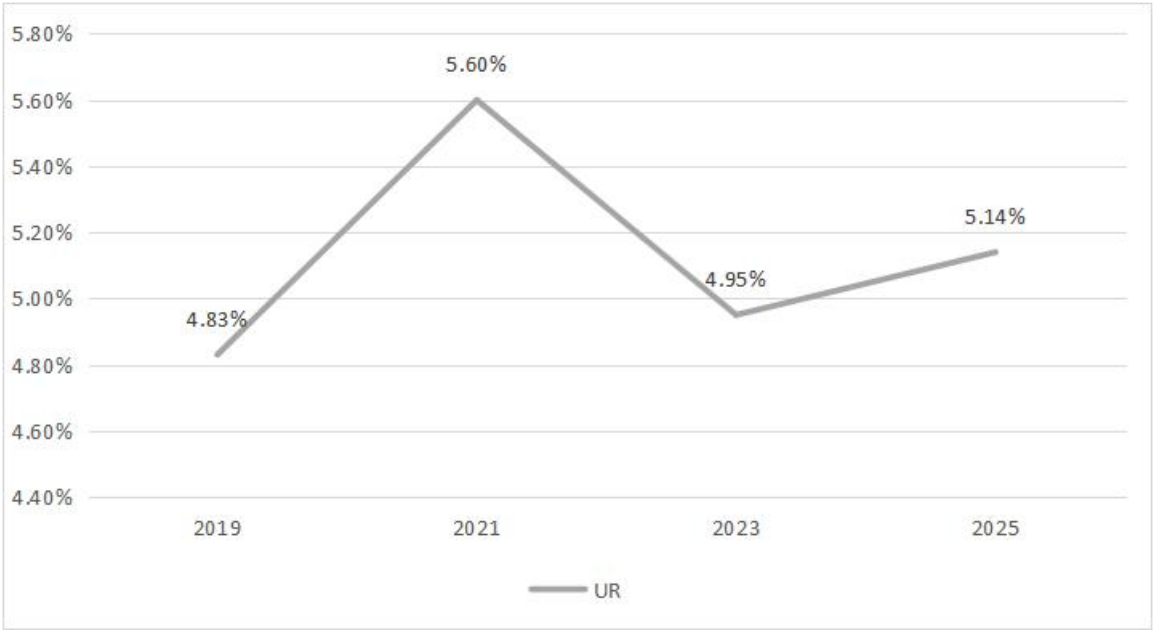


Figure 2.4 - Developed and developing countries UR projections

Source: Data are from the forecast data of IMF IMF2019-2025. All indicators are integrated with different weights to get the final value of UR of developed and emerging developing countries over the years.

The balance of payments is generally unbalanced, and the structure of the import and export market is seriously unbalanced. The total import and export volume of developed countries is expected compared with that of emerging developing countries. According to the analysis of GGNL / B, IMS and EXS indicators of Table 2.1, it can be seen: First, from 2019 to 2025, the IMF predicts that the average GGNL / B in developed countries would be around-4%, the average GGNL / B in emerging developing countries would be around-5%, and the pre-epidemic level would be around-3%, indicating that the external debt level of the government is high and the balance of payments is generally unbalanced.

The IMF predicts that the total IMS in developed countries will decrease from 379.26 (Billions) in 2019 to 156.06 (Billions) in 2025, and the total IMS in emerging

developing countries will increase from-3.40 (Billions) in 2019 to 156.78 (Billions) in 2025. Moreover, the total volume of EXS decreased from 15,299.97 (Billions) in 2019 to 20,769.44 (Billions) in 2025, and the total amount of EXS in emerging developing countries increased from 8,921.84 (Billions) in 2019 to 11,373.32 (Billions) in 2025. This shows that in the post-epidemic era, the structure and direction of the world's foreign trade will be rearranged, which will indirectly break the original direction of international capital flow and rearrange along with the adjustment of the structure of the import and export market.

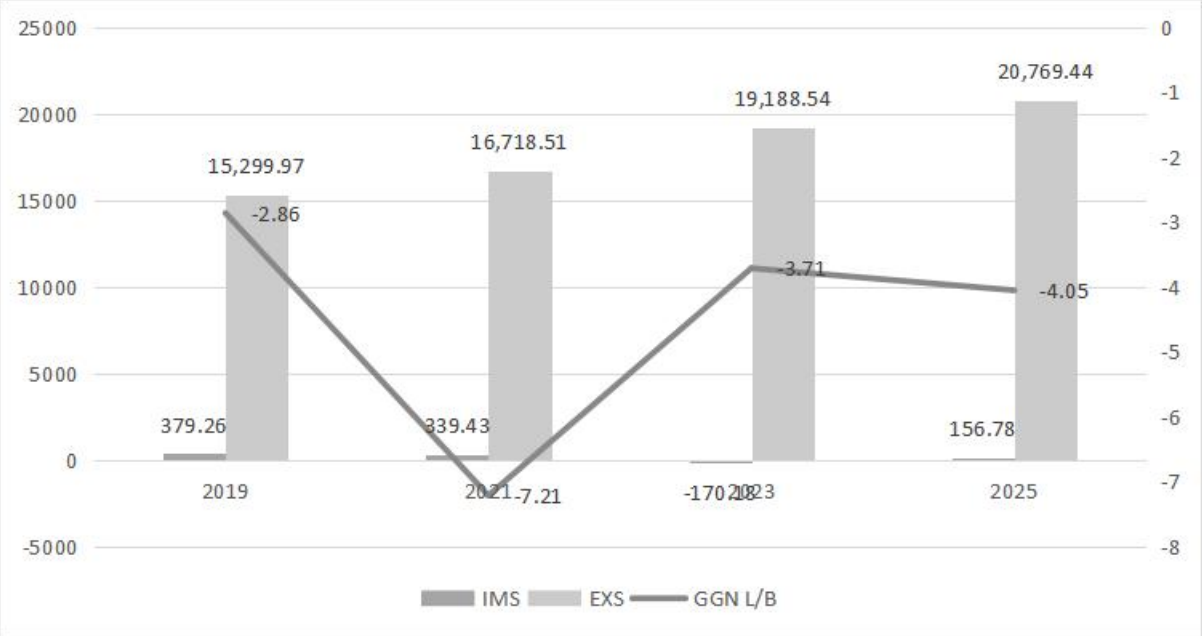


Figure 2.5 - Developed countries GGN L/B、IMS、EXS projections

Source: Data are from the forecast data of IMF IMF2019-2025, and all indicators are integrated with different weights for GGNL / B \ IMS \ EXS in developed countries over the years.

Global capital liquidity is good. The capital flow of developed countries is better than that of emerging developing countries. The role of investment in driving economic growth is weak, and the driving role of emerging developing countries is better than that of developed countries. According to the analysis of CAB and I and GDP indicators of Table 2.1, IMF predicts that the CAB index in developed countries increased from 15,587.09 (Billions) in 2019 to 21,057.25 (Billions) in 2025, and the CAB index in emerging developing countries increased from 9,117.28 (Billions) in 2019 to 12,149.49 (Billions) in 2025.

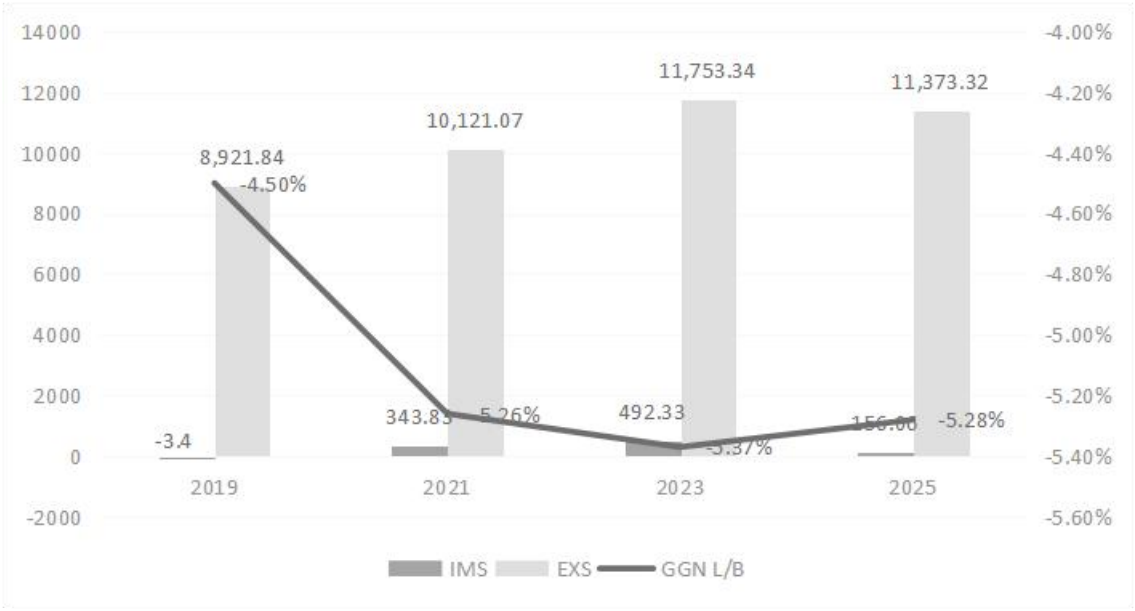


Figure 2.6 - Developing countries GGN L/B, IMS, EXS projections

Source: The data are from the forecast data of IMF from 2019 to 2025. The final values of GGN L/B\IMS\EXS of emerging developing countries over the years are obtained after the integration of all indicators according to different weights.

However, the IMF forecast I in developed countries, GDP index from 22.65% in 2019 to 22.58% in 2025, I emerging developing countries, GDP index from 32.27% in 2019 to 34.25% in 2025, this shows that although the current account balance of developed countries growth is much higher than emerging developing countries, capital liquidity is far better than emerging developing countries, but the capital flow of developed countries with economic growth is poor, capital failed to flow to the industrial development of national economy, the role of investment for economic development is low.

Different types of investment in the world are developing increasingly. The investment structure of developed countries is relatively balanced and the degree of capitalization is high, while the investment of emerging developing countries is developing fast, but the tendency of various types of investment is relatively unbalanced, and there is a large space for the development of various types of investment.

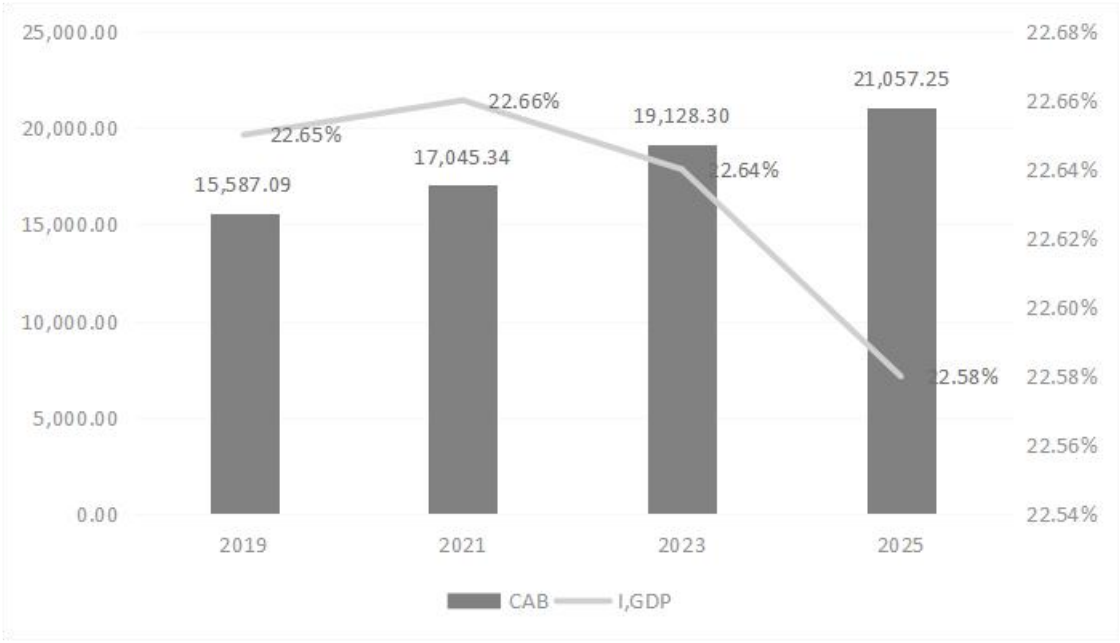


Figure 2.7 - Developed countries CAB, I,GDP projections

Source: Data are from the forecast data of IMF IMF2019-2025. All indicators are integrated with different weights to obtain the final CAB \ I and the final value of GDP in developed countries over the years.

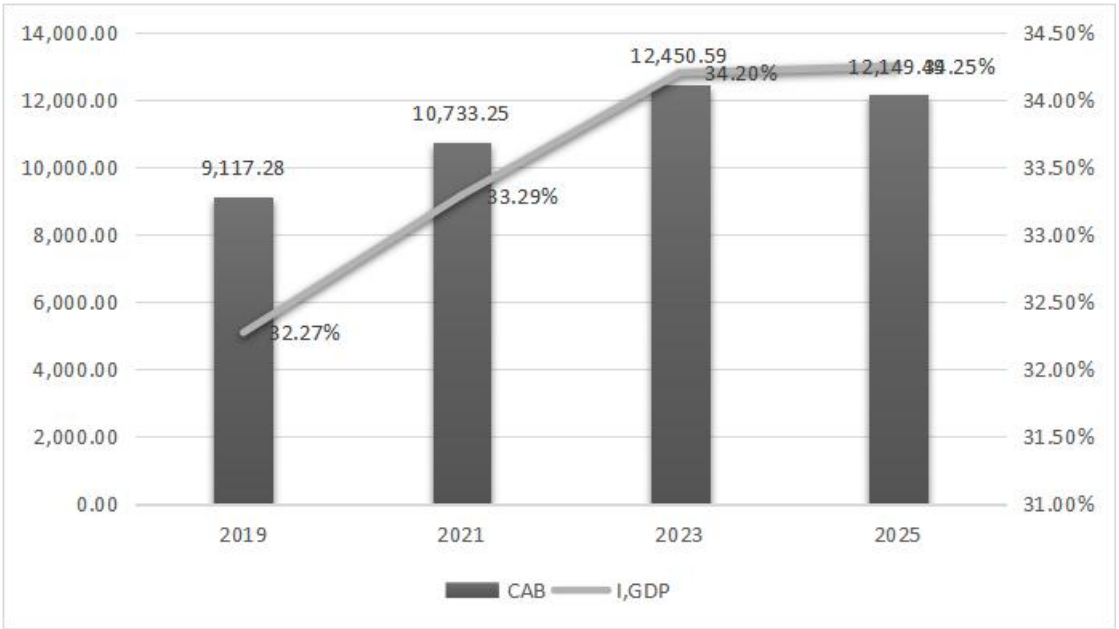


Figure 2.8 - Developing countries CAB, I,GDP projections

Source: Data are from the IMF IMF2019-2025 forecast data, and all indicators are integrated with different weights to get the final value of CAB \ I and GDP of emerging developing countries.

From Table 2.1 FAB, FDI, N, FPI, N, FD, N, OI, N index analysis: IMF forecast that emerging developing countries FAB, FDI, N, FPI, N, FD, N, OI, N growth space than the developed countries, in the outbreak era, emerging developing countries investment and financing level will present one hundred times growth,

different types of investment development will experience opportunities, to drive the development of the world economy.

Table 2.1- The status forecast of world economic development and investment

Index	2019		2021		2023		2025	
Region Type	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
GDP	58,123.8	77,517.7	61,514.2	85,093.7	70,634.0	100,914.5	76,025.9	114,100.1
PPP	42.85	57.15	41.96	58.04	41.17	58.83	39.99	60.01
GNS	23.45	32.14	24.29	34.00	23.70	35.04	24.04	34.42
I,ACP	1.40	5.13	3.11	5.89	4.38	8.06	1.98	4.63
UR	4.83	4.83	5.60	5.60	4.95	4.95	5.14	5.14
GGN L/B	-2.86	-4.50	-7.21	-5.26	-3.71	-5.37	-4.05	-5.28
IMS	379.26	-3.40	339.4	343.83	-170.18	492.33	156.78	156.06
EXS	15,299.9	8,921.8	16,718.5	10,121.0	19,188.5	11,753.3	20,769.4	11,373.3
CAB	15,587.1	9,117.3	17,045.3	10,733.2	19,128.3	12,450.5	21,057.2	12,149.4
I,GDP	22.65	32.27	22.66	33.29	22.64	34.20	22.58	34.25
FAB	155.87	-146.0	465.76	152.24	-116.32	522.27	171.93	539.59
FDI,N	4.25	-366.9	501.77	-514.87	81.26	-351.78	83.43	-371.11
FPI,N	57.35	-62.37	288.53	114.62	-198.89	47.53	1.59	207.13
FD,N	25.70	25.70	50.55	50.55	52.06	52.06	41.93	50.38
OI,N	1.63	119.79	-1,003.30	36.00	-141.06	467.08	-103.30	531.39

Source: The data are from the forecast data of the International Monetary Fund from 2019 to 2025.

- ***Evaluation of the current state of the world economy***

From the entropy weight results in Table 2.2, it can be seen that the information entropy value e of developed countries and regions and emerging developing countries are decreasing year by year, and the information utility *value d* is increasing. The weight ratio (%) also increases year by year, and the entropy weight of emerging and developing countries is higher than that of developed countries in the same period. This shows that the developed countries have a good economic foundation and a high degree of capitalization. The economic foundation of

emerging developing countries is relatively weak, but the speed of economic development is fast, the degree of capitalization is low, and the speed of industrial development is accelerated as time goes by.

Therefore, we should pay full attention to the differences in industrial development between the economic development of developed countries and emerging developing countries, and use international capital flow and international investment to drive the recovery and development of time economy. Such cooperation in international capital flows and investment can help achieve mutual benefit and win-win results in the economy, and help strengthen the interlinkage and sustainable development of the global economy.

Table 2.2 - Entropy weight of World Economy

Year	Region	Information entropy value e	Information utility value d	weight (%)
2015	1	0.92	0.08	2.18
2016	1	0.92	0.08	2.21
2017	1	0.88	0.12	3.23
2018	1	0.86	0.14	3.94
2019	1	0.91	0.09	2.49
2020	1	0.89	0.11	3.04
2021	1	0.78	0.22	6.01
2022	1	0.70	0.30	8.31
2015	2	0.85	0.15	4.16
2016	2	0.86	0.14	3.78
2017	2	0.85	0.15	4.09
2018	2	0.81	0.19	5.21
2019	2	0.84	0.16	4.33
2020	2	0.84	0.16	4.41
2021	2	0.86	0.14	3.84
2022	2	0.74	0.26	7.04

Source: Data comes from the world economic development level data of the International Monetary Fund IMF 2015-2022. The entropy right method is adopted to calculate the weight of developed countries and emerging developing countries over the years according to 15 measurement indicators, and obtain the overall development trend of developed countries and emerging developing countries. Among them, Region1 represents emerging developing countries, and Region 2 means developed countries.

By promoting economic cooperation between developed and emerging developing countries, we can promote balanced global economic growth, improve living standards, and reduce poverty and inequality. Therefore, we should aim to

establish and strengthen international cooperation mechanisms to promote cross-border investment and capital flows and provide an environment and policy framework conducive to economic development. Only by taking full advantage of the opportunities of international capital flows can we achieve sustainable economic growth and a better quality of life for people in all countries.

From the fuzzy comprehensive evaluation results in Table 2.3, it can be seen that:

(1) the lowest membership degree of Q5 is 9.4%, and the highest membership degree of Q4 is 16.5%, which indicates that in the world economic development, inflation and employment are more prominent; The comprehensive evaluation score of the world economic development level has been increasing year by year, with the economic development level of developed countries increasing from 3.38 percent in 2015 to 5.26 percent in 2022, and that of emerging developing countries increasing from 4.23 percent in 2015 to 5.99 percent in 2022.

(2) From the indicators Q1 to Q8 and the comprehensive evaluation results of the world economy, it is found that the economic development speed of developed countries is lower than that of emerging and developing countries in the same period. This shows that, on the whole, the world economy is recovering well and developing at a relatively fast pace.

However, the global economic crisis brought about by unstable factors may reconstruct the world economic development pattern. This widening gap may stem from a number of factors.

Firstly, developed countries are better able to attract international capital inflows and realize industrial optimization and upgrading due to their better economic foundation and high degree of capitalization. They have more advanced technology and more efficient productivity, giving them a competitive advantage in the global market. In contrast, emerging developing countries have a weaker economic base, are less capitalized, and may face challenges from technological and market barriers, leading to their relatively slow development.

Secondly, the global economic crisis may lead to instability in global trade

and investment activities, which in turn will have an impact on the economic development of emerging and developing countries. These countries are often more dependent on exports and foreign direct investment and may face pressure on trade revenues and capital outflows if global demand weakens or financial flows are constrained.

In contrast, developed countries have a more diversified and stable economic structure and are more resistant to risks. This widening gap in economic development could lead to a host of problems, including a widening gap between rich and poor, social instability, and imbalances in the global economic system. To meet this challenge, the international community should strengthen cooperation and adopt inclusive policy measures to promote balanced growth of the global economy. These include promoting technology transfer, increasing financial support and investment for emerging and developing countries, reducing trade barriers, and improving global economic governance mechanisms.

Table 2.3 - Fuzzy Comprehensive Evaluation Results of World Economy

Index		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**World Economy**
M / M N[weight]		6.31%	5.35%	5.67%	8.16%	4.62%	6.01%	6.74%	6.55%	1
Year	**Region**	12.8%	10.8%	11.5%	16.5%	9.4%	12.2%	13.6%	13.3%	1
2015	1	3.09%	4.02%	3.68%	0.35%	5.53%	2.52%	4.62%	4.62%	3.38%
2016	1	3.21%	4.01%	3.63%	0.85%	5.15%	2.60%	4.57%	4.60%	3.44%
2017	1	3.35%	3.98%	3.74%	1.93%	4.68%	2.31%	4.98%	5.00%	3.67%
2018	1	3.51%	3.93%	3.75%	2.21%	4.23%	2.37%	5.44%	5.43%	3.82%
2019	1	3.63%	3.90%	3.76%	1.58%	3.98%	2.80%	5.37%	5.33%	3.73%
2020	1	3.51%	3.84%	3.70%	0.77%	5.44%	10.2%	4.85%	4.81%	4.48%
2021	1	3.85%	3.81%	3.89%	3.51%	4.62%	7.06%	5.87%	5.83%	4.80%
2022	1	4.22%	3.80%	3.81%	8.16%	3.74%	3.57%	6.60%	6.34%	5.26%
2015	2	3.90%	5.07%	5.08%	5.35%	5.53%	4.02%	2.65%	2.62%	4.23%
2016	2	4.06%	5.08%	5.00%	4.92%	5.15%	4.37%	2.54%	2.52%	4.15%
2017	2	4.30%	5.11%	5.08%	5.07%	4.68%	3.77%	2.86%	2.84%	4.19%
2018	2	4.60%	5.16%	5.19%	5.61%	4.23%	3.47%	3.18%	3.17%	4.34%
2019	2	4.85%	5.20%	5.15%	5.79%	3.98%	4.40%	3.13%	3.12%	4.48%
2020	2	4.80%	5.25%	5.28%	5.81%	5.44%	8.39%	2.78%	2.83%	5.04%
2021	2	5.32%	5.28%	5.45%	6.65%	4.62%	5.15%	3.55%	3.67%	5.01%
2022	2	5.88%	5.29%	5.67%	11.2%	3.74%	5.95%	3.97%	4.18%	5.99%

Source: Data from the IMF IMF 2015-2022, using fuzzy comprehensive evaluation method to calculate the overall weight of 15 indicators of developed and emerging developing countries. Based on this calculation, the change of the weight of each index from 2015 to 2022 obtains the overall development trend of developed

countries and emerging developing countries respectively. The indicators Q1 to Q8 correspond to the problems in the attached Appendix Table 1.

Three trends can be seen from the trend plots of the world economic development level in Figure 2.9. First, the comprehensive evaluation results of the world economic development level show a fluctuating upward trend, with the economic level of developed countries increasing from 3.38% in 2015 to 4.64% in 2025, and the economic level of emerging developing countries increasing from 4.23% in 2015 to 5.13% in 2025. Second, the comprehensive evaluation results of the world economic development level suddenly slow down during the global public health event and make rapid progress in the post-epidemic era. For example, the economic level of developed countries drops to 3.73% in 2021 and that of emerging developing countries drops to 5.01% in 2019. Third, the comprehensive evaluation results of the world economic development level are sluggish during the global economic recession crisis. For example, the economic level of developed countries drops from 5.26% in 2022 to 4.64% in 2025, and that of emerging developing countries drops from 5.99% in 2022 to 5.13% in 2025.

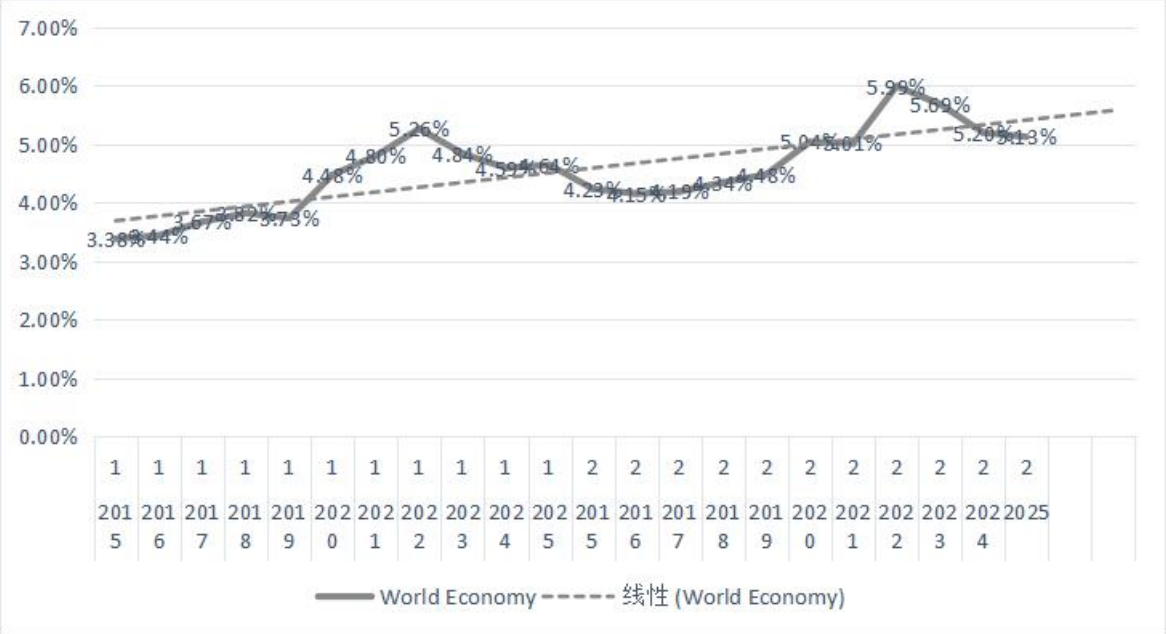


Figure 2.9 - Evaluation Results of the World Economic Development Level

Source: Data from the International Monetary Fund IMF 2015-2022. The fuzzy comprehensive evaluation method is adopted to calculate the overall weight of 15 indicators of developed countries and emerging developing countries, and obtain the overall development trend of developed countries and emerging developing countries.

- Evaluation of the current situation of world investment

From the entropy weight results in Table 2.4, it can be seen that the information entropy value e of developed countries and regions and the information utility value d of emerging and developing countries are fluctuating and declining, and the information utility value d is fluctuating and rising. In particular, the information entropy value e and information utility value D of developed countries have reverse changes from 2020 to 2022. The weight ratio (%) also fluctuates, and the entropy weight of emerging and developing countries is higher than that of developed countries over the same period, and the entropy weight of developed countries declines between 2020 and 2022.

This trend indicates that there are already signs of a slowdown in the rate of capital accumulation in the more capitalized developed countries. As the accumulation of capital increases, its economic utility diminishes. This may be because developed countries have reached a certain economic size and level of development, and the impact of further capital input on economic growth is gradually weakened. However, in the emerging developing countries with low capitalization degree, the development speed of international investment and economic growth show a trend of synchronous development.

This means that emerging developing countries are able to attract more international capital inflows to promote economic growth and development. However, capital mobility may perform less well in these countries due to the presence of various uncertainties, including political risks, economic fluctuations and changes in the external environment. This can lead to instability in investment inflows and capital leverage, limiting the potential of these countries in economic development. Therefore, in the development of global investment, we need to focus on the role of capital mobility and capital leverage.

In order to promote the recovery and development of the world economy, we should take measures to increase the liquidity of capital, including improving the investment environment, lowering investment barriers and strengthening financial market regulation. In addition, international cooperation is also key. By strengthening

international economic cooperation and promoting trade liberalization and investment facilitation, the efficiency and stability of capital flows can be improved. By focusing on capital mobility and the role of capital leverage, we can restore and grow the global economy, bringing more opportunity and well-being to all countries. This will help narrow the economic gap between developed and emerging developing countries and promote the balanced and sustainable development of the global economy.

Table 2.4 - Entropy weight of World Investment

Year	Region	Information entropy value e	Information utility value d	weight (%)
2015	1	0.90	0.10	2.44
2016	1	0.84	0.16	3.88
2017	1	0.88	0.12	2.80
2018	1	0.90	0.10	2.44
2019	1	0.81	0.20	4.63
2020	1	0.92	0.08	1.90
2021	1	0.92	0.08	1.93
2022	1	0.91	0.09	2.22
2015	2	0.72	0.28	6.58
2016	2	0.82	0.18	4.27
2017	2	0.86	0.14	3.37
2018	2	0.85	0.16	3.68
2019	2	0.81	0.19	4.55
2020	2	0.73	0.27	6.42
2021	2	0.70	0.30	7.08
2022	2	0.62	0.38	8.95

Source: Data is from the world investment management level data of IMF IMF 2015-2022. The entropy right method is adopted to calculate the weight of developed countries and emerging developing countries over the years according to 15 measurement indicators, and obtain the overall investment level development trend of developed countries and emerging developing countries.

From the fuzzy comprehensive evaluation results of Table 2.5:

(1) the lowest membership of Q10 is 9.6%, Q11, Q12, Q13 and Q15 had the highest membership of 15.8%, This shows that the leverage effect of international investment on world economic development needs to be strengthened, Different types of international investment are developing rapidly;

(2) The comprehensive evaluation results of the world investment management level fluctuate greatly, falling fluctuations in investment management levels in developed countries down from 2.52% in 2015 to -12.11% in 2022, but

rising volatility in investment management levels in emerging developing countries increased from 8.99% in 2015 to 25.60% in 2022.

This indicates that emerging developing countries invest heavily in the development of international investment, international investment has more room for development, higher levels of capitalization in developed countries. The development space of international investment is relatively low;

(3) From the comprehensive evaluation results of Q9 to Q15 indicators and the results of world investment, emerging developing countries have good investment management in the same period. It indicates, emerging developing countries attach increasing importance to capital leverage and capital liquidity, attach importance to the driving role of investment management in economic development.

Table 2.5 - Fuzzy Comprehensive Evaluation Results of World Investment

Index		Q9	Q10	Q11	Q12	Q13	Q14	Q15	World Investment
M / M N[weight]		8.95%	5.63%	9.24%	9.24%	9.24%	6.93%	9.24%	1
Year	Region	15.30%	9.60%	15.80%	15.80%	15.80%	11.80%	15.80%	1
2015	1	7.00%	3.58%	9.27%	-0.11%	9.30%	-11.39%	-2.96%	2.52%
2016	1	9.47%	3.55%	14.22%	8.55%	27.60%	4.31%	-2.08%	9.93%
2017	1	12.55%	3.62%	14.22%	-12.32%	-0.57%	2.86%	-20.63%	-0.44%
2018	1	10.23%	3.67%	15.75%	1.84%	28.73%	6.88%	-17.67%	7.26%
2019	1	9.73%	3.72%	5.11%	-0.15%	3.25%	3.42%	0.19%	3.58%
2020	1	4.62%	3.67%	0.97%	-1.72%	10.39%	11.85%	-75.05%	-7.88%
2021	1	8.71%	3.72%	15.28%	-17.39%	16.36%	6.73%	-115.84%	-13.57%
2022	1	-9.51%	3.77%	-10.10%	-8.68%	-16.19%	6.48%	-39.58%	-12.11%
2015	2	-1.95%	5.24%	-10.27%	11.97%	7.06%	-11.39%	55.36%	8.99%
2016	2	-2.55%	5.17%	-13.92%	9.07%	-3.25%	4.31%	44.43%	6.35%
2017	2	-0.56%	5.22%	-9.33%	10.79%	-11.87%	2.86%	7.20%	0.25%
2018	2	-1.42%	5.36%	-8.49%	13.06%	-5.79%	6.88%	12.02%	2.82%
2019	2	-0.09%	5.30%	-4.79%	12.72%	-3.54%	3.42%	13.83%	3.78%
2020	2	4.05%	5.34%	1.89%	11.35%	0.27%	11.85%	31.80%	9.69%
2021	2	8.82%	5.46%	4.99%	17.85%	6.50%	6.73%	4.16%	7.96%
2022	2	15.34%	5.63%	21.44%	12.29%	22.11%	6.48%	83.08%	25.60%

Source: Data from the International Monetary Fund IMF 2015-2022, using fuzzy comprehensive evaluation method to calculate the overall weight of 15 indicators of developed countries and emerging developing countries. Based on this calculation, the change of the weight of each index from 2015 to 2022 shows the overall investment level development trend of developed countries and emerging developing countries respectively.. The questions corresponding to the indicators Q9 to Q15 are shown in Appendix Table 1.

It can be seen from the trend chart of world investment management level in

Figure 2.10.

(1) the comprehensive evaluation results of the world investment management level show a fluctuating upward trend, and the investment management level of emerging developing countries is higher than the investment management level of emerging developing countries in the post-epidemic era. For example, the level of investment management in developed countries decreased from 2.52% in 2015 to 0.19% in 2025, The investment management level of emerging and developing countries increased from 8.99% in 2015 to 18.32% in 2025;

(2) Comprehensive evaluation results of investment management levels in emerging developing countries showed high levels of development during global public health events. For example, the 2022 investment management level reached 25.60%;

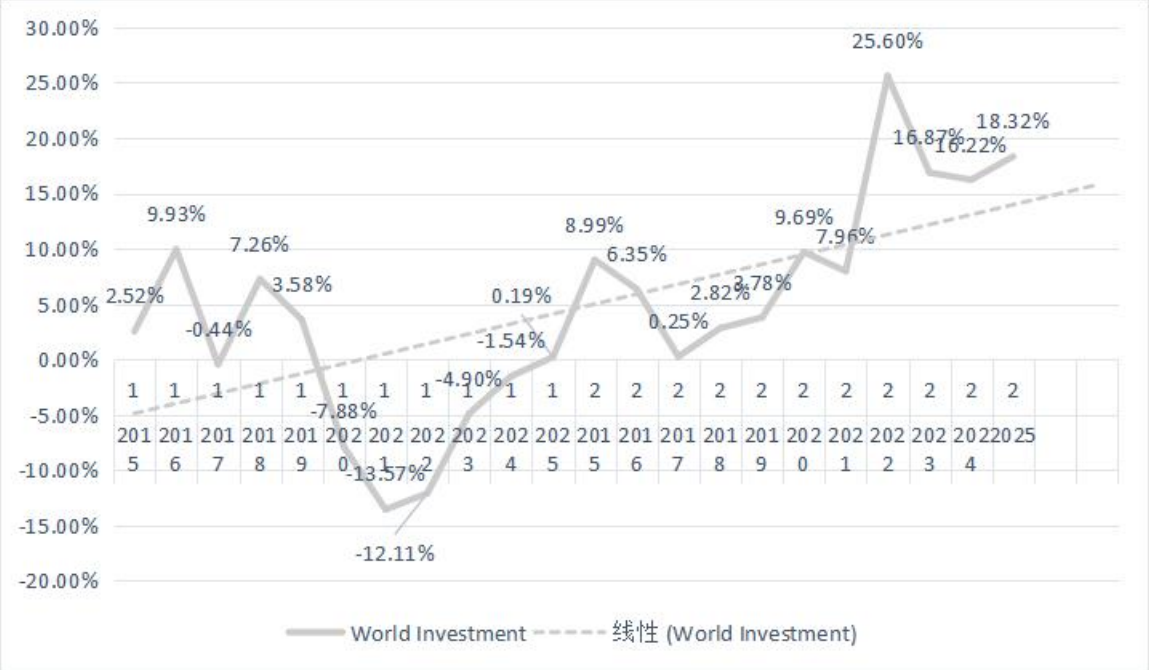


Figure 2.10 - Evaluation Results of the World Investment Management Level

Source: Data is from the world investment management level data of IMF IMF 2015-2022. The fuzzy comprehensive evaluation method is adopted to calculate the change of investment level weight from 2015 to 2022, and obtain the overall investment level development trend of developed countries and emerging developing countries.

(3) The comprehensive evaluation results of the investment management level in developed countries have a relatively low performance in the period of capital direction changes and the global economic recession, and always lags behind the

world economic development cycle. For example, the investment management level in developed countries decreased from 3.58% in 2018 to -13.57% in 2021. In the post-epidemic era it recovered to 0.19% in 2025. Showed that the developed countries have a relatively strong economic foundation, capitalization is more resilient, capital liquidity is good.

2.2. Evaluation of China's economic development and investment level

Since China's accession to the World Trade Organization (WTO), China's economic development has an increasingly close relations with the world economy. With the gradual globalization of the global economy, China is playing an increasingly important role in the world economy. As one of the most important members of the World Trade Organization, China's economic growth rate has declined slightly under the influence of the COVID-19 epidemic, but China's economy remains one of the most important engines of global economic growth. The connection between China's economic development and the world economy is reflected in many aspects.

First of all, as the world's largest manufacturing base and one of the largest exporters, China plays an important role in the stable operation of the global supply chain. China's manufacturing capacity and labor advantage have attracted a large number of investment and production from international enterprises. China's exports cover a wide range of areas, from electronics to textiles, and have had a profound impact on the lives of consumers around the world. Second, China's economic development has an important impact on global investment growth. China has attracted a large amount of foreign direct investment, which has not only promoted its own economic development, but also provided a broad market and business opportunities for foreign enterprises.

China's market size and consumption potential cannot be ignored for global companies. In addition, China's outbound investment is also increasing, covering a

number of countries and sectors, injecting vitality and opportunities into the world economy. However, China's economic development has also been influenced by the global economic situation. Global economic uncertainty, trade disputes, financial market fluctuations and other factors may all have an impact on China's economic growth. The Chinese government needs to pay close attention to the global economic dynamics and take corresponding policies and measures to maintain the stable and sustainable economic development. Therefore, China's economic development and investment management are closely related to the world economic development and investment growth.

- Current situation of China's economic development and investment

In the past decade, China's economy has developed rapidly and its economic foundation has been gradually consolidated. In terms of economic aggregate, since the reform and opening up, China's economy has been climbing in the ranking of the global economy. In 1978, China's total economic volume was only 1,031.1 billion yuan, ranking 10th in the world and accounting for 1.8 percent of the world's total economic volume. GDP per capita is less than 1,400 yuan.

By 2021, China's economic aggregate had reached 114.36697 billion yuan, and its per capita GDP was 80,976.00 yuan, accounting for about 20% of the world's total GDP. This shows that after the reform and opening up and economic restructuring, China's economy has developed rapidly, the speed of capital accumulation has been gradually improved, and China's economic foundation has been gradually consolidated. This means that wealth and income are unevenly distributed and the fruits of economic development fail to reach the entire population fully.

This is consistent with the vicious cycle of poverty theory of Nakes, which states that poverty and inequality can lead to uneven economic growth and exacerbate poverty and inequality. Although China has achieved remarkable economic growth, it still faces the challenge of achieving high-quality development. High-quality development includes raising per capita income, improving social welfare, and strengthening environmental protection. Due to the large difference in per capita

development, China needs to further promote economic restructuring and strengthen investment in education, technological innovation and social security to ensure that economic growth is more balanced and sustainable, and better meets the needs of the people.

Therefore, the poverty vicious cycle theory of Nakes can explain the per capita development differences in China's economic development. Despite the rapid growth of China's economic aggregate, poverty and inequality still exist, and China still needs to work hard to achieve high-quality development to ensure the sustainability of economic growth and the improvement of people's living standards.

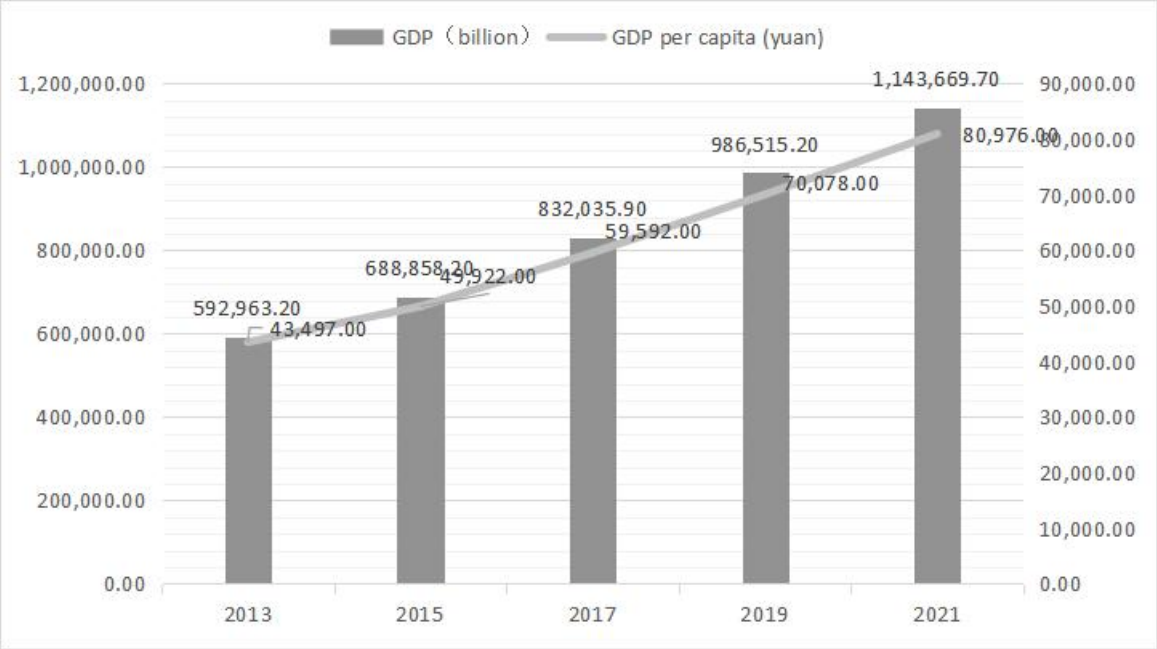


Figure 2.11- China's economic aggregate and per capita GDP development

Source: Data are from China's economic level data of the National Bureau of Statistics from 2013 to 2021, including China's economic aggregate and per capita economic aggregate.96 indicators were used to calculate the weight and importance to obtain the final GDP and per capita GDP from 2013 to 2021, which obtained the development trend of China's overall economic level.

Industrial structure adjustment has effectively promoted economic reform and increased national income, but it has failed to realize effective allocation of resources and give full play to the comparative advantages of the three industries. In terms of industrial structure, the added value of the primary industry decreased from 8.9% in 2013 to 7.3% in 2021, the added value of the secondary industry decreased from 44.2% in 2013 to 39.4% in 2021, and the added value of the tertiary industry

increased from 46.9% in 2013 to 53.3% in 2021.

The changes in China's industrial structure show that after the industrial structure adjustment in 2015, the layout of China's industrial structure has changed among the primary, secondary and tertiary industries, and the industrial structure has shifted from the main industry to the service industry of the tertiary industry as the support. On the one hand, the adjustment of industrial structure has increased the accumulation of national capital and raised national income to a certain extent. On the other hand, industrial restructuring has not fundamentally improved the quality of economic development, given full play to the supporting role of the primary industry and the secondary industry in the tertiary industry, and has not fully integrated the development of the three industries to achieve effective allocation of resources and complementary advantages.

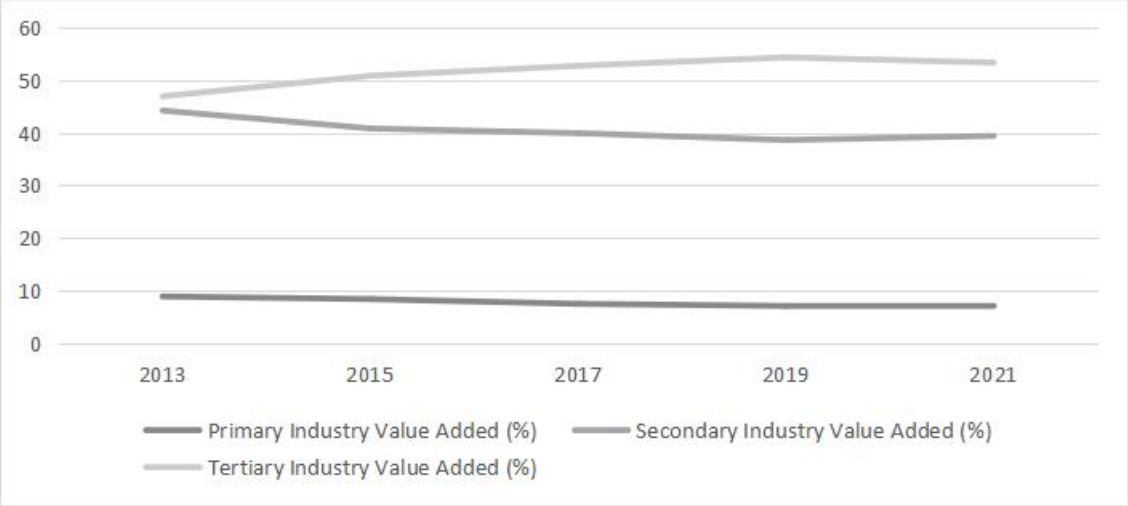


Figure 2.12 - Changes in China's primary, secondary and tertiary industries

Source: Data from China's economic level data from National Bureau of Statistics 2013-2021, classified into industrial data by the author. Including the added value of the primary industry, the added value of the secondary industry and the tertiary industry, the development trend of China's overall industrial structure.

China's total investment has kept pace with its growth rate. However, the growth rate of investment in fixed assets is much lower than that of investment in goods and services, and the efficiency of investment in promoting economic development is low.In terms of investment level, the total capital formation increased from 27.512.870 billion yuan in 2013 to 489,897,720 billion yuan, and the total fixed capital formation increased from 26,397,999 billion yuan to 4,789,0120 billion yuan

in 2013.The total value of goods and services increased to 2,952.190 billion yuan from 14,552.1 billion yuan in 2013.

This represents a significant increase in China's total international investment, with the total amount of investment in fixed assets, goods and services in 2021 being twice that in 2013.Although the total investment in fixed assets is much larger than the total investment in goods and services, the growth rate of the investment in fixed assets is much lower than that of the total investment in goods and services, indicating that the investment efficiency of China's fixed assets is not fully utilized and the investment space is large. Moreover, the investment efficiency of China's import and export of goods and services is low, and the capitalization of goods and services is not fully realized. Leverage of capital investment in the import and export of goods and services.

The three major demands have always been the driving force of national economic development, but the investment demand has shown a weak trend of economic pull, and the capitalization degree of export and consumption demand is low. From the perspective of the three demands, since 2013, the final consumption rate has been higher than 50%, the capital formation rate has been greater than 40%, and the degree of foreign trade dependence has been higher than 50%. Moreover, the contribution of the final consumption expenditure to the GDP growth has increased from 3.90% in 2013 to 5.30%.

The contribution of gross capital formation to GDP growth decreased from 4.10% to 1.10% in 2013, and the contribution of net export of goods and services to GDP growth increased from -0.30% to 1.70% in 2013.The impact of the three demands on the economy is enough to show that the demand for consumption, investment and foreign trade is an important driving force for China's economic development and has been supporting the rapid growth of the Chinese economy.

Since 2013, although China's consumption and foreign trade demand have fluctuated and increased, China's investment demand has shown a weak trend, which is directly reflected in the growth of the total investment, but the growth rate has slowed down.On the one hand, this indicates that the investment foundation of

China's economic development is good, but the capitalization degree of China's economy is low. China's investment demand fails to develop in step with consumption and import and export demand, and it fails to give full play to the leverage of investment to promote the high-quality development of China's economy.

China's consumption level has increased along with the speed of economic development, but the development difference between urban and rural consumption levels has gradually widened.

Table 2.6 -The status forecast of Chinese economic development and investment

Indicators	2013	2015	2017	2019	2021
Gross Domestic Product (100 million yuan)	592,963.20	688,858.20	832,035.90	986,515.20	1,143,669.7
Per capita GDP (yuan)	43,497.00	49,922.00	59,592.00	70,078.00	80,976.00
Tertiary Industry Composition - Value added of Primary Industry (%)	8.90	8.40	7.50	7.10	7.30
Tertiary Industry Composition - Value added of Secondary Industry (%)	44.20	40.80	39.90	38.60	39.40
Tertiary Industry Composition - Value added of Tertiary Industry (%)	46.90	50.80	52.70	54.30	53.30
Total capital formation (RMB 100 million)	275,128.70	297,826.50	357,886.10	426,678.70	489,897.20
Total Fixed capital formation (billion Yuan)	263,979.90	289,970.20	348,300.10	422,451.30	478,901.20
Net exports of goods and services (billion yuan)	14,552.10	22,346.50	14,578.40	11,397.90	29,521.90
Final consumption rate (%)	51.40	53.70	55.10	55.80	54.50
Capital formation rate (%)	46.10	43.00	43.20	43.10	43.00
Contribution of final consumption expenditure to GDP growth (percentage points)	3.90	4.90	3.90	3.50	5.30
Contribution of gross Capital formation to GDP growth (percentage points)	4.10	1.60	2.70	1.70	1.10
Contribution of net exports of goods and services to GDP growth (percentage points)	0.30	0.60	0.30	0.70	1.70
Government consumption (billion yuan)	941,86.40	111,718.20	135,828.70	165,443.60	182,071.60
Household Consumption Level (Yuan)	15,586.00	18,857.00	22,968.00	27,504.00	31,072.00
Consumption level of urban residents (Yuan)	22620.00	26119.00	30323.00	34900.00	37994.00
Consumption level of rural residents (Yuan)	7397.00	9409.00	12145.00	15382.00	18601.00

Source: Data from China's economic level data of China National Bureau of Statistics from 2013 to 2021, classified by the author.

In terms of consumption level, government consumption increased from 9418.640 billion yuan in 2013 to 18.207.166 billion yuan in 2021, and household consumption increased from 15,586.00 yuan in 2013 to 31,072.00 yuan. The consumption level of urban residents increased from 22,620.00 yuan in 2013 to 37,994.00 yuan in 2021, and that of rural residents increased from 7,397.00 yuan in 2013 to 18,601.00 yuan in 2021.

The multiple growth of the government consumption level indicates that China's economic development has been more affected by the state's macro-control, and the effect of the Chinese government's economic intervention has been significantly increased. The exponential growth of residents' consumption level indicates that the economy and living standards of Chinese residents are gradually improving, which shows a good trend of China's economic development from a micro perspective.

The double growth of urban and rural consumption level and the widening gap show that China's micro economy is gradually consolidating the foundation, but the gap between urban and rural economic development is widening day by day, and the prospect of urban and rural integrated development is great, indicating that China's urban and rural economic pattern is not a single dual pattern, but a mutually promoting unified pattern of opposites. The economic foundation of the integrated development of urban and rural areas makes the regional and administrative differences between urban and rural areas gradually narrow, and urban and rural economic development toward a win-win situation.

-Evaluation of the current situation of China's economy

From the entropy weight results of Table 2.7, we can see that the information entropy value e in China increased from 2012 to 2019 and decreased from 2019 to 2021. The information utility value d and the information entropy value e show the opposite trend, and the weight ratio (%) and the information utility value d show the same trend. This shows that from 2012 to 2019, the foundation of China's economic

development was gradually stable, and the speed of capital growth gradually accelerated, but the growth of economic aggregate faces great upward pressure; From 2019 to 2021, China's economy grew against the trend in global public health events, but the downward risk of economic development is large, such as the change of global economic situation, the rise of trade protectionism and the instability of international trade and investment environment may affect China's financial market, and the challenge of unstable factors of economic development is increased.

Table 2.7- Entropy weight of China's Economy

Year	Information entropy value e	Information utility value d	weight (%)
2012	90.50%	9.50%	13.34%
2013	91.80%	8.20%	11.56%
2014	91.70%	8.30%	11.65%
2015	91.90%	8.10%	11.41%
2016	91.70%	8.30%	11.66%
2017	95.70%	4.30%	6.10%
2018	96.40%	3.60%	5.11%
2019	94.30%	5.70%	8.02%
2020	93.20%	6.80%	9.50%
2021	91.70%	8.30%	11.65%

Source: Data from the data of China's economic management level of the National Bureau of Statistics from 2012 to 2021. The entropy right method is adopted to calculate the weight of China over the years according to 14 measurement indicators, obtaining the development trend of China's economic management level over the years.

From the fuzzy comprehensive evaluation results of Table 2.8:

(1) the lowest membership of Q22 is 6.50%, Q29 has a maximum membership of 8%, This shows that China has a good foundation for industrial development, But growth has slowed, China's rural development level has been improving year by year and the development speed is relatively fast.

(2) The comprehensive evaluation score of China's economic development level has increased year by year, Increased from 6.48% in 2012 to 14.05% in 2022.This shows that the quality of China's economic development is gradually improving, China's economic development level is relatively good.

(3) From the Q16 to Q29 indicators and the comprehensive evaluation

results of the world economy, China's rapid economic growth in the past decade, economic development level has been steadily improved. This shows that, on the whole, China's economic plasticity and toughness is good, in the face of the public crisis adjustment ability is better, of course, failed to achieve comprehensive high quality development, industry all aspects of development quality is uneven, still want to solve various problems, such as urban and rural development differences gradually expand, per capita GDP development level is low, industrial structure adjustment, the innovation and development of the real economy, emerging technology and the integration of digital economy development.

Table 2.8- Fuzzy Comprehensive Evaluation Results of China's Economy, %

Index	M	M N	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Q16	1.64	7.20	6.64	7.32	7.94	8.50	9.21	10.27	11.34	12.17	12.50	14.11
Q17	1.53	6.70	7.68	8.30	8.72	9.08	9.48	9.81	10.25	11.16	12.35	13.17
Q18	1.60	7.00	7.68	8.18	8.58	8.64	9.03	10.12	11.08	11.47	11.51	13.71
Q19	1.64	7.20	6.48	7.19	7.98	8.39	9.05	10.18	11.51	12.41	12.73	14.08
Q20	1.64	7.20	6.36	7.19	8.07	8.65	9.42	10.36	11.35	12.22	12.27	14.11
Q21	1.57	6.90	6.80	7.45	8.17	8.73	9.45	10.62	11.54	12.15	11.61	13.47
Q22	1.49	6.50	6.84	7.33	8.05	8.82	9.75	10.79	11.84	12.83	10.96	12.80
Q23	1.70	7.40	5.63	6.59	7.48	8.99	9.58	10.36	11.28	12.18	13.35	14.56
Q24	1.67	7.30	5.70	6.55	7.05	7.89	9.26	10.57	11.97	13.05	13.60	14.37
Q25	1.76	7.70	5.41	6.15	6.95	7.95	9.11	10.41	11.86	13.23	13.82	15.11
Q26	1.62	7.10	6.83	7.48	8.06	8.58	9.24	10.24	11.26	12.04	12.34	13.92
Q27	1.64	7.20	6.38	7.06	7.80	8.54	9.42	10.40	11.44	12.46	12.43	14.07
Q28	1.52	6.60	7.15	7.75	8.37	8.95	9.64	10.39	11.13	11.95	11.66	13.01
Q29	1.83	8.00	5.55	6.24	7.06	7.94	8.95	10.25	11.80	12.98	13.54	15.70
China Economy	1	1	6.48	7.17	7.85	8.53	9.32	10.34	11.41	12.33	12.52	14.05

Source: Data is from the data of China's economic management level of the National Bureau of Statistics from 2012 to 2021. The fuzzy comprehensive evaluation method is adopted to calculate the weight of China over the years according to 14 measurement indicators, thus obtaining the development trend of China's economic management level over the years. Where the questions corresponding to Q16 to Q29 are shown in Appendix Table 2

It can be found from the trend chart of China's economic development level in Figure 2.13 that the comprehensive evaluation results of China's economic development level showed a steady upward trend, and China's economic level increased from 6.48% in 2012 to 14.05% in 2021. The comprehensive evaluation results of China's economic development level suddenly delayed the development

level during the global public health event, and made rapid progress in the post-epidemic era. For example, it only increased by 0.19% between 2019 and 2020, and increased to 14.05% in 2021. The comprehensive evaluation results of China's economic development level are sluggish during the global economic recession and crisis. For example, the linear forecast in 2022 has a downward trend, indicating that China's economic development is facing the risk of recession.

Figure 2.13- Evaluation Results of the Chinese Economic Development Level

Source: Data is from the data of China's economic development level of the National Bureau of Statistics from 2012 to 2021. Calculate the weight of China's economic development level in the past years according to 14 measurement indicators, and get the development trend of China's economic management level over the past years

- Evaluation results of the Chinese Investment status

From the entropy weight results of Table 2.9, we can see that the information entropy *value e* in China is falling, the information utility *value d* is rising, and the weight ratio (%) is also rising.

Table 2.9- Entropy weight of Chinese Investment

Year	Information entropy value e	Information utility value d	Weight (%)
2012	84.90%	15.10%	8.76%
2013	79.40%	20.60%	11.98%
2014	85.50%	14.50%	8.46%
2015	76.80%	23.20%	13.47%
2016	80.80%	19.20%	11.17%
2017	71.80%	28.20%	16.39%

2018	85.30%	14.70%	8.55%
2019	86.10%	13.90%	8.11%
2020	77.50%	22.50%	13.12%

Source: The original index data is derived from the data of China's investment level of the National Bureau of Statistics from 2012 to 2021. The entropy right method is adopted to calculate the weight of China's investment level over the years according to the five measurement indicators, thus obtaining the development trend of China's investment level over the years

This shows that China's total investment is growing, and China's capital market is gradually opening up. But China's economy is still relatively less capitalized relative to developed countries. This means that China's economic development is still dependent on the accumulation of traditional physical capital, and the role and allocation of financial capital needs to be further improved. China needs to strengthen the reform and innovation of the financial system and improve the transparency, efficiency and stability of the capital market to promote the capitalization process of the economy.

At the same time, China's investment and development level still has a large room for improvement and improvement value. With its broad market potential, strong scientific and technological innovation capacity and advantages in human resources, China has provided rich opportunities and returns for investment. By upgrading and optimizing the investment structure, and increasing investment in innovation-driven, green development, digital economy and other sectors, China can further improve the level of investment and development and promote sustainable economic growth and high-quality development.

At the present stage, there are still great natural risks and market risks in investing in agriculture, and even it takes a large organizational cost to organize the scattered farmers. Therefore, in the initial stage of private capital, preferential policy; some support should be given to the existing and new enterprises. The state continues to give necessary preferential policies to agricultural investment in terms of taxation, subsidies, interest discounts and subsidies, so as to establish an incentive mechanism for agricultural investment. (Liu Pingqing, 2004, p.47). In China's agriculture, social and private investment is insufficient, and the role of government agricultural investment in the whole agricultural investment. Due to the quasi-public nature of

agriculture in some aspects, government investment and support for agriculture is an important part of the public finance system under the WTO framework (Li Zhilan, 2006, p.78).

From the trend chart of China's investment management level in Figure 2.14, it can be found that:

(1) the comprehensive evaluation results of China's investment management level show a fluctuating upward trend, and the investment management in the past ten years shows a "W" shaped development, which is mainly manifested as.

Figure 2.14 - Evaluation Results of the Chinese Investment Management Level

Source: The original index data is derived from the data of China's investment level of the National Bureau of Statistics from 2012 to 2021. The weight of China's investment level over the years is calculated according to the five measurement indicators, and the development trend of China's investment level over the years is obtained

(2) The bottom is mainly the period of local capital crisis, industrial restructuring crisis and global public health events in 2014, 2017 and 2020, which indicates that China's investment management has a poor ability to resist risks, China's risk investment awareness is low, and China's investment development space is large.

(3) The peak value is mainly the deepening of reform and opening up in 2013, the effective period of industrial structure adjustment in 2016, and the period of rapid economic growth in 2018.

(4) The comprehensive evaluation results of China's investment management level fluctuate greatly, which indicates that China's investment is fluctuating and

rising, but it is greatly affected by special economic events.

From the fuzzy comprehensive evaluation results in Table 2.10, it can be found that:

(1)The lowest membership degree of Q33 and Q34 is 17.90%, and the highest membership degree of Q31 is 24.50%, which indicates that China's investment is mainly dominated by public institutions and enterprises, and the development level of individual investment is low.

Table 2.10 - Fuzzy Comprehensive Evaluation Results of Chinese Investment

Index	Q30	Q31	Q32	Q33	Q34	China Investment
M	13.12%	16.39%	13.47%	11.98%	11.98%	1
M N	19.60%	24.50%	20.10%	17.90%	17.90%	1
2012	32.80%	0.00%	-4.40%	6.70%	7.50%	8.09%
2013	-0.90%	2.00%	33.30%	1.40%	11.40%	9.30%
2014	0.10%	-5.40%	-2.30%	3.70%	8.70%	0.45%
2015	7.80%	8.70%	-3.10%	2.20%	11.50%	5.49%
2016	17.10%	10.10%	-20.50%	-0.20%	30.70%	7.17%
2017	15.60%	-6.40%	-29.60%	9.20%	10.10%	-1.01%
2018	19.90%	9.70%	-6.20%	13.60%	-5.00%	6.57%
2019	17.70%	15.20%	-3.30%	20.30%	25.30%	14.69%
2020	27.70%	11.30%	-11.70%	21.10%	12.90%	11.93%

Source: The original index data is derived from the data of China's investment level of the National Bureau of Statistics from 2012-2021. The fuzzy comprehensive evaluation method is adopted to calculate the weight of China's investment level over the years according to the five measurement indicators, and the development trend of China's investment level over the years and the weight of each index are obtained.The specific definition of China's investment level indicators corresponding to Q30 to Q34 is shown in Appendix Table 3

(2) The comprehensive evaluation results of China's investment management level fluctuate greatly, and there is a negative situation in 2017, which indicates that it is difficult for China's investment management to realize the upgrading of investment management driven by capital flow when the economy is facing upward pressure;

(3) From the Q30 to Q35 indicators and the comprehensive evaluation results of China's investment, it is found that China's investment management is good, but the volatility is high. This shows that Chinese assets have good investment prospects, but the management level of investment and financing is low, which fails to fully improve the efficiency of investment management.

2.3. Analysis of the current situation of investment management in agricultural economy of China and worldwide

The development of world agricultural economy is on the rise in fluctuations, and agricultural investment is generally on the rise. Different countries and regions show great differences in performance. For example, North America and Europe have higher levels of agricultural mechanization, industrialization, commercialization and agricultural economic development. However, in the traditional agricultural areas of Asia, Africa and Latin America, the production efficiency of agriculture is low and the level of agricultural development is always low.

Some emerging developing countries have gradually transformed their agricultural production, improved their level of agricultural development, and become more attractive to international investment. This paper takes the agricultural investment environment, investment structure and investment scale of China and the world as an example for comparative analysis, and analyzes the changes of agricultural investment environment, agricultural investment structure and agricultural investment scale of China as an emerging developing country in the era of agricultural globalization and rapid economic development.

- Current situation of agricultural investment environment development

The overall world agricultural investment environment is greatly affected by the global public health crisis, while China's agricultural investment environment has turned against the wind in the period of the global public health crisis, effectively promoting the development of the world agricultural investment environment.

Table 2.11-The Present Situation Analysis of Agricultural Investment Environment

Time	World Economy	World Investment	Chinese Economy	Chinese Investment
2018	3.82%	7.26%	3.17%	2.82%
2019	3.73%	3.58%	3.12%	3.78%
2020	4.48%	-7.88%	2.83%	9.69%

Source: The original indicator data are derived from the global and China investment levels of the IMF and the National Bureau of Statistics of China in 2018-2020. The final value is calculated according to their

respective weights and indicators respectively

As shown for Table 2.11 and Figure 2.15, the world economy fluctuated from 3.82% in 2018 to 4.48% in 2020, the growth rate of world investment decreased from 7.26% in 2018 to -7.88% in 2020.

China's economic investment growth rate slowed from 3.17 fluctuations in 2018 to 2.83% in 2020, China's investment growth rate rose from 2.82% in 2018 to 9.69% in 2020. This trend suggests that, the pace of capital accumulation in China is gradually slowing down. Despite the rapid development of China's economy, the speed of capital accumulation has slowed down due to a series of internal and external factors. At the same time, China's industrial capitalization degree is relatively low, indicating that the allocation and utilization of capital in the economy still need to be improved.

But despite the slowing rate of capital accumulation and low capitalization, the quality of China's economic development is steadily improving. China is committed to upgrading its economic structure and improving its technological innovation capacity and product quality, so as to achieve the sustainable and high-quality development of its economic growth.

Abdulai A etc.(2011)and Sun Xiaolong etc.(2019) all believe that stabilizing land use right and improving economic quality will significantly promote long-term agricultural investment, and the two show a positive correlation. This shift has made China's economy more focused on innovation, intelligence and sustainable development, laying a solid foundation for long-term growth. At the same time, China's investment environment is also gradually improving.

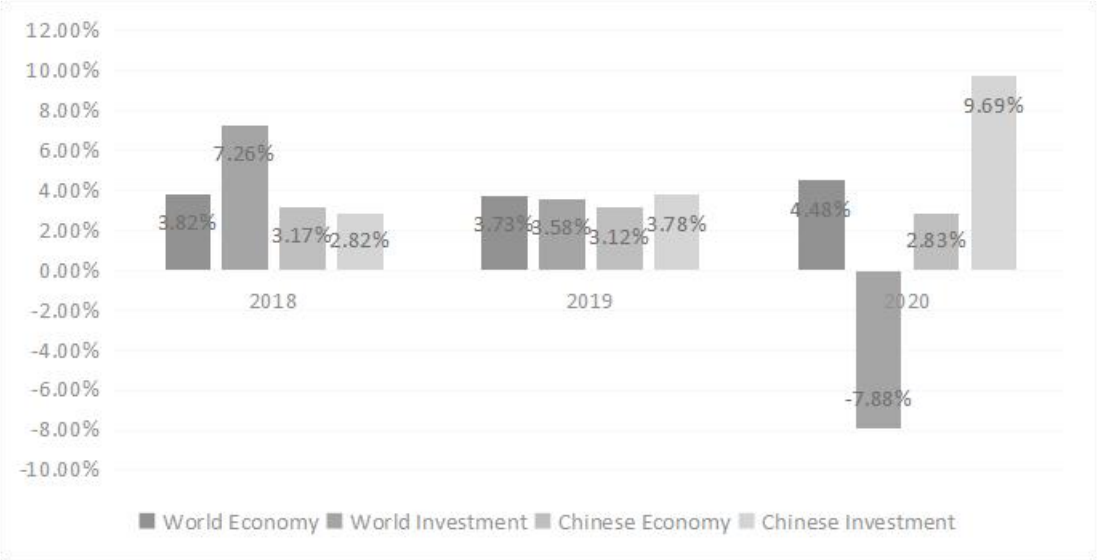


Figure 2.15- The Level of Agricultural Investment Environment（%）

Source: The original indicator data are derived from the global and China investment levels of the IMF and the National Bureau of Statistics of China in 2018-2020. The final value is calculated according to their respective weights and indicators respectively

The government has introduced a series of measures to strengthen the legal environment, simplify the administrative approval procedures, lower the threshold of market access, and provide more investment guarantees and preferential policies, so as to attract more domestic and foreign investors to participate in China's economic development. These efforts provide investors with a more stable, transparent and predictable investment environment for investors.

- The development status of agricultural investment structure

The agricultural investment structure of the central and local governments has been optimized year by year, but there is still imbalance in the internal structure of agriculture, forestry, husbandry and fishery industry.

Table 2.12 - The Present Situation Analysis of Agricultural Investment Structure (C/L;%)

Index	Illustration	Type	2022	2020	2018
1	Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year	centre	47.6	20.5	25.2
2	Investment in fixed agricultural fixed assets (excluding rural households) increased by (%) over the previous year	centre	36.7	1.4	78.0

3	Investment in forestry fixed assets (excluding peasant households) increased by (%) over the previous year	centre	-3.5	25.9	-18.7
4	Investment in fixed assets in animal husbandry (excluding rural households) increased by (%) over the previous year	centre	5.0	7.0	-1.5
5	Investment in fishery fixed assets (excluding rural households) increased by (%) over the previous year	centre	-11.2	-30.0	-65.0
6	Investment in fixed assets (excluding farmers) in agriculture, forestry, animal husbandry, fishery and auxiliary activities increased by (%) over the previous year	centre	33.9	27.4	4.3
1	Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year	locality	18.7	0.5	12.2
2	Investment in fixed agricultural fixed assets (excluding rural households) increased by (%) over the previous year	locality	-5.1	1.6	15.0
3	Investment in forestry fixed assets (excluding peasant households) increased by (%) over the previous year	locality	-3.3	-3.2	2.2
4	Investment in fixed assets in animal husbandry (excluding rural households) increased by (%) over the previous year	locality	91.2	-3.4	11.7
5	Investment in fishery fixed assets (excluding rural households) increased by (%) over the previous year	locality	-17.9	15.6	19.6
6	Investment in fixed assets (excluding farmers) in agriculture, forestry, animal husbandry, fishery and auxiliary activities increased by (%) over the previous year	locality	15.7	0.7	8.5

Source: The original index data comes from the national and local fixed asset investment level data of the National Bureau of Statistics of China from 2018 to 2022, including the fixed asset investment of the whole society (100 million yuan) and the fixed asset investment (excluding rural households) (100 million yuan).

As shown in Table 2.12 and Figure 2.16, 1 (Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year) from 25.2% in 2018 to 47.6%. 1 (Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year) from 12.2% in 2018 to 18.7%, This indicates that the overall structure of China's agricultural investment has been adjusted year by year, and the degree of collectivization of agricultural investment development has been continuously developing, and the growth rate of state financial investment in agricultural development has gradually accelerated. China's Investment in agriculture has been 2-6 (Investment in fixed agricultural/forestry/animal husbandry/fishery/auxiliary activities fixed) the growth rate of assets (excluding rural households) increased by (%) over the previous year) since 2018.

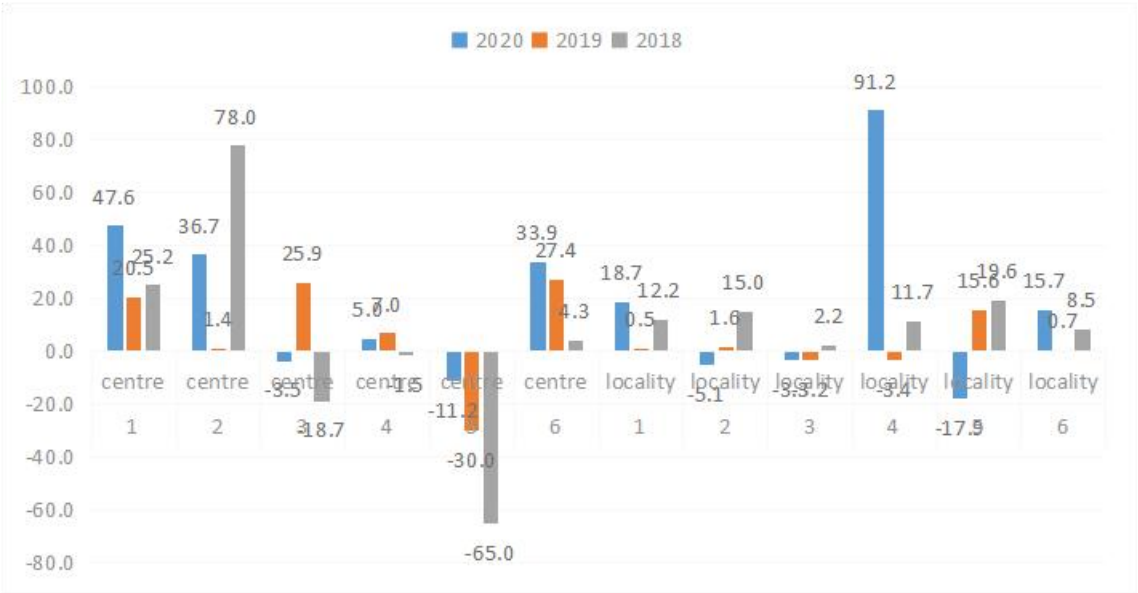


Figure 2.16 -The Type of Investment in Fixed(C/L;%)

Source: The original index data comes from the national and local fixed asset investment level data of the National Bureau of Statistics of China from 2018 to 2020, including the fixed asset investment of the whole society (100 million yuan) and the fixed asset investment (excluding rural households) (100 million yuan).

On the one hand, it reflects the current situation of optimizing the agricultural structure under the adjustment of China's industrial structure. On the other hand, it shows that China's agriculture, forestry, livestock and non-agricultural fishery industries are gradually developing, and their investment attraction to the central and local governments is continuously strengthening.China has maintained 2-6 Investment in fixed agricultural/forestry/animal husbandry/fishery/auxiliary activities fixed assets (excluding rural households) increased by (%) over the previous year.

This shows that investment in agriculture, forestry, husbandry and accessory fishery industries in China is phased. For example, the investment growth rate of agriculture, forestry and fishery industry was higher in the early stage, while that of animal husbandry and agricultural processing industry developed rapidly in the late stage. Agricultural investment tended to the agricultural industry with the advantage of resource integration.

The regional structure of the capital source of China's agricultural investment

is gradually optimized, and the investment attraction of all regions is constantly strengthened. The industrial direction of agricultural investment in different regions has obvious tendency characteristics.

Table 2.13 - The type of agricultural investment in fixed assets of agriculture, forestry, animal husbandry and fishery (% to the previous year)

Index	Type	2020	2019	2018
1	Foreign investment	85.3	13.3	10.2
2	Foreign investment	-11.0	51.8	-0.9
3	Foreign investment	56.3	-12.0	7.0
4	Foreign investment	17.6	8.5	-10.7
5	Foreign investment	-8.8	-7.3	4.0
6	Foreign investment	-13.8	-0.8	12.5
1	Hong Kong, Macao and Taiwan	30.6	-56.1	69.8
2	Hong Kong, Macao and Taiwan	9.5	-59.5	93.6
3	Hong Kong, Macao and Taiwan	-13.5	-41.2	-50.0
4	Hong Kong, Macao and Taiwan	73.4	-54.8	19.3
5	Hong Kong, Macao and Taiwan	-39.4	40.2	25.0
6	Hong Kong, Macao and Taiwan	35.6	-42.7	-25.0
1	Domestic capital	18.3	1.1	12.6
2	Domestic capital	-4.8	2.0	15.5
3	Domestic capital	-3.3	-1.3	1.6
4	Domestic capital	89.7	-3.3	13.5
5	Domestic capital	-17.2	18.9	17.2
6	Domestic capital	16.0	1.5	8.8

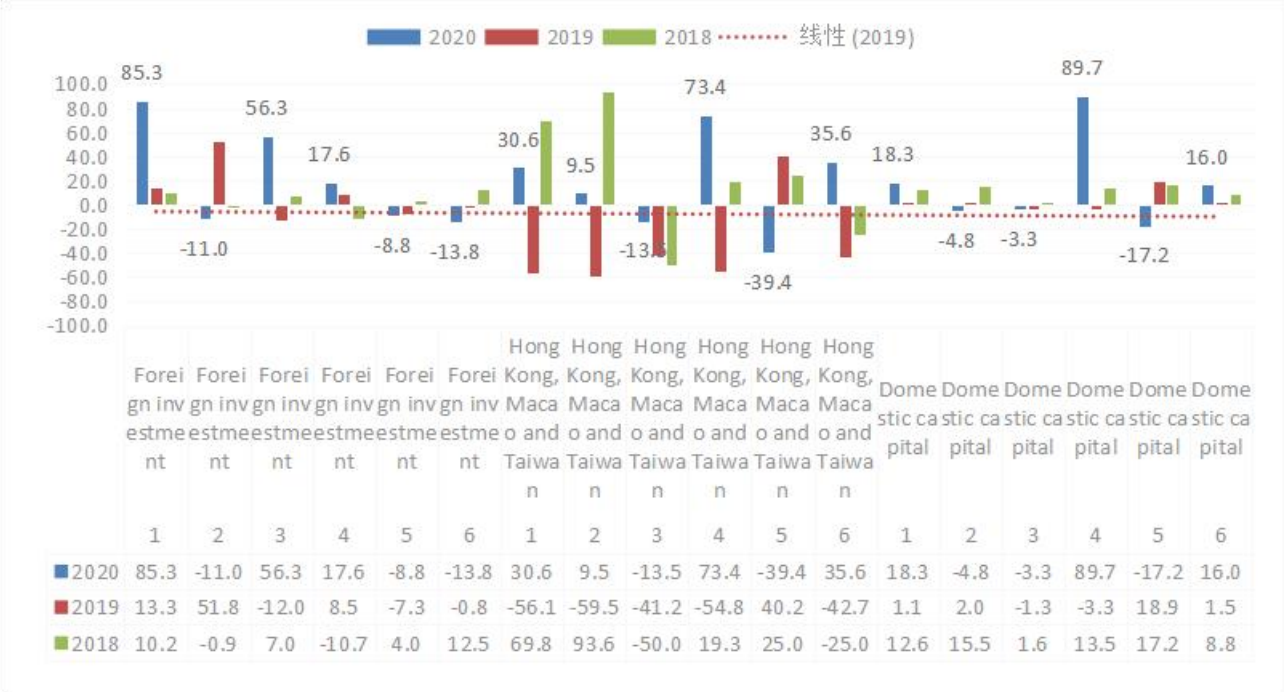
Source: The original index data are from the regional data of the capital sources of China's Agricultural Bureau of China from 2018 to 2020, and were compiled by the author. Including foreign investment, Hong Kong, Macao and Taiwan investment and mainland China investment

As shown in Table 2.13 and Figure 2.18, 1 (Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year) Foreign The source of investment increased from 10.2% in 2018 to 85.3%, while that of Hong Kong, Macao and Taiwan decreased from 69.8 in 2018 to 30.6%. Domestic capital increased from 12.6% in 2018 to 18.3% in 2020, indicating that the total investment in China's agriculture from Hong Kong, Macao and Taiwan was growing.

Although the growth rate slowed down, it played a guiding role for foreign investment and agricultural investment in the mainland. China's agricultural assets are increasingly attractive to foreign investment, and the structure of the domestic agricultural investment market is gradually optimized to improve the economic

efficiency of China's agricultural investment.

Industrial orientation of agricultural Investment in different regions 2-6 (Investment in fixed agricultural/forestry/animal husbandry/fishery/auxiliary activities fixed) assets (excluding rural households) increased by (%) over the previous year). For example, foreign investment is more inclined to forestry and animal husbandry. The investment of Hong Kong, Macao and Taiwan is more inclined to agriculture and processing industry, while the investment of domestic agriculture is more inclined to animal husbandry and processing industry, which indicates that the development of world agriculture is closely related to China's agricultural investment. Oelofse et al. (2010) investigated the farmers in China and Brazil, and found that the product variety, price and product production scale would all affect the investment willingness and structure. The development of animal husbandry in the home countries of foreign investment in agriculture is better, based on the national conditions, they may choose to invest in industries closely related to their own development. On the one hand, Obtain monetary remuneration in agricultural investment; on the other hand, promote the close cooperation and development of the two agricultural industries in agricultural development.



	Foreign investment 1	Foreign investment 2	Foreign investment 3	Foreign investment 4	Foreign investment 5	Foreign investment 6	Hong Kong, Macao and Taiwan 1	Hong Kong, Macao and Taiwan 2	Hong Kong, Macao and Taiwan 3	Hong Kong, Macao and Taiwan 4	Hong Kong, Macao and Taiwan 5	Hong Kong, Macao and Taiwan 6	Domestic capital 1	Domestic capital 2	Domestic capital 3	Domestic capital 4	Domestic capital 5	Domestic capital 6
2020	85.3	-11.0	56.3	17.6	-8.8	-13.8	30.6	9.5	-13.5	73.4	-39.4	35.6	18.3	-4.8	-3.3	89.7	-17.2	16.0
2019	13.3	51.8	-12.0	8.5	-7.3	-0.8	-56.1	-59.5	-41.2	-54.8	40.2	-42.7	1.1	2.0	-1.3	-3.3	18.9	1.5
2018	10.2	-0.9	7.0	-10.7	4.0	12.5	69.8	93.6	-50.0	19.3	25.0	-25.0	12.6	15.5	1.6	13.5	17.2	8.8

Figure 2.17- The type of agricultural investment in fixed assets of agriculture, forestry, animal husbandry and fishery (% to the previous year)

Source: The original index data are from the regional data of the capital sources of China's Agricultural Bureau of China from 2018 to 2020, and were compiled by the author. Including foreign investment, Hong Kong, Macao and Taiwan investment and mainland China investment

The collectivization, marketization and nationalization of China's agricultural investment structure are gradually improving, and the industrial structure dominated by individual agriculture is gradually changing.

As shown in Table 2.14 and Figure 2.18, 1 (Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year) of collective holding enterprises increased from -10.6% in 2018 to 8.4% in 2020, private holding enterprises decreased from 11.9 in 2018 to 11.2% in 2020, and state-owned holding enterprises increased from 11.5% in 2018 to 34.2% in 2020. This indicates that the holding main structure of China's agricultural investment structure is moving towards diversification structure, and the structure of China's agricultural investment is moving towards marketization, collectivization and nationalization.

China’s agricultural Investment 2-6 (Investment in fixed agricultural/forestry/animal husbandry/fishery/auxiliary activities fixed assets) (excluding rural households) increased by (%) over the previous year).

Table 2.14 - The type of agricultural investment in fixed assets of agriculture, forestry, animal husbandry and fishery (% to the previous year) (Holding;%)

Index	Type	2020	2019	2018
1	Collective holding	8.4	14.8	-10.6
2	Collective holding	-0.2	21.5	-3.4
3	Collective holding	-4.2	-49.4	12.2
4	Collective holding	77.4	6.8	-14.6
5	Collective holding	25.4	67.4	-29.2
6	Collective holding	-26.5	25.7	-30.7
1	Private holding	11.2	0.7	11.9
2	Private holding	-21.6	2.4	14.3
3	Private holding	-30.3	-10.7	-13.3
4	Private holding	93.0	-4.3	9.4
5	Private holding	-21.4	14.2	26.3

6	Private holding	3.6	5.4	16.9
1	State-owned holding	34.2	-2.2	11.5
2	State-owned holding	47.4	-4.6	14.7
3	State-owned holding	8.0	4.3	12.2
4	State-owned holding	81.6	-5.9	21.1
5	State-owned holding	16.5	-14.3	-6.2
6	State-owned holding	24.5	-2.1	5.3

Source: The original index data are derived from the relevant data on the structure of China's agricultural investment in 2018-2020 of the National Bureau of Statistics of China, and were compiled by the author.

China is gradually moving away from the structure of single investment entity and individual investment into a stable and mature diversified investment pattern. For example, collective holding tends to invest in animal husbandry and fishery, private holding tends to invest in animal husbandry, agriculture and its additional industries, and state-owned holding tends to invest in traditional agriculture, forestry, livestock and fishery and emerging additional industries.

It can be seen that the direction of agricultural investment industry of different holding subjects should not only be based on the market, but also take into account the development level of the local agricultural market, and more importantly, whether the profitability of agricultural investment itself meets the development needs of the investment subjects.

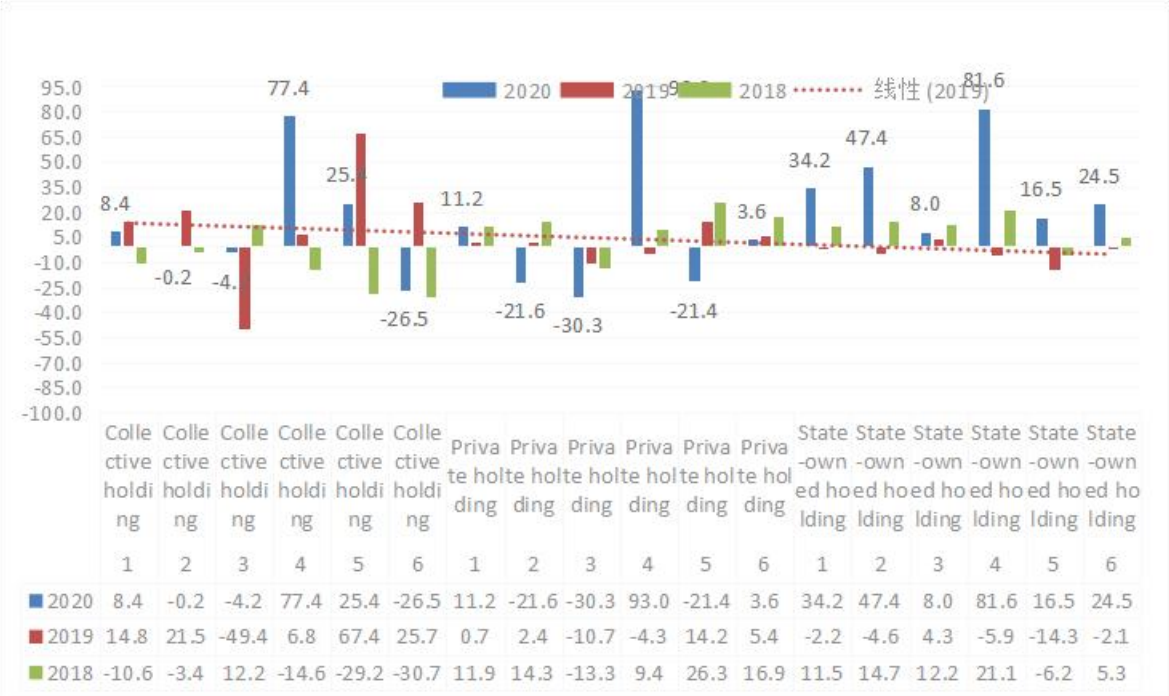


Figure 2.18 - The Type of Investment in Fixed(Holding;%)

Source: The original index data are derived from the relevant data on the structure of China's agricultural investment in 2018-2020 of the National Bureau of Statistics of China, and were compiled by the author

The sources of China's agricultural investment structure are abundant, but the internal investment management of agriculture, forestry, husbandry and non-fishery industry is greatly affected by its own development level and agricultural investment policy.

As shown in Table 2.15 and Figure 2.19, 1 (Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year), the growth rate of total domestic loan sources increased from -0.8% in 2018 to 32.1% in 2020, and the growth rate of total self-financing sources increased from 13.9% in 2018 to % in 2020. The growth rate of the total source channels of imported foreign capital decreased from -29.5% in 2018 to -35.9% in 2020, and the growth rate of the total source channels of state budget increased from 7.6% in 2018 to 90.2% in 2020.

The growth rate of other sources of capital decreased from 53.6% in 2018 to 19.7% in 2020, this shows that the financing structure of China's agricultural investment structure is gradually expanding, and gradually moving toward standardization and channeling, among which the proportion of imported foreign capital and other funds is decreasing, while the proportion of state budget, domestic loans and self-raised funds is gradually increasing. On the one hand, it indicates that the awareness of standardization of agricultural investment is gradually increasing; on the other hand, it shows that the economic effect of agricultural investment is gradually improving.

Table 2.15- The Type of Agricultural Investment in Fixed (Source;%)

Index	Type	2020	2019	2018
1	Domestic loans	54.6	-32.1	-0.8
2	Domestic loans	6.8	-23.3	-1.1
3	Domestic loans	86.8	-53.9	-25.8
4	Domestic loans	80.0	-44.6	44.1
5	Domestic loans	-56.0	-5.3	-29.8
6	Domestic loans	90.0	-3.4	-32.0

1	Funds raised by oneself	32.1	-11.3	13.9
2	Funds raised by oneself	-7.2	-13.6	12.2
3	Funds raised by oneself	5.1	-23.3	-4.4
4	Funds raised by oneself	79.0	-13.2	23.1
5	Funds raised by oneself	-5.6	11.2	14.8
6	Funds raised by oneself	17.0	5.9	16.0
1	Introducing foreign investment	-35.9	89.0	-29.5
2	Introducing foreign investment	-29.2	52.5	-35.2
3	Introducing foreign investment	88.0	70.4	-13.5
4	Introducing foreign investment	-39.5	86.4	9.4
5	Introducing foreign investment	93.3	50.0	-96.9
6	Introducing foreign investment	-26.0	-30.0	-45.3
1	National budget	90.2	14.1	7.6
2	National budget	97.0	42.5	28.6
3	National budget	96.0	14.0	-12.7
4	National budget	91.0	98.0	-24.2
5	National budget	93.0	-75.2	88.0
6	National budget	88.0	-11.9	24.9
1	Other funds	19.7	11.0	53.6
2	Other funds	13.4	5.3	23.3
3	Other funds	-45.3	33.9	91.0
4	Other funds	76.0	-12.4	46.9
5	Other funds	-17.6	34.5	92.2
6	Other funds	10.2	25.4	88.0

Source: The original index data are from the relevant data of fixed assets of China's agricultural investment in the period of 2018-2020 conducted by the National Bureau of Statistics, and compiled by the author

China's Investment in fixed agricultural/forestry/animal husbandry/fishery/auxiliary activities fixed assets (excluding rural households) increased by (%) over the previous year). For example, before 2019, China's financing channels increased by (%) over the previous year. Domestic loan financing type of agricultural investment direction mainly concentrated on ecological agriculture (forestry) and agricultural processing (agricultural additional industry), self-raised funds mainly concentrated on traditional regular model agriculture (animal husbandry) and agricultural processing (additional industry), the introduction of foreign capital mainly concentrated on ecological agriculture (forestry) and Marine economy (fishery).

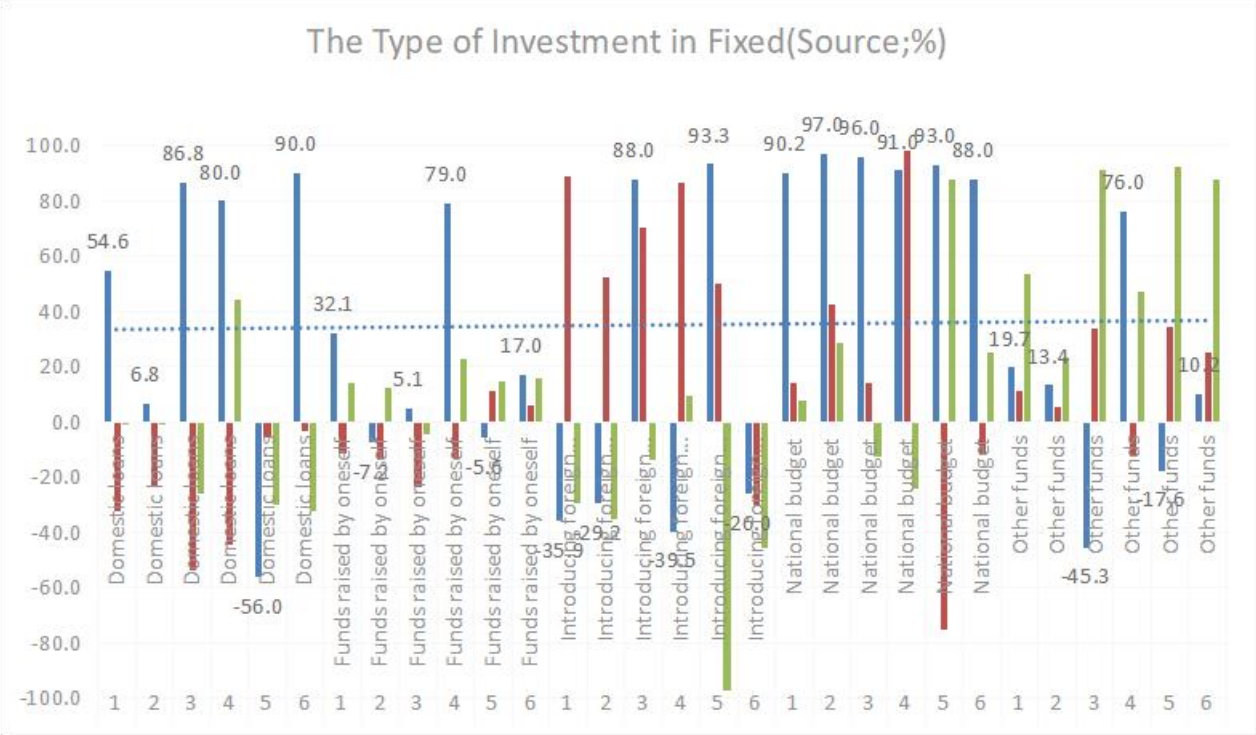


Figure 2.19 - The Type of Investment in Fixed(Source;%)

Source: The original index data are from the relevant data of fixed assets of China's agricultural investment in the period of 2018-2020 conducted by the National Bureau of Statistics, and compiled by the author

The state budget investment is mainly concentrated on the traditional agriculture, forestry, husbandry and non-fishery industry and related agricultural technology research and development and promotion work, the investment direction of other funds is more scattered, on the one hand reflects the traditional agricultural industry development is the first pillar of the national economy, on the other hand, but also reflects the modern agricultural financing channels with the transformation of the social mode of production and innovation characteristics.

- Development status of agricultural investment scale

The scale of China's agricultural investment is constantly expanding, and the growth rate of China's agricultural investment is accelerating, which is gradually developing with the adjustment of industrial structure.

As shown in Table 2.16 and Figure 2.20, Investment in fixed assets of agriculture, forestry, animal husbandry and fishery (excluding rural households) increased by (%) over the previous year) fluctuated from 12.3% in 2018 to 19.10% in 2020, indicating that the expansion of China's agricultural investment scale is

developing continuously, but it is greatly affected by the industrial structure adjustment cycle.

Table 2.16- The Present Situation Analysis of Agricultural Investment Scale

Index	1	2	3	4	5	6
2018	12.30%	15.40%	2.00%	11.70%	19.40%	8.40%
2019	0.70%	1.60%	-1.70%	-3.60%	15.70%	1.40%
2020	19.10%	-4.70%	-3.30%	92.10%	-17.90%	16.30%

Source: The original data is from the relevant data of China's agricultural investment scale in the National Bureau of Statistics from 2018 to 2020, and was compiled by the author2

China's agricultural Investment type 2-6 (Investment in fixed agricultural/forestry/animal husbandry/fishery/auxiliary activities fixed assets (excluding rural households) increased by (%) over the previous year) fluctuated from 15.40%, 2.00%, 11.70%, 19.40% and 8.40% in 2018 to -4.70%, -3.30%, 92.10%, -17.90% and 16.30% respectively. Among them, large-scale animal husbandry and agricultural processing additional industries grew against the trend. The traditional agricultural economy is affected by global public health events, which makes the growth rate of agricultural investment fluctuate and decline, indicating that large-scale and collectivized agricultural development can effectively promote the development of China's agricultural investment.

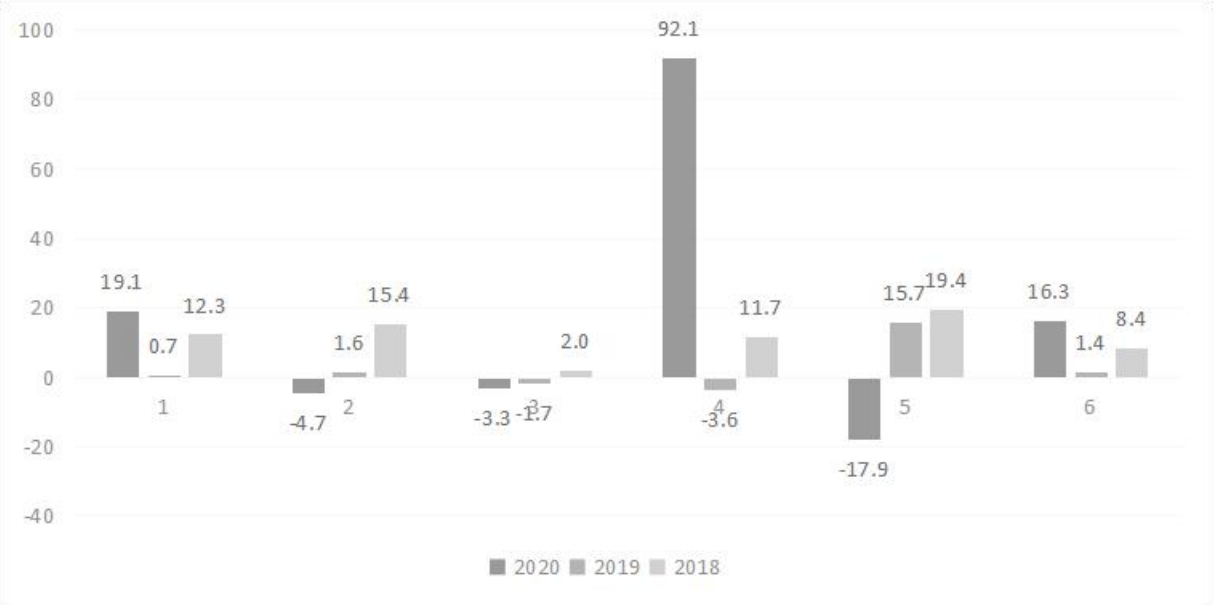


Figure 2.20 -Total Investment in Fixed(%)

Source: The original data is from the relevant data of China's agricultural investment scale in the National Bureau of Statistics from 2018 to 2020, and was compiled by the author3

2.3 Research on the relationship between agricultural economy and economic growth under globalization

In the empirical study of the relationship between agricultural economic development and economic growth under the background of globalization. Barro (1992), Fangwei (2000) and Tosin (2010) found that the sustainable development power of the world agricultural economy comes from agricultural investment. On the premise of sufficient funds for agricultural investment, the improvement of agricultural productivity is an inevitable result, which indicates that the rapid development of China's agricultural economy depends on agricultural investment, and the further development of agriculture in the future is still inseparable from agricultural investment.

However, due to the weak nature of agriculture and the characteristics of long investment cycle, low rate of return and high risk, it is becoming more and more difficult for capital to enter the agricultural field through the market mechanism.

The problem of insufficient capital investment has not been solved for a long time, which has restricted the further development of the agricultural economy in China and the world.

Under the background of globalization, the change of investment environment increasingly affects the change of agricultural investment structure and scale, which further affects the development of China's agricultural economy.

Therefore, this chapter firstly analyzes the intra-group and inter-group heterogeneity of agricultural investment environment, agricultural investment structure and agricultural investment scale, and then analyzes the relationship and existing problems between agricultural investment and economic growth in China with different agricultural investment environment as the intermediary variables in combination with the current development of agricultural investment management in the world and China.

There are great differences in the natural and social environment between China's agricultural investment and the world's agricultural investment, as shown in Table 2.17, with P values of 0.000 and the agricultural investment environment being significant at the level of 1%.

Table 2.17- The One-way Analysis of Variance for Investment Environment Variables

Variable name	Variable value	Sample size	Average	Standard deviation	F	P
World Economy Enviroment	2018	1	0.038	0.000	0.000	0.000
	2020	1	0.037	0.000		
	2022	1	0.045	0.000		
	Total	3	0.04	0.004		
World Investment Enviroment	2018	1	0.073	0.000	0.000	0.000
	2020	1	0.036	0.000		
	2022	1	-0.079	0.000		
	Total	3	0.01	0.079		
Chinese Economy Enviroment	2018	1	0.032	0.000	0.000	0.000
	2020	1	0.031	0.000		
	2022	1	0.028	0.000		
	Total	3	0.03	0.002		
Chinese Investment Enviroment	2018	1	0.028	0.000	0.000	0.000
	2020	1	0.038	0.000		
	2022	1	0.097	0.000		
	Total	3	0.054	0.037		

Source: Raw data from the world and China agricultural investment environment of IMF and National Bureau of Statistics of China from 2018 to 2022, compiled by the authors and tested by variance analysis. P <0.05 indicates that the test passed the significance requirement

The mean values of World Economy Environment in 2018, 2019 and 2020 are 0.038, 0.037 and 0.045 respectively. The mean values of World Investment Environment in 2018, 2019 and 2020 are 0.073, 0.036 and − 0.079 respectively. The mean values of Chinese Economy Environment in 2018, 2019 and 2020 are 0.032, 0.031 and 0.028 respectively. The mean values of Chinese Investment Environment in 2018, 2019 and 2020 are 0.028, 0.038 and 0.097 respectively. In a word, the world's agricultural investment environment fluctuates and develops in peace. Through investigation and research, it is found that there are the following differences in agricultural investment between China and the world.

In terms of political environment, the world's agricultural investment

environment is greatly affected by sudden political events in the trend of peaceful development, and China's agricultural investment environment is developing steadily under the concept of building a community with a shared future for mankind. Research shows that political stability helps to promote economic development and increase people's income, but also affects the psychological state of local residents, thus causing changes in the investment demand of the host country market. However, in the field of world agricultural investment, unstable factors of political environment always exist, such as inter-regional conflicts, Sino-US trade war, global public health events, etc., but in general, the political environment is gradually developing under the theme of peace and development. The 20th National Congress of the Communist Party of China released a set of data, which proved that China's diplomacy in the new era has made remarkable achievements in building a stable and harmonious agricultural investment environment in China. According to the data, the CPC maintains various forms of contact with more than 600 political parties and political organizations around the world, the total number of countries having diplomatic relations has increased from 172 to 181, and the number of partnerships it has established with countries and regional organizations around the world has increased from 41 to 113.

In addition, China has signed 19 free trade agreements with 26 countries and regions, which has promoted the implementation of the Regional Comprehensive Economic Partnership. The Belt and Road Initiative has attracted the active participation of 149 countries and 32 international organizations.

In terms of economic environment, the world economic environment is vulnerable to the impact of the global economic crisis, while China's economic environment is relatively stable, but it is still difficult to completely resist the impact of the global economic crisis.

According to the latest statistical report of the National Bureau of Statistics, China has actively responded to the impact of the epidemic. GDP growth in 2021 has exceeded the pre-epidemic level, and the economic growth rate in 2022 is expected to exceed 5.0%, and the contribution of primary, secondary and tertiary industries to

China's GDP will reach 0.4%, 1.9% and 2.8% respectively.

It is estimated that the disposable income of Chinese residents will exceed 40,000 yuan in 2022, of which the disposable income of rural residents will exceed 20,300 yuan, representing a year-on-year increase of 8% and 2 percentage points higher than that of urban residents. Per capita consumption expenditure will also increase to 24,000 yuan, and the average consumption expenditure of rural residents will be about 15,000 yuan, with growth rates of 5.3% and 6.8% respectively, 2.4 percentage points higher than that of urban residents.

It is expected that the development of agriculture and rural areas in China will show a faster pace than other sectors in 2022, the strategy of giving priority to agriculture and rural development will continue to be steadily promoted, and the gap between urban and rural areas will be further narrowed. However, it should be noted that the COVID-19 epidemic is still not eliminated, especially the global spread continues. The slowdown of economic growth in the long run has become a subject that must be faced after the new normal of the economy, so it is necessary to make corresponding psychological preparations and coping strategies while being optimistic.

In terms of legal environment, the laws and regulations of agricultural investment in the world are relatively perfect, and the laws and regulations of agricultural investment in China are mainly improved by referring to the norms and habits of western countries. In the process of agricultural investment, due to the frequent revision of laws in host countries and the different levels of legislative subjects, it is more difficult for investors to grasp the timely trading rules. Optimizing the legal environment and establishing transparent and convenient provisions can help reduce the investment concerns of enterprises and improve the efficiency of investment. For example, according to the effect of trade distortion, the World Trade Organization divides agricultural domestic support measures into green box, yellow box and blue box policies. The 2014 Farm Bill of the United States reformed the price support and income subsidy policy, agricultural insurance subsidy policy, resource and environmental protection subsidy policy and many other aspects.

In terms of the natural environment, there are large differences between the world and China's natural environment in terms of natural resource endowment and agricultural ecological development. Therefore, among all environmental factors, the assessment of natural environment is undoubtedly the most important in agricultural foreign investment. The evaluation of agricultural investment environment is the primary and basic work of the feasibility study of agricultural investment projects, and it has important guiding significance to objectively evaluate the agricultural environment of the host country.

The resource and environmental richness of the host country will affect the success rate of OFDI. For agriculture, infrastructure is the premise and foundation of agricultural industry development. Western developed countries and emerging developing countries have different resource endowment conditions and agroecological conditions, so it is necessary to identify the agricultural natural environment respectively, in order to provide reference for the development of agricultural capitalization in China.

China's agricultural investment structure has been optimized year by year, but the structure of agricultural industry branches still presents great differences. As shown in Table 2.18, P values are both 0.000, indicating significant differences in the overall structure of agricultural investment and industrial branches.Table 2.19- The One-way Analysis of Variance for Investment Structure Variables

For example, the mean values of agricultural industry type 1 in 2018, 2020 and 2022 are 0.123, 0.007 and 0.191, respectively. The mean values of agricultural industry type 2 in 2018, 2020 and 2022 were 0.154, 0.016 and -0.047, respectively.

The mean values of agricultural industry type 3 in 2018, 2020 and 2022 are 0.020, − 0.017 and − 0.033 respectively; The mean values of agricultural industry type 4 in 2018, 2020 and 2022 are 0.117, − 0.036 and 0.921, respectively; The mean values of agricultural industry type 5 in 2018, 2020 and 2022 are 0.194, 0.157 and − 0.179, respectively. The mean values of agricultural industry type 6 in 2018, 2020 and 2022 are 0.084, 0.014 and 0.163, respectively. In short, under the background of globalization, the structure of China's agricultural investment has been optimized

year by year based on the global market.

Through investigation and research, it is found that there are the following differences in the branch structure of agricultural investment:

In terms of industry structure, China's early agricultural investment has low industrial efficiency and low level of scientific and technological innovation. China's later agricultural investment pays more attention to the investment of agricultural science and technology in order to achieve the large-scale efficiency of agricultural production.First of all, the proportion of institutional expenditure (agricultural support expenditure) used to support agricultural production and agriculture, forestry and water and gas sectors is more than 50%, which indicates that the funds really used to support agricultural development and improve the growth of farmers' income are more, but the marginal diminishing efficiency of unit investment is higher, and it is difficult to bring the economic benefits of collective agriculture into play due to the bottleneck of agricultural science and technology development. Furthermore, the promotion effect on agricultural output value is not obvious.

Secondly, the proportion of expenditure on agricultural infrastructure construction is relatively small, hovering between 20%-30% in most years, and less than 20% in recent years. At the same time, according to the relevant data, in the agricultural infrastructure expenditure, for major water conservancy projects and ecological construction and other social benefits of investment more, accounting for 80%-90%, and really used to enhance the competitiveness of the agricultural market and directly improve the agricultural production conditions of small and medium-sized infrastructure investment, such as improved seed projects, important agricultural product bases, farmland water conservancy, water-saving irrigation, etc., less. Only accounted for about 10%.

In conclusion, the adjustment of China's agricultural investment structure develops along with the development of agricultural industry, and the adjustment of agricultural industry structure determines the economic benefits of agricultural investment to a large extent. The difference of industrial structure of agricultural investment and the difference of development of agricultural industry show the same

trend.

In terms of holding structure, the capital sources of China's agricultural investment are relatively dispersed, and different agricultural industries and holding types develop cross-over. In the structure of agricultural investment holding, there are collective, private and state-owned holdings, which are mainly reflected in the traditional agriculture, forestry, husbandry and non-fishery industries and the emerging public works.

The public works include the expenditure on agricultural infrastructure construction, the expenditure on agricultural science and technology, the expenditure on supporting agricultural production, the expenditure on agriculture, forestry, water and gas sector, and the other expenditure on rural relief. Each expenditure fund project belongs to the joint management of a number of departments.

Take rural capital construction projects as an example. The funds are mainly managed by the National Development and Reform Commission, but they need to be supervised and used in a market-oriented private holding way. The use of funds needs to be jointly arranged with other agricultural and agricultural departments, and at the same time needs to be properly connected with the transportation department.In the actual process of operation, there are differences in the understanding of the implementation and use of agriculture-related funds among various departments, resulting in the distribution and management of agriculture-related funds between the external and internal departments has not formed an effective coordination mechanism, and the use of agriculture-related funds is scattered and the cross-repetition of investment is serious. On this basis, coupled with the long process of fund operation and high cost of supervision and management, it is difficult to form a standard mechanism for the use of agriculture-related funds, leading to the low efficiency of agricultural investment.

Table 2.18- The One-way Analysis of Variance for Investment Structure Variables

Variable name	Variable value	Sample size	Average	Standard deviation	F	P
1	2018	1	0.123	0.000	0.000	0.000

	2020	1	0.007	0.000		
	2022	1	0.191	0.000		
	Total	3	0.107	0.093		
2	2018	1	0.154	0.000	0.000	0.000
	2020	1	0.016	0.000		
	2022	1	0.047	0.000		
	Total	3	0.041	0.103		
3	2018	1	0.02	0.000	0.000	0.000
	2020	1	0.017	0.000		
	2022	1	0.033	0.000		
	Total	3	0.01	0.027		
4	2018	1	0.117	0.000	0.000	0.000
	2020	1	0.036	0.000		
	2022	1	0.921	0.000		
	Total	3	0.334	0.514		
5	2018	1	0.194	0.000	0.000	0.000
	2020	1	0.157	0.000		
	2022	1	0.179	0.000		
	Total	3	0.057	0.206		
6	2018	1	0.084	0.000	0.000	0.000
	2020	1	0.014	0.000		
	2022	1	0.163	0.000		
	Total	3	0.087	0.075		

Source: Raw data from the world and China agricultural investment structure of IMF and National Bureau of Statistics of China from 2018 to 2022 were compiled by the authors and tested by variance analysis. P <0.05 indicates that the test passed the significance requirement

The scale of agricultural investment in China is expanding year by year, and there are great differences in the expansion speed of agricultural investment from different sources, as shown in Table 2.18, with P values of 0.000. For example, the mean values of variable name 1 (Domestic loans) in 2018, 2020 and 2022 are − 0.008, − 0.321 and 0.546 respectively. The mean values of variable name 2 (Domestic loans) in 2018, 2020 and 2022 are − 0.011, − 0.233 and 0.068 respectively. The mean values of variable name 3 (Domestic loans) in 2018, 2020 and 2022 are − 0.258, − 0.539 and 0.868 respectively. The mean values of variable name 4 (Domestic loans) in 2018, 2020 and 2022 are 0.441, − 0.446 and 0.800 respectively.

The mean values of variable name 5(Domestic loans) in 2018, 2020 and 2022 are − 0.298, − 0.053 and − 0.560, respectively. The mean values of variable name 6(Domestic loans) in 2018, 2020 and 2022 are − 0.320, − 0.034 and 0.900, respectively. The mean values of variable name 1(Funds raised by oneself) in 2018, 2020 and 2022 are 0.139, -0.113 and 0.321 respectively.

The mean values of variable name 2 (Funds raised by oneself) in 2018, 2020 and 2022 0 are 0.122, − 0.136 and − 0.072 respectively. The mean values of variable name 3 (Funds raised by oneself) in 2018, 2020 and 2022 are − 0.044, − 0.233 and 0.051 respectively. The mean values of variable name 4 (Funds raised by oneself) in 2018, 2020 and 2022 are 0.231, -0.132 and 0.790 respectively.

The mean values of variable name 5(Funds raised by oneself) in 2018, 2020 and 2022 are 0.148, 0.112 and − 0.056 respectively. The mean values of variable name 6(Funds raised by oneself) in 2018, 2020 and 2022 are 0.160, 0.059 and 0.170 respectively. The mean values of variable name 1(Introducing foreign investment) in 2018, 2020 and 2022 are − 0.295, 0.890 and − 0.359 respectively. The mean values of variable name 2(Introducing foreign investment) in 2018, 2020 and 2022 are − 0.352, 0.525 and − 0.292 respectively.

The mean values of variable name 3 (Introducing foreign investment) 2018, 2020 and 2022 are − 0.135, 0.704 and 0.880 respectively. The mean values of variable name 4 (Introducing foreign investment) in 2018, 2020 and 2022 are 0.094, 0.864 and − 0.395 respectively. The mean values of variable name 5(Introducing foreign investment) in 2018, 2020 and 2022 are − 0.969, 0.500 and 0.933 respectively. The mean values of variable name 6(Introducing foreign investment) in 2018, 2020 and 2022 are − 0.453, − 0.300 and − 0.260 respectively.

The mean values of variable name 1(Other funds) in 2018, 2020 and 2022 are 0.536, 0.110 and 0.197 respectively. The mean values of variable name 2(Other funds) in 2018, 2020 and 2022 are 0.233, 0.053 and 0.134 respectively. The mean values of variable name 3(Other funds) in 2018, 2020 and 2022 are 0.910, 0.339 and -0.453 respectively.

The mean values of variable name 4(Other funds) in 2018, 2020 and 2022 are 0.469, -0.124 and 0.760 respectively. The mean values of variable name 5(Other funds) in 2018, 2020 and 2022 are 0.922, 0.345 and -0.176 respectively. The mean values of variable name 6(Other funds) in 2018, 2020 and 2022 are 0.880, 0.254 and 0.102 respectively.

The mean values of variable name 1(National budget) in 2018, 2020 and

2022 are 0.076, 0.141 and 0.902 respectively. The mean values of variable name 2(National budget) in 2018, 2020 and 2022 are 0.286, 0.425 and 0.970 respectively. The mean values of variable name 3(National budget) in 2018, 2020 and 2022 are − 0.127, 0.140 and 0.960 respectively. The mean values of variable name 4(National budget) in 2018, 2020 and 2022 are − 0.242, 0.980 and 0.910 respectively. The mean values of variable name 5(National budget) in 2018, 2020 and 2022 are 0.880, − 0.752 and 0.930 respectively. The mean values of variable name 6(National budget) in 2018, 2020 and 2022 are 0.249, − 0.119 and 0.880, respectively (Appendix B).

According to the survey, the expansion of agricultural investment scale presents the following characteristics. First of all, after 1998, China's central government expanded domestic demand and promoted sustained economic growth through proactive fiscal policy and prudent monetary policy, resulting in a continuous increase in total government investment in agriculture. From 1998 to 2012, the nominal value of the central government's agricultural investment increased from 46.99 billion yuan to 148.7 billion yuan, with a growth rate of 216.4 percent. The actual value increased from RMB23.82 billion to RMB54.19 billion, representing a growth rate of 127.5%. Since 2007, the central government's agricultural investment has witnessed a significant growth, achieving a significant growth for six consecutive years.

Secondly, the incremental change of China's agricultural investment scale fluctuates greatly. The characteristics of the incremental change of the central government's agricultural investment from 1998 to 2012 are obvious. After 2006, the increment of agricultural investment fluctuated obviously, but maintained a trend of continuous increase. Due to the impact of the international financial crisis and natural disasters, the growth rate of agricultural investment was higher in 2008 and 2009.

Finally, the interannual growth rate of China's agricultural investment fluctuates sharply. Between 1998 and 2012, the real growth rate of agricultural investment was positive for nine years, with large increases in 2001, 2008, 2009, and 2012, and declines in 2000 and 2003. In general, agricultural investment has maintained a relatively fast growth, but the fluctuation of growth rate is unstable and

lacks certain rules. It is necessary to establish and improve the long-term mechanism of government input to agriculture. The continuous growth of agricultural investment has played an important role in overcoming the difficulties of economic and natural disasters, promoting the development of agriculture and rural economy, and accelerating the process of agricultural modernization in China.

At present, academic research mainly analyzes the direct effect of agricultural investment to explore its one-way effect and impact on agricultural economic growth. However, due to the changing macro policies and socio-economic environment of agriculture in China and China, there is a dynamic interaction between agricultural investment and agricultural economic growth. Therefore, examining only the relationship between agricultural investment and agricultural economic growth may lead to distorted conclusions. The focus of this section of research is to use the investment environment as an intermediary to deeply analyze the intrinsic interaction, influencing factors, degree of influence and impact path of agricultural investment and agricultural economic growth.

- Mediating analysis based on world investment environment

Model Construction

From Table 2.19, it can be seen that the analysis of mediation effects using the world investment environment as the mediating variable involves three types of models, which are as follows .

Necessary instructions: 1: Overall investment in agriculture; 2: Investment in traditional agriculture; 3: Forestry investment; 4: Investment in animal husbandry; 5: Marine investment; 6: Additional investment in agriculture.

Table 2.19 The Analysis of the Mediation Model t of the World Investment Environmen

The Mediation Model T of the World Investment Environment	Agricultural Economy	M1	M2	Agricultural Economy
Constant	0.065	0.033	0.02	0.065
1	0.005	0.003	0.005	0.005
2	0.002	0.001	0.017	0.002
3	0.001	0	0.004	0.001

4	0.013	0.008	0.024	0.013
5	0.006	0.003	0.021	0.006
6	0.004	0.002	0.001	0.004
1(Domestic loans)	0.004	0.002	0.01	0.004
2(Domestic loans)	0.008	0.004	0.006	0.008
3(Domestic loans)	0.011	0.005	0.04	0.011
4(Domestic loans)	0	0.001	0.032	0
5(Domestic loans)	0.014	0.008	0.006	0.014
6(Domestic loans)	0.008	0.004	0.069	0.008
World Economy Environment			0.001	0.003
World Investment Environment				0.001
Sample size	3	3	3	3
R squared	1	1	1	1
Adjust R^2				
F	F(12, -10)=, P=0.000	F(12, -10)=, P=0.000	F(13, -11)=, P=0.000	F(14, -12)=, P=0.000

Source: The original data are derived from the relevant data of the World and China Agricultural Investment in the World and China National Bureau of Statistics from 2018 to 2020, and are compiled by the authors and analyzed by mediation effect regression. P<0.05 indicates that the inspection has passed the F inspection requirements

Model 1: Regression model of explanatory variable agricultural investment and explained variable agricultural economic growth:

Agricultural Economy =

0.065+0.005*1+0.002*2-0.001*3+0.013*4+0.006*5+0.004*6-0.004*1(Domestic loans)-0.008*2(Domestic loans)-0.011*3(Domestic loans)-0.0*4(Domestic loans)-0.014*5(Domestic loans)+0.008*6(Domestic loans)

Model 2: Explanatory Variable Agricultural Investment and Mediation Variable World Investment Environment for Regression Model Construction:

M1 =

0.033+0.003*1+0.001*2-0.0*3+0.008*4+0.003*5+0.002*6-0.002*1(Domestic loans)-0.004*2(Domestic loans)-0.005*3(Domestic loans)+0.001*4(Domestic loans)-0.008*5(Domestic loans)+0.004*6(Domestic loans)

M2 =

0.02+0.005*1+0.017*2+0.004*3-0.024*4+0.021*5+0.001*6-0.01*1(Domestic loans)+0.006*2(Domestic loans)-0.04*3(Domestic loans)+0.032*4(Domestic loans)-0.006*5(Domestic loans)-0.069*6(Domestic loans)+0.001*World Economy Environment

Model 3: The independent variable agricultural investment and the intermediary variable world agricultural investment environment together with the dependent variable agricultural economic growth are regression model construction.

Agricultural Economy=0.065+0.005*1+0.002*2-0.001*3+0.013*3+0.006*5+0.004*6-0.004*1(Domestic loans)-0.008*2(Domestic loans)-0.011*3(Domestic loans)-0.0*4(Domestic loans)-0.014*5(Domestic loans)+0.008*6(Domestic loans)+0.003*World Economy Environment+0.001*World Investment Environment

This can be seen from Table 2.20, in terms of direct utility, the direct impact of domestic loan investment in agricultural economic growth of 1 (Overall investment in agriculture), 4 (Investment in animal husbandry), 5 (Marine investment), and 6 (Additional investment in agriculture) is not obvious.

Table 2.20 - The Analysis of the Mediation Effect of the World Investment Environment

Effect	Item	Effect value	P
1	2	3	4
Direct effects	1=>Agricultural Economy	0.005	0.116
	2=>Agricultural Economy	0.002	0.049 * *
	3=>Agricultural Economy	0.001	0.007 * * *
	4=>Agricultural Economy	0.013	1.924
	5=>Agricultural Economy	0.006	0.323
	6=>Agricultural Economy	0.004	0.081 *
	1(Domestic loans)=>Agricultural Economy	0.004	0.532 * * *
	2(Domestic loans)=>Agricultural Economy	0.008	0.348 * * *
	3(Domestic loans)=>Agricultural Economy	0.011	2.257 * * *
	4(Domestic loans)=>Agricultural Economy	0	0.027 * * *
	5(Domestic loans)=>Agricultural Economy	0.014	0.966 * * *
	6(Domestic loans)=>Agricultural Economy	0.008	1.438
Indirect effect process	1=>M1	0.003	0.058 *
	2=>M1	0.001	0.025 * *
	3=>M1	0	0.003 * * *

Continuous of Table 2.20

	2	3	4
	4=>M1	0.008	0.961
	5=>M1	0.003	0.142
	6=>M1	0.002	0.040 * *
	1(Domestic loans)=>M1	0.002	0.171 * * *

	2(Domestic loans)=>M1	0.004	0.147 * * *
	3(Domestic loans)=>M1	0.005	0.868 * * *
	4(Domestic loans)=>M1	0.001	0.200
	5(Domestic loans)=>M1	0.008	0.472 * * *
	6(Domestic loans)=>M1	0.004	0.697
	1=>M2	0.005	0.005 * * *
	2=>M2	0.017	0.022 * *
	3=>M2	0.004	0.001 * * *
	4=>M2	0.024	0.159 * * *
	5=>M2	0.021	0.054 *
	6=>M2	0.001	0.001 * * *
	1(Domestic loans)=>M2	0.01	0.054 * * *
	2(Domestic loans)=>M2	0.006	0.012 * *
	3(Domestic loans)=>M2	0.04	0.374 * * *
	4(Domestic loans)=>M2	0.032	0.259
	5(Domestic loans)=>M2	0.006	0.018 * * *
	6(Domestic loans)=>M2	0.069	0.558 * * *
	World Economy Environment=>M2	0.001	0.000 * * *
	World Economy Environment=>Agricultural Economy	0.003	0.003 * * *
	World Investment Environment=>Agricultural Economy	0.001	0.023 * *
Total effect	1=>Agricultural Economy	0.005	0.117
	2=>Agricultural Economy	0.002	0.050 *
	3=>Agricultural Economy	0.001	0.007 * * *
	4=>Agricultural Economy	0.013	1.923
	5=>Agricultural Economy	0.006	0.324
	6=>Agricultural Economy	0.004	0.081 *
	1(Domestic loans)=>Agricultural Economy	0.004	0.534 * * *
	2(Domestic loans)=>Agricultural Economy	0.008	0.348 * * *
	3(Domestic loans)=>Agricultural Economy	0.011	2.268 * * *
	4(Domestic loans)=>Agricultural Economy	0	0.020 * * *
	5(Domestic loans)=>Agricultural Economy	0.014	0.968 * * *
	6(Domestic loans)=>Agricultural Economy	0.008	1.427
Note: ***, ** and * represent significance levels of 1%, 5% and 10%, respectively			

Source: The original data are derived from the relevant data of the World and China Agricultural Investment in the World and China National Bureau of Statistics from 2018 to 2020, and are compiled by the authors and analyzed by mediation effect regression. P<0.05 indicates that the inspection has passed the F inspection requirements

The main reasons are as follows:

First, the overall field of agricultural investment is relatively scattered, the main source of funds is more complex, it is difficult to give play to the agglomeration role of agricultural investment on agricultural economic growth, and agricultural economic growth is affected by the comprehensive impact of many factors, including natural factors (such as Climate, Water Resources), market demand, policy

environment, technological innovation, etc.

A single investment is often unable to produce a direct and obvious effect in these complex influencing factors. Agricultural development often requires a combination of factors. So overall, agricultural investments generally have a long payback period, especially in the livestock and marine sectors. It takes a long time to breed or nurture animals and nurture marine resources. This leads to investors needing to take on long-term investments and wait for longer returns, which somewhat reduces the direct impact.

Second, due to the short development time of emerging agricultural industry investment, its industrial economy is still at a low level, and it is difficult to leverage the development of large-scale agricultural economy alone, and the direct utility produced is not significant.

Third, at present, China's agricultural science and technology level is still at a low level, so agricultural additional industries can only play the scale benefits of agricultural additional industries with the number of production, but they have not been able to achieve refined agricultural production and processing, and it is difficult to give full play to the agricultural economic benefits of agricultural additional industry investment.

Agricultural economic growth requires comprehensive policy support, including land system reform, market access, agricultural insurance, scientific and technological innovation, etc. A single loan investment often cannot solve these systemic problems, and requires policy support and coordination from the government and relevant institutions.

In the process of indirect effects, among the variables that failed to exert direct effects on the agricultural economy, only 1 (Overall investment in agriculture) and 6 (Additional investment in agriculture) had indirect utility on the world environment. There are two main reasons: first, as an important link of China's opening up to the outside world, overall agricultural investment is an important means for China to show the face of China's agricultural development to the world, and also an important bridge for cooperation and communication between China and

the world in agricultural economy and investment, so it will have an indirect effect on the changes of the world environment. Second, the development of the emerging Internet economy has made the scientific and technological investment and innovation in the agricultural additional industry eye-catching, attracting the attention of investors around the world.

In the total effect, 2 (Investment in traditional agriculture) and 3 (Forestry investment) have a significant effect on agricultural economic growth, mainly because these two types of investment are typical of agricultural investment, relatively stable development, large total investment, has always been an important pillar of agricultural economic growth, traditional agricultural investment and forestry investment usually involves the entire industrial chain, including planting, breeding, processing, circulation and sales and other links.

This whole-chain investment model can promote the development and growth of the agricultural economy and create jobs; On the one hand, agricultural additional industries are the focus of investment in recent years, and even in the era of Internet economy, rural e-commerce has emerged, but rural cross-border e-commerce has just emerged, the volume is small, and the rural import and export trade foundation and infrastructure are poor, it is difficult to play the leverage of agricultural investment on the agricultural economy, on the other hand, agricultural additional industries to invest a lot of agricultural science and technology and innovation resources. In the early stage of the development of agricultural additional industries, only the advantages of natural resources and labor agglomeration can be brought into play, and in the middle and later stages, the comparative advantages of technical resources will gradually appear, and investment in agricultural additional industries will gradually develop into an important pillar of agricultural economy.

Mediation Path Analysis

The following is Table 2.21, using the Bootstrap sampling test method, the intermediary effect is tested, the sampling number is 1000 copies, the P value is below 0.05, the results show that the following intermediary paths are present, and

the intermediary utility is significant, by the following intermediary effect, the following results can be analyzed.

Table 2.21 - The Analysis of the Mediation Test of the World Investment Environment

Item	Effect	Boot SE	Boot LLC	BOOt ULC	z	p
1=>M1=>M2=>Y	0	0	0	0	357.092	0.002 * * *
2=>M1=>M2=>Y	0	0	0	0	36.654	0.017 * *
3=>M1=>M2=>Y	0	0	0	0	62.801	0.010 * *
4=>M1=>M2=>Y	0	0	0	0	77.597	0.008 * * *
5=>M1=>M2=>Y	0	0	0	0	59.846	0.011 * *
6=>M1=>M2=>Y	0	0	0	0	241.31	0.003 * * *
1(Domestic loans)=>M1=>M2=>Y	0	0	0	0	24.361	0.026 * *
2(Domestic loans)=>M1=>M2=>Y	0	0	0	0	521.141	0.001 * * *
3(Domestic loans)=>M1=>M2=>Y	0	0	0	0	34.787	0.018 * *
4(Domestic loans)=>M1=>M2=>Y	0	0	0	0	36.574	0.017 * *
5(Domestic loans)=>M1=>M2=>Y	0	0	0	0	256.538	0.002 * * *
6(Domestic loans)=>M1=>M2=>Y	0	0	0	0	28.627	0.022 * *
Note: ***, ** and * represent significance levels of 1%, 5% and 10% respectively						

Source: Raw data are from the world and China agricultural investment data of IMF and National Bureau of Statistics of China from 2018 to 2020, which were compiled by the authors and analyzed by mediation effect regression. P <0.05 indicates that the test passed the F test requirement.

The world agricultural investment environment has a basic impact on the level of agricultural investment development, which mainly affects the development of world agricultural investment through the research on the level of world economic development, the policies and systems of agricultural development, agricultural international organizations, the degree of national investment in agriculture and other factors.

Developed countries have made significant changes in terms of agricultural support and protection rate, and their policies have gradually become market-oriented, enhancing agricultural competitiveness. Agricultural development in developing countries is relatively lagging behind, and it is in a weak position in the world. On the

one hand, the Uruguay trade negotiations and the world trade organization (WTO) rules, on the other hand, in order to promote domestic production structure adjustment, enhance the market competitiveness of the main agricultural products, the organization for economic cooperation and development (OECD) national producer average support (PSE) in the proportion of agricultural output overall slow decline.

The world agricultural investment promotes the growth of the world agricultural economy, mainly by using the leverage of agricultural investment structure to promote the growth of agricultural economy. In recent years, global public agricultural investment has shown a rapid growth trend as governments have increased their support for rural areas and farmers.

The investment in research and development (R&D) in the world's public agriculture is increasing, and high-income countries have always occupied a dominant position in the world's public agricultural R&D investment (the global share is more than 50%). China has a large population, and its agricultural production is relatively backward.

Certainly, in terms of the average annual growth rate of public agricultural R&D investment, in recent years, the average annual growth rate of total public agricultural R&D investment in developing countries is about the same as that in developed countries and exceeds the global average. At present, global agriculture is in a period of profound changes. The new scientific and technological revolution and industrial transformation have brought vitality to agricultural transformation and upgrading. The transformation and upgrading of traditional agriculture by high-tech information technology and biological engineering technology has become the main trend of agricultural development in the new era.

Agriculture has gradually entered the stage of informatization, the pilot of biological engineering, intelligent production, and the stage of sustainable development of modern agriculture. The wide application of modern science and technology, mainly biotechnology and information technology, in the field of agriculture has promoted the transformation from traditional agriculture to modern

agriculture. The agricultural technology revolution has brought about all-round and profound changes in world agriculture and revolutionized the pattern of world agricultural production and trade.

World agricultural investment and the structural reform of agricultural economy are in the same direction. The structural reform of agricultural investment will take the structural reform of agricultural economy as the guide and leverage the development of world economy.The international experience of rural development shows that, on the one hand, the rural economic transformation with productivity improvement as the main driving force promotes the structural transformation of agricultural investment;On the other hand, the transformation of rural economy with industrialization and urbanization as the main driving force accelerates the transformation and development of rural investment structure. The transformation of rural economy and the transformation of rural investment structure complement each other, and finally realize the coordination of development between urban and rural areas and between regions.

It can be seen from Table 2.22 that the mediating effect analysis with China's agricultural investment environment as the mediating variable involves three types of models .

Table 2.22 - The Analysis of the Mediation Model of the Chinese Investment Environment

Intermediary of the Chinese investment Environment	Agricultural Economy	M1	M2	Agricultural Economy
Constant	0.065	0.026	0.04	0.065
1	0.005	0.002	0.002	0.005
2	0.002	0.001	0.005	0.002
3	0.001	0	0.002	0.001
4	0.013	0.004	0.02	0.013
5	0.006	0.003	0.004	0.006
6	0.004	0.002	0.003	0.004
1(Domestic loans)	0.004	0.002	0.002	0.004
2(Domestic loans)	0.008	0.003	0.007	0.008
3(Domestic loans)	0.011	0.006	0.009	0.011
4(Domestic loans)	0	0.001	0.008	0

5(Domestic loans)	0.014	0.006	0.009	0.014
6(Domestic loans)	0.008	0	0.032	0.008
Chinese Economy Enviroment			0.001	0.002
Chinese Investment Enviroment				0.003
Sample size	3	3	3	3
R squared	1	1	1	1
Adjust R^2				
F	F(12, -10)=, P=0.000	F(12, -10)=, P=0.000	F(13, -11)=, P=0.000	F(14, -12)=, P=0.000
Note: ***, ** and * represent significance levels of 1%, 5% and 10%, respectively				

Source: The original data are derived from the relevant data of the World and China Agricultural Investment in the World and China National Bureau of Statistics from 2018 to 2020, and are compiled by the authors and analyzed by mediation effect regression. P<0.05 indicates that the inspection has passed the F inspection requirements.

Model 1: Regression model of independent variable agricultural investment and dependent variable agricultural economic growth:

Agricultural Economy=0.065+0.005 * 1+0.002 * 2-0.001 * 3+0.013 * 4+0.006 * 5+0.004 * 6-0.004 * 1(Domestic loans)-0.008 * 2(Domestic loans)-0.011 * 3(Domestic loans)-0.0 * 4(Domestic loans)-0.014 * 5(Domestic loans)+0.008 * 6(Domestic loans)

Model 2: Independent variable agricultural investment and intermediary variable China's agricultural investment environment regression model construction:

M1=0.026+0.002 * 1+0.001 * 2-0.0 * 3+0.004 * 4+0.003 * 5+0.002 * 6-0.002 * 1(Domestic loans)-0.003*2(Domestic loans)-0.006 * 3(Domestic loans)+0.001 * 4(Domestic loans)-0.006 * 5(Domestic loans)+0.0 * 6(Domestic loans).

M2=0.04+0.002 * 1-0.005 * 2-0.002 * 3+0.02 * 4-0.004 * 5+0.003 * 6+0.002 * 1(Domestic loans)-0.007 * 2(Domestic loans) loans)+0.009 * 3(Domestic loans)-0.008 * 4(Domestic loans)-0.009 * 5(Domestic loans)+0.032 * 6(Domestic loans)+0.001 * Chinese Economy Environment.

Model 3: Independent variable agricultural investment and intermediary variable China's agricultural investment environment together with dependent variable agricultural economic growth regression model construction:

Agricultural Economy=0.065+0.005 * 1+0.002 * 2-0.001 * 3+0.013 *

4+0.006 * 5+0.004 * 6-0.004 * 1(Domestic loans)-0.008 * 2(Domestic loans)-0.011 * 3(Domestic loans)-0.0 * 4(Domestic loans)-0.014 * 5(Domestic loans)+0.008 * 6(Domestic loans) +0.002 * Chinese Economy Environment+0.003 * Chinese Investment Environment.

From Table 2.23, we can see that:

In terms of direct utility, the direct impact of domestic loan investment in agricultural economic growth of 1 (Overall investment in agriculture), 4 (Investment in animal husbandry), 5 (Marine investment), and 6 (Additional investment in agriculture) is not obvious.

Table 2.23- The Analysis of the Mediation Effect of the Chinese Investment Environment

Effect	Iitem	Effect value	P
Direct effects	1=>Agricultural Economy	0.005	0.116
	2=>Agricultural Economy	0.002	0.050 *
	3=>Agricultural Economy	0.001	0.007 * * *
	4=>Agricultural Economy	0.013	1.912
	5=>Agricultural Economy	0.006	0.325
	6=>Agricultural Economy	0.004	0.081 *
	1(Domestic loans)=>Agricultural Economy	0.004	0.534 * * *
	2(Domestic loans)=>Agricultural Economy	0.008	0.347 * * *
	3(Domestic loans)=>Agricultural Economy	0.011	2.272 * * *
	4(Domestic loans)=>Agricultural Economy	0	0.016 * * *
	5(Domestic loans)=>Agricultural Economy	0.014	0.965 * * *
	6(Domestic loans)=>Agricultural Economy	0.008	1.409
Indirect effect process	1=>M1	0.002	0.098 *
	2=>M1	0.001	0.076 *
	3=>M1	0	0.003 * * *
	4=>M1	0.004	1.202
	5=>M1	0.003	0.342
	6=>M1	0.002	0.064 *
	1(Domestic loans)=>M1	0.002	0.516 * * *
	2(Domestic loans)=>M1	0.003	0.251 * * *
	3(Domestic loans)=>M1	0.006	2.405 * * *
	4(Domestic loans)=>M1	0.001	0.372
	5(Domestic loans)=>M1	0.006	0.770 * * *
	6(Domestic loans)=>M1	0	0.163
	1=>M2	0.002	0.005 * * *
	2=>M2	0.005	0.013 * * *
	3=>M2	0.002	0.002 * * *

	4=>M2	0.02	0.283
	5=>M2	0.004	0.021 * * *
	6=>M2	0.003	0.005 * * *
	1(Domestic loans)=>M2	0.002	0.027 * *
	2(Domestic loans)=>M2	0.007	0.030 * * *
	3(Domestic loans)=>M2	0.009	0.182
	4(Domestic loans)=>M2	0.008	0.138 * * *
	5(Domestic loans)=>M2	0.009	0.063 * * *
	6(Domestic loans)=>M2	0.032	0.546
	Chinese Economy Environment=>M2	0.001	0.000 * * *
	Chinese Economy Enviroment=>Agricultural Economy	0.002	0.001 * * *
	Chinese Investment Enviroment=>Agricultural Economy	0.003	0.033 * *
Total effect	1=>Agricultural Economy	0.005	0.117
	2=>Agricultural Economy	0.002	0.050 *
	3=>Agricultural Economy	0.001	0.007 * * *
	4=>Agricultural Economy	0.013	1.923
	5=>Agricultural Economy	0.006	0.324
	6=>Agricultural Economy	0.004	0.081 *
	1(Domestic loans)=>Agricultural Economy	0.004	0.534 * * *
	2(Domestic loans)=>Agricultural Economy	0.008	0.348 * * *
	3(Domestic loans)=>Agricultural Economy	0.011	2.268 * * *
	4(Domestic loans)=>Agricultural Economy	0	0.020 * * *
	5(Domestic loans)=>Agricultural Economy	0.014	0.968 * * *
	6(Domestic loans)=>Agricultural Economy	0.008	1.427

Source: The original data are derived from the relevant data of the World and China Agricultural Investment in the World and China National Bureau of Statistics from 2018 to 2020, and are compiled by the authors and analyzed by mediation effect regression. P<0.05 indicates that the inspection has passed the F inspection requirements.

The main reasons are as follows: First, China's agricultural investment as a whole started late, and the main source of funds is relatively complex, and it is difficult to give play to the agglomeration role of agricultural investment in agricultural economic growth; Second, due to the short development time and high threshold of industry development, the emerging animal husbandry investment and marine investment are difficult to promote the development of industrial economy, and the direct utility produced by private holding investment and private loan investment is not significant; Third, at present, China's agricultural science and technology level is still at a low level, and the agricultural production methods in some areas are relatively traditional, and the technical level and management level are relatively low, which limits the effect of investment. Investment only provides financial support and does not address fundamental problems, such as technological

innovation and management improvement.

In the process of indirect effects, 4 (Investment in animal husbandry) 、 3 (Forestry investment) and 6 (Additional investment in agriculture) are not significantly effective in China's investment environment.

There are two main reasons: First, China is mainly based on traditional farming economy, which belongs to labor-intensive investment, while animal husbandry and forestry belong to the development of sparsely populated areas, so China's southwest and northeast regions have absorbed a large amount of forestry investment capital, and the western region has absorbed a large amount of animal husbandry investment capital, but the traditional agricultural areas are in the central and southeastern hinterlands of China, so traditional agricultural investment is difficult to change China's investment environment.

Second, emerging agricultural investment is based on technological innovation and ecological protection, technological innovation and ecological protection projects are relatively long inputs and outputs, the development of animal husbandry and forestry is mainly based on technological capital and ecological capital, the indirect utility of China's investment environment is difficult to present through short-term data, and animal husbandry and forestry investment has a certain pressure on land resources, water resources and ecological environment. With society's emphasis on environmental protection and sustainable development, related industries are facing stricter regulations and restrictions. This can increase the cost and risk of the investment. Facts have proved that the benefits of technological innovation and ecological protection capital investment in agricultural production development to agricultural economic development are significant for a long time.

In the total effect, the direct effect of domestic loan investment in 1 (Overall investment in agriculture), 4 (Investment in animal husbandry), 5 (Marine investment), and 6 (Additional investment in agriculture) on agricultural economic growth is not obvious. On the one hand, animal husbandry, Marine fishery and additional agricultural industries are popular investment priorities in recent years. On

the other hand, agricultural additional industry needs to invest a large amount of agricultural science and technology and innovation resources.

- Mediation Path Analysis

As shown in Table 2.24, the Bootstrap sampling test method was used to study the mediation effect. The sampling times were 1000 times, and the P values were all less than 0.05. The results showed that the following mediation paths existed, and the mediation effect was significant.

Table 2.24 -The Analysis of the Mediation Test of the Chinese Investment Environment

Item	Effect	Boot SE	Boot LLC	BOOt ULC	z	p
1=>M1=>M2=>Y	0	0	0	0	11352.851	0.000 * * *
2=>M1=>M2=>Y	0	0	0	0	2357.959	0.000 * * *
3=>M1=>M2=>Y	0	0	0	0	1266.403	0.001 * * *
4=>M1=>M2=>Y	0	0	0	0	2417.514	0.000 * * *
5=>M1=>M2=>Y	0	0	0	0	3454.353	0.000 * * *
6=>M1=>M2=>Y	0	0	0	0	9504.676	0.000 * * *
1(Domestic loans)=>M1=>M2=>Y	0	0	0	0	1857.458	0.000 * * *
2(Domestic loans)=>M1=>M2=>Y	0	0	0	0	10419.969	0.000 * * *
3(Domestic loans)=>M1=>M2=>Y	0	0	0	0	2412.796	0.000 * * *
4(Domestic loans)=>M1=>M2=>Y	0	0	0	0	920.776	0.001 * * *
5(Domestic loans)=>M1=>M2=>Y	0	0	0	0	10069.319	0.000 * * *
6(Domestic loans)=>M1=>M2=>Y	0	0	0	0	156.237	0.004 * * *
Note: ***, ** and * represent significance levels of 1%, 5% and 10% respectively						

Source: The original data is derived from the relevant data of the World and China Agricultural Investment in the World and China National Bureau of Statistics from 2018 to 2020, and was compiled by the authors and analyzed using mediation effect regression. P<0.05 indicates that the inspection has passed the F inspection requirements.

China's agricultural investment environment has a fundamental impact on the level of agricultural investment development in China through some factors such as research on the economic level, agricultural development policy and agricultural investment policy. After the reform and opening up, China's agricultural development has achieved great results, but there are still some problems. Since 1978, the main

driving force for China's agricultural development has been institutional innovation. With the deepening of marketization and the expansion of opening up to the outside world, the trend of diversification of agricultural business entities is increasingly obvious, and the support for agriculture is gradually increasing.

On the premise of the stability of the rural land system, we will promote the reform of the household registration system, promote the non-agricultural employment of rural labor, increase the mobility of people between regions, promote the transformation of grassroots governments, and strengthen the capacity of rural governance. Through the reform of rural taxes and fees, the abolition of agricultural taxes and the implementation of the policy of "two exemptions and one subsidy" and the increase of direct subsidies for grain cultivation, we have achieved a substantial increase in farmers' income. At the same time, it has also done a lot of work on the innovation of farmer cooperative economic organization system and the reform of rural credit system.

China's agricultural technology investment has promoted the growth of China's agricultural economy by using the leverage of agricultural investment structure. Over the past four decades, progress in agricultural science and technology has played an extremely important role in China's agricultural growth. Chinese universities have a complete discipline classification and a complete scientific research system for the agricultural public sector, which provides technical support for accelerating the national agricultural scientific and technological innovation.

The transformation capacity of agricultural scientific and technological achievements has been continuously enhanced, which has promoted the development of agricultural product processing industry. The national agricultural technology extension system has been preliminarily established to provide systematic guarantee for accelerating the adoption of agricultural technology in grass-roots technical services. The system and mechanism of agricultural science and technology have been adjusted and improved.

We should pay special attention to the reform of salary system and performance evaluation, so as to improve the income level of researchers and

enhance their enthusiasm for scientific research. The agricultural science and technology system has gradually moved towards marketization, which has promoted the transformation and application of agricultural science and technology achievements and ushered in a new period of development for Chinese agriculture. The continuous increase of government investment has brought financial guarantee to the progress of agricultural science and technology, and the speed of transformation of agricultural science and technology achievements has been significantly accelerated, promoting the development of modern agriculture.

At the same time, over the past decade or so, a large number of enterprises have been attracted to invest in agricultural science and technology, bringing new vitality to scientific and technological innovation. This paper argues that in order to realize the transformation of China's agricultural economic growth mode from extensive to intensive, it is necessary to increase the financial support, establish a diversified agricultural investment mechanism, promote the close combination of science and technology and production, and promote technological progress and industrial upgrading. From the perspective of input structure, the government should adjust the direction of agricultural R&D investment and put forward that the government should increase the intensity of agricultural R&D investment. At the same time, by protecting intellectual property rights to promote enterprise agricultural research and development investment.

China's agricultural economic growth through increasing the scale of agricultural investment transmission of agricultural investment development is the decisive factor of China's agricultural investment. Using panel data model, this paper finds that there is a significant correlation between agricultural investment scale and agricultural investment efficiency in China. After the reform and opening up, China's agricultural production has been in a rapid growth trend, basically meeting the increasing domestic consumption needs.

There is a long-run equilibrium relationship and a short-run fluctuation relationship between agricultural investment and agricultural output, but their contribution rates are both very low. From 1978 to 2020, China's agricultural gross

domestic product (GDP) increased at an annual rate of 4.6%. Under the premise of basically ensuring food security, cash crops have developed rapidly. The growth of livestock and poultry production in China is significantly higher than that of crop production, and the growth rate of fishery production is significantly faster than that of other agricultural products. The proportion of total import and export of agricultural products in the global total continues to rise. Since 1978, the rapid expansion of China's agricultural trade scale and the continuous improvement of trade products and regional structure have become an important way to adjust the relationship between supply and demand of domestic agricultural products, increase farmers' income and employment, and develop rural economy. We should increase the green agricultural products with production advantages, invest in the public goods of multi-functional agriculture, increase the market of these products and services, improve the comprehensive agricultural productivity of our country, and strengthen the market competitiveness.

China's agricultural investment has the same trend with the structural change of agricultural economy, which is led by the structural change of agricultural economy and drives China's economic development. The market-oriented reform of agricultural products is the central link of China's rural economic system reform, and its goal is to establish a unified, open, competitive and orderly modern market economic system. Agricultural market reform will promote agricultural development and increase farmers' incomes.

The growth of agricultural investment promotes the improvement of China's agricultural output level, enables China's agriculture to achieve rapid development, and also provides sufficient labor resources for other sectors. With reference to international experience, rural transformation driven by the improvement of agricultural productivity promotes structural transformation, and structural transformation generates more employment and drives rural transformation.

At present, China is faced with a large number of rural surplus labor flowing into the cities, resulting in the inequality of income distribution between urban and rural areas, while the low efficiency of agricultural production restricts the

development of rural economy. In the future, while accelerating the pace of rural labor transfer to urban areas, agricultural labor productivity also needs to be significantly improved, so as to further narrow the labor productivity gap between agricultural and non-agricultural industries.

Conclusions to section 2

This section aims to study the current situation of investment management in agricultural economy under the background of globalization and its relationship with economic growth through empirical analysis, and further explore the research on management. This section is divided into three parts to address these issues comprehensively. The first part evaluates the current situation of global and Chinese economic development and investment, and analyzes the current situation of investment management in agricultural economy. Through a comprehensive investigation of the global and Chinese economic conditions, we can understand the specific performance of the current investment in the agricultural economy and the management problems.

The second part focuses on the relationship between agricultural economy and economic growth in the context of globalization. From the investment environment, investment structure, investment scale and other aspects, as well as the path of the investment environment as the intermediary analysis. Through these analyses, we can have a deep understanding of the impact of agricultural economy on economic growth in the context of globalization and the role of investment in it. Doing so will help us to better understand the relationship between the agricultural economy and the overall economic development.

The third part focuses on the management of agricultural investment and economic growth under the background of globalization. The input-output analysis method of agricultural economy is adopted, and the forecast analysis of the total agricultural investment is made. These analyses help us to assess the benefits of agricultural investments and provide advice and decision support on management. Through this part of the research, we can better grasp the relationship between

agricultural investment and economic growth under the background of globalization, and put forward the corresponding management strategies.

This chapter studies the current situation of investment management, the relationship with economic growth and the management research of agricultural economy under the background of globalization. The research results of this chapter provide the basis for developing better investment management programs and provide useful experience for better management of agricultural investment.

SECTION 3. RESEARCH ON INVESTMENT MANAGEMENT PATH OF AGRICULTURAL ECONOMY UNDER GLOBALIZATION

3.1. Input-output analysis of agricultural economy of China

With the deepening of economic globalization, agricultural investment management has become more and more important. The market economy of many countries in the world has developed very mature and perfect. By comparing and analyzing the successful practices and experiences of these countries' agricultural investment systems, it will be of great benefit to guide the reform of China's central government's agricultural investment system with agricultural infrastructure investment as the main body. This chapter selects the three most representative regions of market economy development, the United States, Japan and the European Union, as the research objects, through learning from the experience of other countries, so as to provide reference for China's agricultural economic investment, and form the management path of China's agricultural investment under the background of globalization.

The input-output level of China's agricultural economy is high, but the direct consumption and complete consumption coefficients of some industries are low, and the output level of agricultural investment is high. As shown in Table 3.1, three conclusions can be drawn from the input-output table of China's agricultural economy:

The input-output level of China's agricultural economy is high, the output is about 20 times of the input, but the total consumption coefficient is low, and the waste of agricultural resources is serious.

The total input of agriculture, forestry, animal husbandry and fishery is 1101,340 billion yuan, and the total output is 22577,292 billion yuan, with an input-output ratio of 20.5 and a coefficient of complete consumption of 0.22. On the one hand, it shows that the economic foundation of China's agriculture is good, the economic source of agricultural development is stable, and the agricultural

investment has a broad prospect. On the other hand, it shows that China's agricultural economic development has invested more resources, but the intermediate consumables of agriculture, forestry, animal husbandry and fishery output waste more seriously, indicating that China's agriculture has a large space for development in terms of investment in agricultural resources production.

The direct and complete consumption of some industries in China's agricultural economy is low, and the effective allocation of agricultural resources is relatively low. Such as: the total input for intermediate use of agriculture, forestry, animal husbandry and fishery is 146837,892 yuan, the direct consumption coefficient is 0.41, and the complete consumption coefficient is 0.05, which indicates that the development mode of Chinese traditional agriculture is extensive, and it is difficult to achieve the complete consumption of the input resources for intermediate use of agriculture, forestry, animal husbandry and fishery.

Part of traditional agriculture has not fully realized the integrated development of agriculture, industry, manufacturing and service industry. The total input provided by the mining industry to the intermediate use of agriculture, forestry, animal husbandry and fishery is 618,682 yuan, the direct consumption coefficient is 0.13, and the complete consumption coefficient is 0.15, which indicates that the mining industry and other manufacturing industries have a large input to the traditional agriculture, but the consumption coefficient is low. On the one hand, it indicates that the agricultural resource cost of China's manufacturing industry is low. On the other hand, it indicates that China's agricultural resources waste is relatively serious, the development of China's agricultural manufacturing industry has just started, and the development space of China's agricultural manufacturing industry is still large.

The total input of the production and supply of electricity, heat and water to the intermediate use of agriculture, forestry, animal husbandry and fishery is 10039,870 yuan, the direct consumption coefficient is 0.00, and the complete consumption coefficient is 0.21. On the one hand, it indicates that the rural production and power generation have a broad prospect and the agricultural

investment prospect is good.On the other hand, it indicates that China's agricultural production uses a large amount of hydropower resources, but the complete consumption coefficient is high. On the other hand, it indicates that China's agricultural production needs a large amount of hydropower resources.

The total input of non-metallic mineral products industry for intermediate use of agriculture, forestry, animal husbandry and fishery is 472,506 yuan, with a direct consumption coefficient of 0.00 and a complete consumption coefficient of 0.02. The total input of metal products manufacturing industry for intermediate use of agriculture, forestry, animal husbandry and fishery is 1004,273 yuan, with a direct consumption coefficient of 0.00. The coefficient of complete consumption is 0.06, which indicates that the metal and non-metal mineral resources in China's agricultural resources are relatively rich, the investment cost of metal and non-metal resources in China's agricultural development is low, but the investment prospects of metal and non-metal resources in China's agriculture are relatively broad.

The total input and output of the financial industry for the intermediate use of agriculture, forestry, animal husbandry and fishery are both 10987,663, indicating that the degree of financial capitalization of China's agricultural investment is low, and the development of China's rural financial market is still at a low level. The total input for depreciation of fixed assets in agriculture, forestry, animal husbandry and fishery was 22853,924 yuan, and the direct consumption coefficient was 0.59. The total input for remuneration of workers in agriculture, forestry, animal husbandry and fishery was 652709,226, and the direct consumption coefficient was 0.59, which indicated that the investment cost of fixed assets and human resources in rural China was low. However, the output returns are higher, indicating that the capitalization prospects of fixed assets and current assets in rural China are better.

The input-output level of China's agriculture-related manufacturing industry is higher, the total input level is lower, but the output level is higher. For example, the total input for intermediate use of agriculture, forestry, animal husbandry and fishery provided by food and beverage manufacturing and tobacco product industry was 95429,793 billion yuan, but the total output was 1262076,279 billion . The total input

for intermediate use of agriculture, forestry, animal husbandry and fishery provided by textile, clothing and leather product manufacturing was 220,878. However, the total output is 757438,910 mln yuan, and the total input of other manufacturing industries for the intermediate use of agriculture, forestry, animal husbandry and fishery is 162,651 yuan, and the total output is 118357,529 mln yuan. The development level of China's agricultural-related manufacturing industry is relatively high, and the total output is generally about 10-20 times of the total input. This indicates that China's agriculture-related manufacturing industry has a broad investment prospect.

Table 3.1. - The Input-Output Situation of the Agricultural Economy

Input-output indicators for 2017		Total input	Direct consumption factor of intermediate inputs	Coefficient of complete consumption of intermediate products	Total output
1		2	3	4	5
Intermediate inputs	Intermediate use in agriculture, forestry, animal husbandry and fishery	446716807	1	0.22	22577335292
	Agriculture, Forestry, animal husbandry and fisheries are provided for intermediate use in agriculture, forestry, animal husbandry and fisheries	146837892	0.41	0.05	1101240340
	Mining is provided for intermediate use in agriculture, forestry, animal husbandry and fishing	618682	0.13	0.15	541862962
	Food and beverage manufacturing and tobacco products for intermediate use in agriculture, forestry, animal husbandry and fisheries	95429793	0.00	0.01	1262076279
	The manufacturing of textile, clothing and leather products is provided for intermediate use in	220878	0.09	0.00	757438910

	agriculture, forestry, animal husbandry and fishing				
	Other manufacturing is provided for intermediate use in farming, forestry, grazing and fishing	162651	0.00	0.04	118357529
	2	3	4	5	6
	The production and supply of electricity, heat and water for intermediate use in agriculture, forestry, animal husbandry and fishing	10039870	0.00	0.21	634986430
	The coking, gas and petroleum processing industries provide for intermediate use in agriculture, forestry, animal husbandry and fisheries	94975047	0.01		1866525446
	The chemical industry provides for intermediate use in agriculture, forestry, animal husbandry and fisheries	86604912	0.09	0.01	78810470
	The non-metallic mineral products industry is provided for intermediate use in agriculture, forestry, animal husbandry and fisheries	472506	0.00	0.02	649457467
	The manufacturing of metal products is provided for intermediate use in agriculture, forestry, animal husbandry and fishing	1004273	0.00	0.06	1474812342
	Machinery and equipment manufacturing is provided for intermediate use in agriculture, forestry, animal husbandry and fisheries	13229626	0.00	0.00	3309824388
	Construction is provided for intermediate use in farming, forestry, grazing and fishing	750296	0.01		2287859274
	Transportation and	12212439	0.00		12212439

	storage postal, information transmission, computer services and software industries for intermediate use in agriculture, forestry, animal husbandry and fisheries				
	Wholesale and retail trade, accommodation and catering services are provided for intermediate use in agriculture, forestry, animal husbandry and fishing	13683920	0.00		13683920
	Real estate, leasing and business services are provided for intermediate use in agriculture, forestry, animal husbandry and fishing	368386	0.00		368386
	The financial sector provides for intermediate use in agriculture, forestry, animal husbandry and fisheries	10987663	0.00	0.05	10987663
	Other services are provided for intermediate use in agriculture, forestry, animal husbandry and fishing	9088672	0.00		2936423795
	Added value of agriculture, forestry, animal husbandry and fishery	654523533	0.01		647978298
Initial input	Depreciation of fixed assets in agriculture, forestry, animal husbandry and fishery	22853924	0.59		
	Remuneration for workers in agriculture, forestry, animal husbandry and fishery	652709226	0.59		
	Net production tax on agriculture, forestry, animal husbandry and fishery	- 34106164.	0.03		
	Agriculture, forestry, animal husbandry and fishery operating surplus	13066547	0.02		

Total input in agriculture, forestry, animal husbandry and fishery	1101240340	0.01		

Source: The original data were obtained from the National Bureau of Statistics of China and compiled by the authors.

As shown in Table 3.2, the input-output ratio increased year by year. In 2012, 2015 and 2017, the input-output ratio was 17.91%, 19.44% and 20.5% respectively, and the average input-output ratio was 19.38%. In 2012, 2015 and 2017, the input-output increase ratio was 1, 1.53 and 1.06 respectively. The average input-output increase ratio is 1.20, which indicates that the input-output level of China's agricultural economy is improving year by year, and the input-output efficiency is getting higher and higher.

Therefore, this study takes the total amount of agricultural investment in 2020 as the basic data, and the average value of the increase ratio of agricultural economic input-output is the annual change ratio of agricultural investment. The investment data from 2018 to 2020 is used to predict the total amount of investment from 2021 to 2023. The formula is as follows:

$$\text{Agricultural Investment}_{n,i} = \text{Agricultural Investment}_{(n-1),i} \times (1 + 1.20 \times (n - 2020))$$

Where, is the total forecast amount of agricultural investment in year n of item i, is the total forecast amount of agricultural investment in year n-1 of item i, n>2020, n is an integer. $\text{Agricultural Investment}_{n,i}\text{Agricultural Investment}_{(n-1),i}$

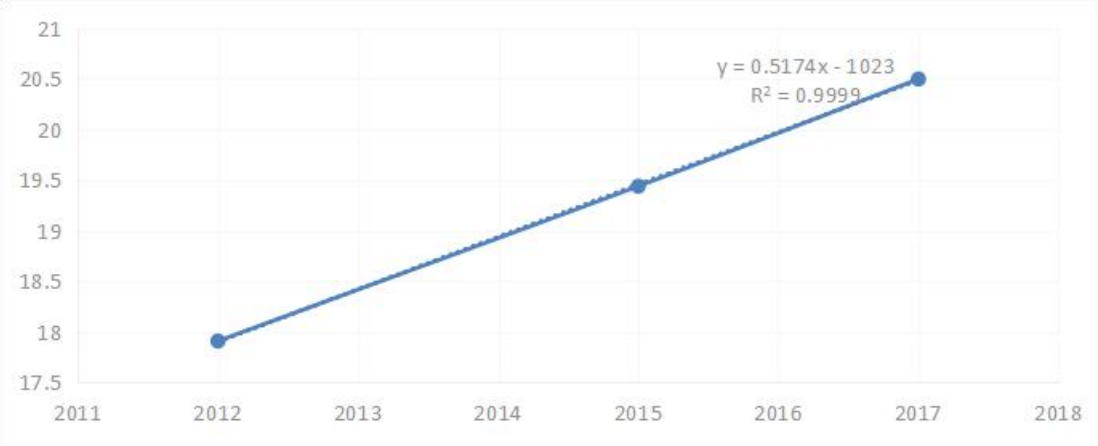


Figure 3.1 - Development and forecast of China's input-output ratio

Source: The original data were obtained from the National Bureau of Statistics of China and compiled by the authors

This study is based on the relationship between agricultural investment and agricultural economic growth mediated by investment environment. The analysis shows that China's agricultural input-output level and China's agricultural investment change in the same trend, and the input-output efficiency of agricultural economy is used to predict China's total agricultural investment.

Table 3.2. - The Input-Output Ratio

Year	Total input	Total output	Input-output ratio	Input-output increase ratio
2017	1,101,240,340	22,577,335,292	20.50	1.06
2015	1,070,563,649	20,814,465,145	19.44	1.53
2012	894,213,473	16,016,270,834	17.91	1.00
Average	1,022,005,820	19,802,690,424	19.38	1.20

Source: The original data were obtained from the National Bureau of Statistics of China and compiled by the authors

The forecast results of total agricultural investment are shown in Table 3.3. China's total agricultural investment will increase year by year. From 2018 to 2023, China's total agricultural investment will grow at a rapid pace, reaching a quadrillion market.

Such as, China Agricultural Economy in 2023, World Agricultural Economy, Invest Completed, Equipment, New Fixed Assets, Government Funds, Financial Loan, Import Funds, Import Foreign Funds, Self Funds, Other Funds were 95,685.36, 316,006.91, 145,730.99, 52,328.04, 98,176.84, 2,247.60, 20,516.98, 20,303.90, 5,955.91, 91,829.11 and 10,83.339 billion yuan respectively.

Table 3.3 -The Total Agricultural Investment Forecast (100 million/RMB)

Year	2018	2019	2020	2021	2022	2023
China Agricultural Economy	7.18	7.66	7.99	173.38	3,970.35	95,685
World Agricultural Economy	24.98	25.42	26.39	572.59	13,112.32	316,006.91
Invest Completed	11.09	11.66	12.17	264.06	6,046.93	145,730.99
Equipment	3.97	4.18	4.37	94.82	2,171.29	52,328.04

New Fixed Assets	7.45	7.85	8.20	177.89	4,073.73	98,176.84
Government Funds	0.17	0.18	0.19	4.07	93.26	2,247.60
Financial Loan	1.56	1.65	1.71	37.18	851.33	20,516.98
Import Funds	1.54	1.62	1.70	36.79	842.49	20,303.90
Import Foreign Funds	0.45	0.47	0.50	10.79	247.13	5,955.91
Self Funds	6.99	7.35	7.67	166.39	3,810.34	91,829.11
Other Funds	0.82	0.86	0.90	19.63	449.52	10,833.39

Source: The original data were obtained from the National Bureau of Statistics of China and compiled by the authors

Moreover, these agricultural investment funds will flow to the intermediate use industry, the initial use industry and the final product production industry of agriculture, and create the agricultural economic benefits of the input-output ratio of up to 20 times.On the one hand, this proves the broad prospect of China's agricultural investment. On the other hand, it also exposes the dilemma of low level of scientific and technological innovation and poor efficiency of resource allocation in China's agricultural development. In order to give full play to the role of resource and agricultural scientific and technological innovation in driving agricultural economic growth, integrate the development of the three industries, and ultimately contribute to the development of national economy and the improvement of residents' income level, This is the essential connotation and fundamental purpose of the mutual promotion of agricultural investment and economic growth in China.

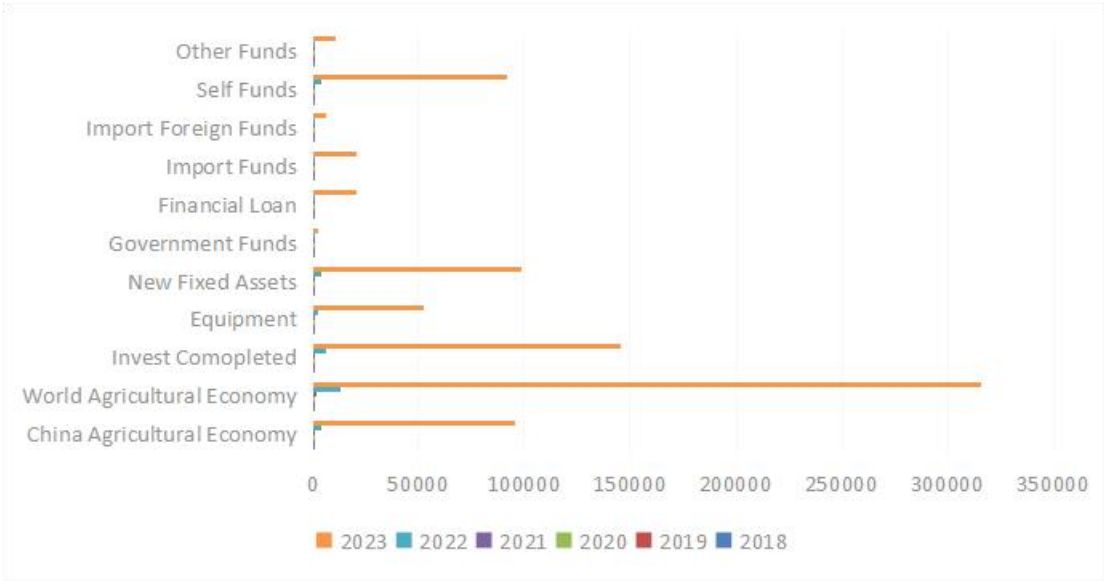


Figure 3.2 - Changes in various indicators of China's agricultural investment

Source: The original data were obtained from the National Bureau of Statistics of China and compiled by the

The growth of the world agricultural economy has a decisive impact on the world agricultural investment, mainly by increasing the scale of agricultural investment to transmit the development of agricultural investment. This paper analyzes the relationship between the world agricultural investment and the development level of agricultural production scale and agricultural production efficiency. The research shows that the result of agricultural production development determines the size of production input. It is found that the increase in yield per unit area mainly depends on two factors: the increase in production input, that is, fertilizer, agriculture, machinery and other investment; the second is technological progress, especially the application of biotechnology, information technology and modern management methods, but the increase in production input also brings many problems.

So far, China's investment in fertilizers and pesticides is still increasing, and European countries began to decline in the 1980s. Worldwide, the demands for food and other agricultural products are higher in developed countries than in developing countries, but this trend varies between regions. The regional difference of agricultural productivity is large, and the growth potential of global agricultural production input is huge. Half of the world's grains come from productivity or less than 5t; countries above 6t only contribute 20% to the world's total grain output. Therefore, achieving high yields on a global scale will give a huge boost to world food production. It also means that global investment in agricultural production will boost productivity in low countries.

3.2. Management status of agricultural investment in representative countries under globalization

The United States is a country with highly developed market economy, rich

agricultural natural resources and good agricultural production conditions, which are suitable for the growth of a variety of crops. The current situation of agricultural investment management in the United States benefits from the high development of market economy in the country. Modern agriculture in the United States started early and was mainly based on planting and animal husbandry. Agricultural mechanization had already appeared in the 1940s, and in 1941 the per capita GNP had exceeded $1,000, making it the industrialized country with advanced agriculture in the world.

The agricultural market of the United States is highly developed, and a sound agricultural information monitoring and early warning mechanism has been established. The function of the United States Department of Agriculture (USDA) is based on a national strategy to improve agricultural productivity through sound public policy, using the best available science and efficient management practices. At present, the work of USDA mainly includes planting, forestry, animal husbandry, fishery, environmental protection, rural construction, rural tourism, agricultural technology promotion, agricultural statistics, etc.

Its responsibilities not only cover all links in the chain of agricultural industrialization and modernization horizontally, but also include new agricultural functions and agriculture-related service industries vertically. Under the big agriculture system, each management department has a clear division of labor and clear responsibilities, and the quality of government services is efficient. Providing economic opportunities through innovation to help rural development; Boosting agricultural production to better provide nutrition for Americans while helping the rest of the world; Natural resources are protected through resource conservation, forest restoration, watershed improvement, and healthy development of private farmland.

The agricultural investment projects of the US government are market-oriented, aiming to protect and improve the quality of natural resources and environment, increase the market opportunities and profits of agricultural products, and ultimately improve the international competitiveness of US agriculture and agricultural products. At the same time, it also focuses on ensuring the safety of

agricultural products and improving the quality of life of farmers.

At present, the US government still implements active agricultural financial support policy, and the total financial investment in agriculture is rising in the federal government budget. Although states and localities in the United States have independent fiscal budget power, the federal government dominates agricultural investment, and almost all the subsidies for agricultural investment are borne by the federal government. In order to ensure the effectiveness and benefits of agricultural investment, the federal government and the state governments have formulated a large number of laws and regulations. These laws and regulations cover all aspects of agricultural inputs and benefits, and a lot of human and material resources have been invested to implement and regulate them. In terms of budget application, investment allocation, project implementation and effectiveness evaluation, the US federal government conducts comprehensive supervision and performance evaluation on personnel, projects and funds.

In 2014, the USDA's budget was $1.3 billion, with research institutions, local universities, and extension centers the main targets for supporting specialty energy crops, new farms, and organic farming. There is also $1.5 billion in free funding for wild boar culling, helping farmers and farmers develop markets, supporting production and processing at the source of origin, promoting direct delivery of produce to schools, and developing and monitoring stronger standards for organic produce. In recent years, due to the financial crisis and economic downturn, these budgets have been declining. In 2018, the new US farm Bill deepened the "yellow box" policy to deal with the severe impact of the global agricultural market downturn on the US agriculture industry since 2013, and strengthened the protection of farmers.

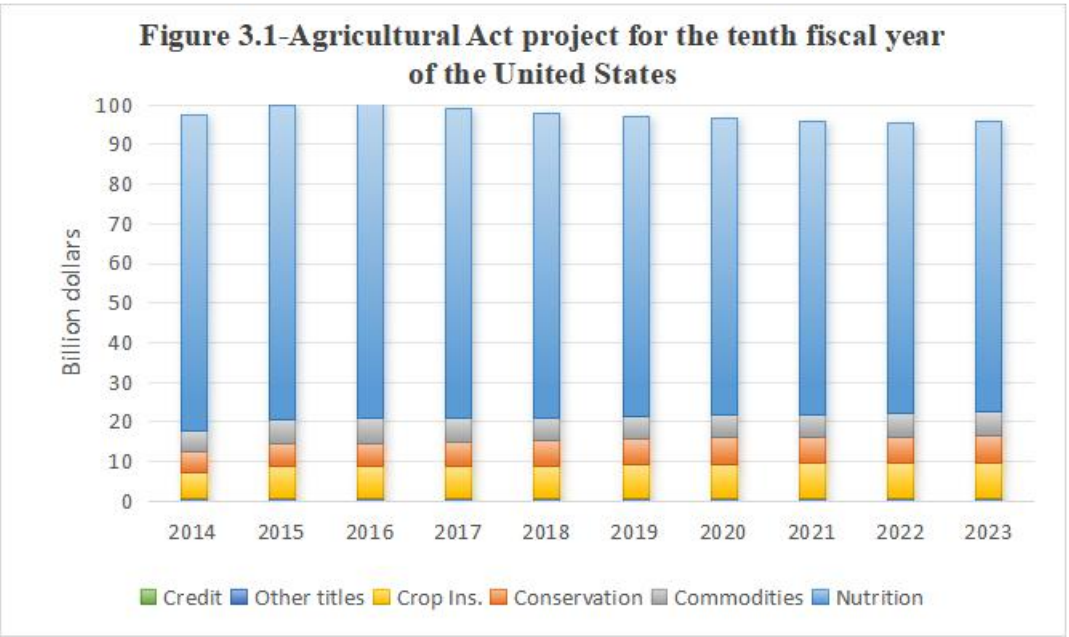


Figure 3.3 - Agricultural Act project for the tenth fiscal year of the United States, 2021

Source: CRS, CBO baseline

Later, the two rounds of Market Promotion Program (MFP) introduced by the US government to deal with the impact of trade frictions and the two rounds of COVID-19 Food Assistance Program (CFAP) and Salary Protection Program (PPP) introduced by the US government to deal with the impact of COVID-19 directly caused the amount of comprehensive agricultural support of the US to exceed its commitment to the WTO for the first time in history. The United States plays a core role in WTO rulemaking. After the Uruguay Round negotiations, the market-oriented reform and development of American agricultural policy once led the transformation of world agricultural policy.

In the later stage of development, the relevant system is constantly adjusted and improved according to the domestic and foreign situation, and the agricultural policy is usually adjusted every five years to adapt to the development of agriculture. At present, the agricultural laws and regulations of the United States cover the use of agricultural funds, agricultural ownership, agricultural insurance, rural finance, agricultural infrastructure construction, agricultural resource protection, agricultural market construction, rights and responsibilities of agricultural departments and other

contents.

The modernization of Japanese agriculture is based on the private ownership of land and the smallholder economy. This scattered smallholder economy and private land ownership were brought into the track of modernization through the strong organizational role of the Japanese government and various agricultural support and protection policies. In agricultural support and protection, the establishment of agricultural input system plays a pivotal role.

Between 1955 and 1975, Japan modernized its agriculture. After the war II, in order to support the implementation of national industrial policies, especially social infrastructure construction, industrial restructuring and international cooperation, Japan established a government-led financial investment and financing system. This system operates through the provision of financial funds by the state to the government and the raising of social funds through financial means. The state has a financial fund accounting for about 37% of the GNP, coupled with a strong "Special Accounting", with strong financial resources to guarantee the continuous optimization and upgrading of the industrial structure, to ensure the implementation of the national industrial policy, this kind of investment system benefits agriculture. After the war II, the government continuously increased its financial input to agriculture, and the central agricultural budget grew rapidly with 26.6 billion yen after the 1980s. It rose to 43.9 billion yen in 1960, to 148.5 billion yen in 1965, to 178.5 billion yen in 1990, to 379.5 billion yen in 2000 and 885.9 billion yen in 1920.

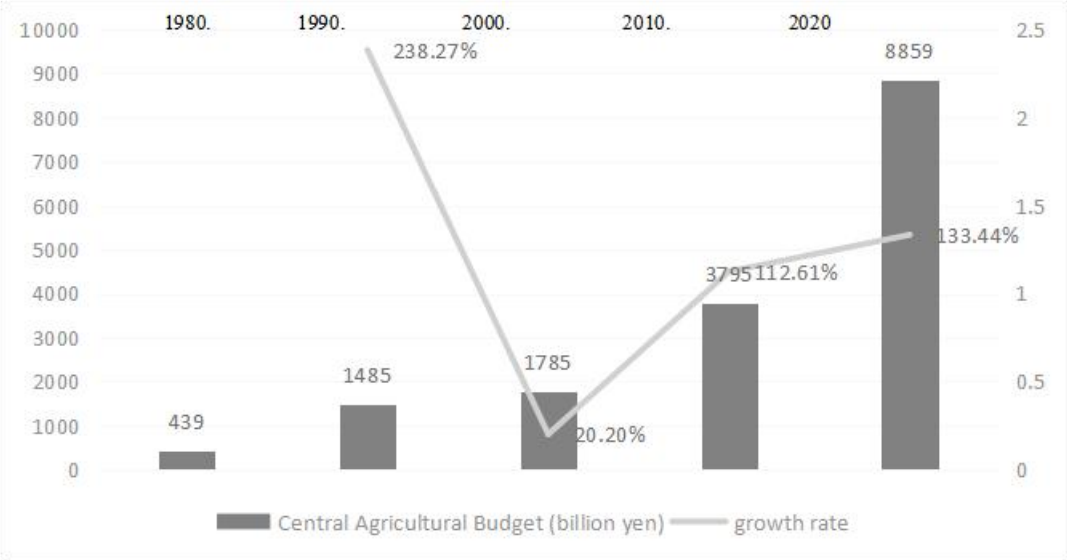


Figure 3.4 - Changes in Japan's central agricultural budget

Source: Data are from the 1980-2020 Central agricultural budget and growth rate of the National Bureau of Statistics of Japan

Japan's agricultural financial investment is mainly used in agricultural and rural infrastructure construction investment, agricultural technology development, agricultural reproduction and structural adjustment, agricultural product price subsidy and loan discount interest. The government formulated a clear industrial approach in agriculture and divided the national economy into three broad categories: strategic industries, general industries, and backward industries. The state appropriately concentrates funds to support the development of strategic industries and the transformation of backward industries, so as to promote coordinated economic development, and attaches great importance to the regulatory role of the market on investment.

The government has taken clear measures for different investment entities and agricultural construction projects. In the amount borne by farmers, most of them can also rely on a small part of long-term low-interest loans (policy-based financial input) directly invested by farmers. According to the specific situation of different projects, the financial subsidy standard for government subsidy projects is also different. The central finance must follow the subsidy system and industrial policy of the state before it can give subsidies to the agricultural projects undertaken by local governments and farmers. For the projects included in the central government subsidies, the subsidy standards and proportions are inconsistent, due to the different levels of economic development and the different economic benefits of the projects.

After 1990, the Japanese government's agricultural subsidy input increased rapidly. In the investment in agricultural fixed assets, the state-subsidized investment mainly in irrigation and water conservancy construction accounted for almost the vast majority, while the investment in buildings, agricultural vehicles, agricultural machinery and tools, animals and plants, which were mainly based on farmers' own funds and low-interest loans, received little state-subsidized funds. In view of the serious aging of rural areas in Japan and the weak competitiveness of agricultural

business entities, the Japanese government has continuously strengthened investment support in promoting the concentration of agricultural land. In order to speed up the reform of agglomeration and intensification of agricultural land, financial support has been given to the project operation of the intermediate management institutions of agricultural land and the lessors of agricultural land.

On agricultural input management, it is closely linked to industrial policy. Japan's financial investment and financing system complement each other with its industrial policies. Since agriculture and other basic industries and infrastructure are crucial to the development of the entire national economy, the Japanese government has always regarded supporting basic industries and infrastructure construction as one of the important tasks of fiscal investment. In industrial policy, the government guarantees the implementation of industrial policy by guiding investment, and takes supporting basic industries as an important direction.

This feature is also an important part of Japan's fiscal investment and financing system. The Japanese government supports agriculture through financial input, not only directly investing in centrally led projects, but also supporting local and private projects through subsidized investment and so on. At the same time, the government also encourages local governments, public organizations, private enterprises and foreign investors to actively participate in investment. The government's investment has played a role of demonstration and guidance, prompting other institutions to actively participate in investment.

This model guided by government investment has achieved good results, enabling the government's financing activities to be active. For the industrial areas that the state hopes to focus on development, it has led and guided social investment several times or even dozens of times of financial input, and greatly increased the financing sources of agricultural projects. Meanwhile, we should attach importance to strengthening legislation on investment.

Laws and regulations have been introduced to support agricultural and rural development, such as the Basic Plan for Food, Agriculture and Rural Areas, the Organic Agriculture Law and the Sustainable Agriculture Law. In addition, a series of

local laws and regulations have been formulated, such as the Regional Agricultural Development Law. Japan attaches importance to the coordinated development of agriculture, farmers and rural areas, and has built a large number of agricultural infrastructure and rural public facilities through financial support, financial credit, social welfare and other measures.

The differences in economic systems, political systems and values among EU countries have led to a certain division of labor in the common agricultural policy. Fiscal resource integration, income distribution, and economic adjustment are all handled independently by member states. Second, the central government revenue is mainly used for agricultural development. The Treaty of Rome stipulates the principles of subsidies and management of the Common Agricultural Policy, and takes protective measures for agricultural production and marketing. Establish a special agricultural fund for agricultural development. Third, according to the economic and social development of each region, the rational structure of agricultural support funds. The Maastricht Treaty of the 1990s increased support for poor countries and regions by adding the "Cohesion Fund". The focus of EU agricultural support policy has been from maintaining food security, to directly subsidize farmers, and then to establishing agricultural subsidy policies linked to ecology.

The management status of EU agricultural investment environment has gone through three stages since the 1960s. By 2004, the new common Agricultural Policy of the European Union had formed two policy pillars, namely, supporting agricultural development and rural development, which changed from focusing solely on agricultural development to focusing on both agricultural and rural development.

The main purpose is to adopt direct payment to reduce the impact of imported agricultural products in order to maintain EU food security, promote domestic food production and reduce dependence on imports under the circumstance of low import barriers and difficulty in implementing price support through various measures such as taxes, fees, price support and export subsidies. With the development of production, the main agricultural products of all EU countries appeared surplus, the financial burden of each country was overwhelmed, and the financial resources of producing

agricultural products, storing agricultural products and exporting were increasingly consumed; At the same time, under the WTO framework, disputes surrounding agricultural trade have also arisen.

The basic objectives and measures of the EU common Agricultural Policy are unified, and each member country develops its agricultural economy according to the objectives of the common agricultural Financial policy, which makes the fund focus of the EU common agricultural financial policy prominent and can concentrate the limited resources to develop the agricultural economy. In recent years, the EU agricultural policy has shifted from intervening in agricultural production to optimizing agricultural structure.

As one of the most important member states of the European Union, Germany's agricultural support policy has always been consistent with it, and has been constantly changing and developing with the evolution of the EU's agricultural support policy, which is under the framework of the EU's unified agricultural support policy. After the implementation of the European Common Agricultural Policy (CAP), Germany's agricultural policy has undergone a great adjustment, mainly decoupling agricultural subsidies from output and implementing fallow subsidies. As an EU member state, France's financial input in agriculture is divided into two main areas: agricultural development and agricultural protection.

In terms of agricultural development, the government supports the construction of infrastructure, such as agricultural production and living service facilities, land annexation and agricultural restructuring, the construction of agricultural science and technology and technology extension institutions, rural electrification and rural road construction, and the construction of agricultural production and agricultural product sales organizations. In terms of agricultural protection, the government is committed to the governance and protection of agricultural environment, rural relief and agricultural price protection.

The government has provided strong support for the construction of agricultural infrastructure and advanced agricultural equipment. In addition to the major projects directly invested by the government, most of the agricultural

infrastructure construction adopts the way of government funding to carry out supporting construction.

3.3. Development of China's agricultural investment management system under the globalization

The main bodies of central agricultural investment mainly include the constituent departments of The State Council, such as the National Development and Reform Commission, the Ministry of Finance, the Ministry of Agriculture, the State Forestry Administration, the Ministry of Water Resources, and the National Meteorological Administration. Among them, the comprehensive department in charge of investment is the Development and Reform Commission. The Ministry of Finance belongs to the comprehensive authority within the budget, the Ministry of Agriculture belongs to the industry administration, the State Forestry Administration belongs to the industry administration, and the Ministry of Water Resources belongs to the industry administration. There are also some units in these departments that undertake specific investment projects with more detailed investment functions.

As a management activity, the government agricultural investment management must be managed according to the objective laws of engineering construction, and a series of laws, regulations and rules of engineering management must be strictly implemented to ensure its scientification. The institutional regulations of the central finance on agricultural investment projects mainly include three aspects: First, the legal regulations on investment and financing, project management, project construction, bidding and government procurement, etc., formulated by the state; Second, the general rules and regulations of various industries, formulated by the National Development and Reform Commission, the Ministry of Finance, the Ministry of Construction and other departments. Third, technical specifications, standards, regulations and other agricultural engineering survey and design, construction, supervision, quality acceptance, cost management and other links.

Since 2004, we have carried out reforms in line with the ideas of investment system reform. The Ministry of Agriculture, the Ministry of Water Resources, the State Forestry Administration and the China Meteorological Administration have formulated a series of management regulations for the projects fully or mainly invested by the central government, which involve the government agricultural investment and project application, evaluation, examination and approval, bidding and bidding, supervision and inspection, completion and acceptance and other links, and carried out more strict management, and comprehensively formed the government agricultural investment project management system framework system. These departmental regulations play a direct role in guiding the management of agricultural investment projects to the central finance.

The development and construction plan is an important basis for the government's investment decision-making, and the agricultural development plan and special construction plan are an important basis for the annual agricultural investment and project arrangement prepared by the National Development and Reform Commission in conjunction with the relevant agricultural industry management departments in accordance with the national industrial policy and industrial development plan and taking into account the regional economic development status, industrial structure and natural resources status. Government investment projects shall be determined by the Forestry Bureau of the Ministry of Finance in accordance with direct investment, capital injection, investment subsidy and discount interest.

Non-operational projects within the scope of power of the people's governments at the same level that require government investment, such as government construction, public welfare undertakings and public infrastructure, may be invested in the form of financial allocation. Direct investment shall be subject to an approval system, which shall approve project proposals, feasibility study reports and design preliminary plans. Capital injection and other ways can be adopted to invest in operational projects that need to exert the control and influence of state-owned economy, as well as operational projects supported by the government. For projects that need government support, investment subsidies can be given in the

form of financial support with a certain limit or proportion. Except in accordance with the national and provincial examination and approval regulations and special requirements, only the capital declaration report shall be approved for the projects invested by means of investment subsidies and discount interest.

For a financial year in which the central government arranges the examination and approval of agricultural investment projects, the following schedule should be set out.For example, a fiscal year in which the central finance arranges the examination and approval of agricultural investment projects shall be subject to the following schedule:

1. Arrange and report annual investment plans. In April and May last year, in order to understand the investment demand and arrangement intention of various departments, the National Development and Reform Commission arranged the demand preparation and reporting of the draft investment plan for the next year. The industry management department issues documents and notices to clarify the main direction of investment arrangement, and according to relevant plans, the industry management departments and directly affiliated units in various places are deployed to put forward the annual overall investment demand according to the preliminary work of the project. Prepare and report the draft annual investment plan.

At the end of July last year, the industry management department prepared the draft investment plan for the next year to the National Development and Reform Commission, which was prepared according to the investment demand submitted by local and ministerial units. The annual investment scale is linked to the special project. From August to November last year, the industry management department coordinated and communicated with the National Development and Reform Commission on the scale of each special investment and the project arrangement in the draft annual investment plan. The annual investment scale of each special project (excluding the notification of various departments) shall be proposed by the National Development and Reform Commission in December after comprehensive balance, and shall be submitted to The State Council for approval after deliberation at the office meeting of the director of the Economic Commission.

2. Prepare and report the department's self-built investment promotion plan. From August to November last year, for the department's own construction projects undertaken by the units directly under the Central Government (relevant special projects undertaken by the units directly under the central government were taken into account together), according to the requirements of department budget preparation, the industry management departments submitted the annual investment plan to the National Development and Reform Commission with reference to the scale of previous years after completing the preliminary work such as project approval. Around the middle of November each year, the National Development and Reform Commission (NDRC) examines and approves this part of the investment plan and connects the departmental budget with the Ministry of Finance. Arrange investment plans to declare specific projects. In January and February, according to the overall annual investment arrangement plan approved by The State Council, the NDRC notifies all departments of the investment arrangement and puts forward specific requirements for compiling and issuing the plan. The management departments of all industries shall communicate with the NDRC on their opinions on special arrangements, negotiate article by article, and notify all localities to organize the application of annual investment plans.

3. Prepare and submit specific proposals for special investment. During the period from March to June, each industry management department prepares each special investment proposal plan excluding the projects directly managed by the National Development and Reform Commission based on the annual investment demand declared by the local and directly affiliated units, taking into account the annual investment scale, the progress of preliminary project work and other factors, and completes the approval work according to the approval authority before the annual investment plan is submitted. At the same time, the review and issuance of the annual investment plan is also carried out at this time.

The National Development and Reform Commission examines and issues special annual investment plans, which are carried out according to the investment proposal plans prepared and reported by the industry management department and the

application of provincial investment plans. Generally, it shall not exceed the latest time for the introduction of the plan in Section 3. Arrangement of annual additional investment plan. In July and August of that year, The State Council may increase the annual investment scale according to the needs of the economic situation, and the departmental reserved investment may also be arranged by the National Development and Reform Commission. In line with the direction of additional investment arrangement and the preliminary work of the project has been in place, the application for additional investment submitted by the industry management department may strive for a part of the annual additional investment. The declaration and distribution of this part of the investment plan have been delayed accordingly, but must be completed by the end of the year at the latest.

The path of agricultural investment management in China under globalization.

Based on the above description of the current situation of agricultural investment management in developed countries and China, it has a strong practical guiding significance for clarifying the thinking and direction of agricultural investment management, deepening the reform of agricultural macro management, and giving full play to the decisive role of market in resource allocation. In view of the defects and deficiencies of China's agricultural investment system, as well as the resulting realistic contradictions in agricultural activities, it is necessary to explore the establishment of a new system full of vitality and vitality, to meet the needs of agricultural development, which is an innovative measure to deepen the reform of agricultural investment management system.

In order to achieve this goal, we need to improve the investment and financing mechanism, clarify the functional division of investment subjects, standardize the investment and financing channels and methods of various projects, and strictly implement the project management system. At the same time, it is also necessary to strengthen macro-control and supervision and restraint mechanisms to ensure the compliance and effectiveness of investment activities. We should establish

a new agricultural investment system to ensure sufficient investment supply and sound investment subjects, and realize scientific decision-making, flexible regulation and effective supervision of investment.

Path I： Optimizing the guiding ideology of the central agricultural investment system

We must follow the new road of agricultural modernization with Chinese characteristics. With improving the efficiency of agricultural and rural investment as the starting point and goal, we will fully implement full-caliber, whole-process, penetrating and closed-loop management of agricultural and rural investment projects, and comprehensively improve policy and standard research, project review and evaluation, investment monitoring and supervision, budget performance management, and industry guidance services.

Strive to build an authoritative and influential agricultural and rural investment evaluation center and a new high-end think tank, and become the leader in the whole life cycle management of agricultural and rural investment projects. (Engineering Construction Service Center of the Ministry of Agriculture and Rural Affairs of China,2022). In accordance with the objective requirements of market economy development, we should give full play to the basic role of market mechanism in resource allocation. In agricultural investment, the enthusiasm and creativity of agricultural enterprises, farmer cooperatives and other market players should be guided and encouraged to promote the effective docking and benign development of all links of the agricultural industry chain. In addition, the goal of China's institutional reform is to establish a socialist market economy system, so it is necessary to deepen the reform in the agricultural investment system reform.

This includes further improving the diversification of agricultural investment subjects and promoting diversified investment subjects to participate in agricultural investment; Optimizing fund-raising methods and channels and encouraging financial institutions to provide more financing support to agriculture; Improving project decision-making procedures and enhancing the efficiency and transparency of project approval; Strengthen construction implementation management and promote

scientific planning and orderly implementation of agricultural investment projects; Improve the organizational system setting, improve the coordination and support ability of governments at all levels in agricultural investment. Finally, we should further improve and strengthen the government's macro-control of investment. The government should strengthen macro monitoring and forecasting of agricultural investment, adjust policies in time, and guide and stabilize the scale and structure of agricultural investment. At the same time, the government should also provide necessary public services and infrastructure to provide a good environment and guarantee for agricultural investment.

Develop new agricultural investment based on new stage characteristics to meet the needs of agricultural development. At present, China's agriculture has entered a new historical stage of development. First, the overall shortage of agricultural products has changed to a surplus and relative surplus in good years. The problem of poor purchase and sales of agricultural products has appeared. Second, agricultural development has shifted from a single resource constraint to a dual resource and market constraint. As a result, agricultural development faces more uncertainty, more complex uncertainty, and greater risks. We should change the convolutional, intensive and profitable investment and construction mode, promote the structural adjustment and quality improvement of agricultural products, improve the overall quality of agriculture and rural economy, and the new agricultural investment system reform must reflect the characteristics of the new stage of agricultural development.

We must persevere in cracking the bottleneck of agricultural development. From the perspective of investment, agricultural development is directly restricted by aging agricultural infrastructure, deterioration of agricultural ecological environment, weakening of agricultural production conditions, etc. Agricultural investment is seriously insufficient, and agricultural development is facing new challenges and challenges. Investment growth fluctuates greatly. It directly causes the intermittent fluctuation between the growth and contraction of agricultural production, which leads to the cyclical shock of other industries in the national economy, and even the

whole national economy will be affected by it.

The irrational investment structure leads to the uncoordinated development between industries and regions, which leads to the unbalanced industrial structure in agricultural development, the unbalanced regional structure and the unbalanced structure of investment subjects. The fall in investment returns has reduced returns. These problems can be fundamentally solved by establishing a new system with sufficient total investment supply, appropriate investment structure and high investment efficiency, and starting from reforming the complicated system of agricultural investment system.

Adhere to step by step, supporting reform. It involves a wide range, strong sensitivity and very complex system engineering. The agricultural investment system involves the reform of rural economic system, national investment system, national finance and taxation, financial system and many other aspects. Therefore, the reform of agricultural investment system should be designed in accordance with the overall goal, and promoted step by step. The overall goal should be clearly defined when relatively mature supporting conditions and measures are in place. At the same time, we should focus on matching, coordinating and matching reforms in other areas so as to achieve the best results.

Path II : Respect market economy and improve agricultural macro-control

Respecting the market and improving agricultural macro-control are the key issues of current and future agricultural development. The government should strengthen policy guidance and supervision to guide the development of agriculture to the direction of high quality, high efficiency and sustainable development, and promote the increase of farmers' income and the prosperity and development of agriculture.

The practice of market economy countries has proved that the government's macro-control of agricultural investment and financing activities is increasing instead of decreasing, and continues to strengthen under the condition of highly developed market economy. This is because investment should not only adapt to the objective

requirements of economic development and changes in the domestic market, but also be able to reflect the rapid development of science and technology, which is a very strategic activity.

The success or failure of national economic development strategy is related to investment strategy. In practice, the government can carry out macro-control on agricultural investment and financing activities through various ways. A common way is to formulate relevant policies and plans, including industrial policies, agricultural investment policies, fiscal policies, etc., to guide and promote the development of the agricultural industry. Another way is through the establishment and management of investment and financing institutions, such as agricultural development banks and rural credit cooperatives, to provide necessary financing support and services. In addition, the government can also strengthen agricultural informatization construction, improve information transparency and efficiency, and promote the healthy development of agricultural investment and financing market. For example, low comparative efficiency, long production cycle, long investment return cycle, etc., all of which need appropriate support and guidance from the government in terms of macro-control.

In the traditional agricultural stage, agricultural productivity is improved, and the agricultural sector has a certain surplus and accumulation. However, such input is still very limited and very elementary. Modern agriculture, by contrast, is a different story. Due to the rapid development of industry and service industry, the whole national economy has more savings and accumulated more. This makes the source of agricultural input no longer limited to the agricultural plate itself, expanding the input field to agriculture on a larger scale. These fields include infrastructure construction, such as irrigation and water conservancy, rural road transportation, etc., as well as agricultural mechanization and electrification. In addition, these fields also include agricultural products processing, storage, transportation, sales and other circulation links of agriculture, forestry, animal husbandry and fishery and other direct production fields. At the same time, it also includes rural talent education and training, rural health and other public services, such as rural informatization, finance and

insurance and other industrial services. This has greatly expanded the field of inputs to modern agriculture.

In view of the problems existing in modern agriculture, the government should launch strong policies and measures to improve and perfect the agricultural macro-control system. These problems mainly include market failure, externality of production factors, insufficient supply of public services, etc. Some prominent problems existing in China are still quite prominent. The measures the government can take include improving the market supervision mechanism, increasing support for agricultural science and technology, improving the quality and safety of agricultural products, improving the rural financial and insurance system, guiding and encouraging market players to participate in agricultural investment, strengthening investment in agricultural infrastructure construction, and promoting the modernization process of agricultural mechanization and informatization. We will strengthen the training and provision of rural personnel in public services such as health and sanitation.

The central government's macro-control of agricultural investment and financing activities can not only promote the development and upgrading of the agricultural industry, but also improve the production and living standards of farmers and promote the sustainable development of the national economy. Therefore, under the condition of highly developed market economy, the government should continue to strengthen the macro-control of agricultural investment and financing activities, and provide necessary support and guidance for the development of the agricultural industry.

Path III：Build a service-oriented government and integrate agricultural management resources

Integrate management resources. We will deepen the reform of the administrative examination and approval system and minimize the management of agricultural micro-affairs by agricultural departments. Except for issues related to major projects, such as national security and public safety. We will minimize the scope of approval and filing, earnestly implement the autonomy of enterprises in

investment, and follow the principle of "who invests, who makes decisions, who benefits, and who bears risks". The administrative examination and approval should be cancelled for all items that are reserved for administrative examination and approval, so as to standardize management and improve efficiency, which can effectively regulate economic activities under the market mechanism.

We will comprehensively improve the quality and level of public agricultural services, and give full play to the government's functions and role in setting rules and standards, supervising and enforcing law, market information and providing scientific and technological services. The central government focuses on investing in national and regional public goods and quasi-public goods, while local governments focus on investing in local public goods. We will introduce a clear plan to detail the investment responsibilities of governments at all levels to areas where their powers overlap and clarify them in the form of regulations.

We should straighten out the relationship between the management system and departments, integrate all kinds of agricultural management resources, change the situation of excessive and excessive departments related to agriculture, dispersed functions and low administrative efficiency, overcome the management vacuum, avoid unnecessary loss and friction between departments, and improve the management efficiency and the quality of agricultural management system. Effectively solve the outstanding problems existing in the government's agricultural management work, such as absence, offside, dislocation and other problems, and effectively achieve "no absence, no offside, good position".

Adjust the relationship between the comprehensive investment management department and the industry management department as soon as possible to achieve overall coordination. On the basis of the annual investment scale determined by the comprehensive management department, an agricultural investment management system led by the agricultural administrative department shall be gradually established, and the industry management department shall be responsible for the use of specific investment and project arrangement.

The National Development and Reform Commission will be responsible for

formulating medium - and long-term plans for national economic and social development and organizing their implementation, and the administrative departments of industries will organize the preparation of special national plans in their respective areas of competence in accordance with the plans for national economic and social development. For the cross-regional, cross-industry, cross-design comprehensive balance and major layout projects that require central level management, the National Development and Reform Commission will conduct the examination and approval, approval and reply, while the industry management department is responsible for the approval and reply. In the decision-making process, the opinions of the industry management departments are solicited, and the National Development and Reform Commission conducts the examination and approval, approval and reply of the project.

Integration of agricultural support policy resources. Agricultural support policies have been widely implemented and accepted by all countries in the world, which not only safeguard the interests of farmers, but also improve agricultural production efficiency, and more importantly, ensure national food security and social stability. At present, China is at a critical stage of accelerating agricultural modernization, and the task of accelerating the construction of agricultural infrastructure and equipment is still very arduous. Focus on key areas of government investment, take agricultural infrastructure as a strategic area of long-term government investment, give priority to increasing investment in farmland infrastructure construction, innovate investment methods, link high-standard farmland with current strategic needs such as ensuring food security, promoting large-scale operation and promoting sustainable development, and delimit functional areas for grain production. We will promote the organic combination of high-standard farmland construction and grain production capacity, and support new business entities in participating in the construction, operation, management and maintenance of high-standard farmland facilities.

Accelerating the construction of modern agriculture cannot be done without the support of financial services. At the same time, according to the development

needs of different industries and fields of agriculture, governments at all levels are encouraged to set up investment or guarantee funds specifically for the construction of modern agriculture to support the agricultural sector with certain commercial attributes to accelerate the pace of development. However, it should also be noted that agricultural support policies may have some negative effects, such as resource waste and excess capacity, which need to be managed and avoided by the government.

We should actively build an open and diversified agricultural management system suitable for our country's national conditions, create a major supporting policy for the cultivation and development of Chinese agricultural management subjects from the perspective of government agricultural investment, strengthen the guiding role of government agricultural investment, and guide industrial and commercial capital to invest in agriculture in an orderly manner. On the one hand, on the basis of improving the certification management of new business entities, we should increase the special subsidy input to all kinds of new business entities to ensure the income and enthusiasm of all kinds of agricultural entities.

On the other hand, special funds should be set up to increase the government's investment in the construction of service platforms for new business entities, so as to provide more effective support for the development and growth of various entities in terms of land transfer and financial services. At the same time, in terms of conditions construction, policies and investment projects should be organically linked between moderate scale operation and high-standard farmland construction, agricultural mechanization, and application of scientific and technological achievements. Government investment is very important for the promotion of agricultural modernization.

Only through the increase and optimization of government investment, can we realize the modernization and industrialization of agricultural production, improve the quality and competitiveness of agricultural products, promote the development of rural economy and the poverty alleviation of farmers. Therefore, we should fully realize the importance of government investment in agricultural modernization,

increase support for agriculture, and promote the continuous and in-depth development of agricultural modernization.

Path IV: Cooperate with supply-side reform to strengthen and guide the consumption of agricultural products

At present, China is accelerating the integrated development of primary, secondary and tertiary industries. China has put forward the strategic direction of accelerating supply-side reform, and accelerating the adjustment and optimization of the production and supply structure of agricultural products has become an important task during China's 14th Five-Year Plan period. However, for a long time, China's agricultural policy has mainly focused on the link of agricultural production, lacking support and guidance for the market consumption of agricultural products, and the market supervision system of agricultural products quality is still not perfect. For example, China's dairy industry has not yet gotten out of the crisis fundamentally. In the future, to accelerate the supply-side reform, promote the transformation of agricultural mode and structural adjustment, it is urgent to strengthen the strong guidance of the consumption end of China's agricultural product market, and create a good trust environment for the domestic agricultural product consumption.

It is suggested to set up special funds for the promotion of Chinese food culture and the publicity and development of domestic agricultural products market, to support the improvement of the traceability system of agricultural products and the establishment of the labeling system of agricultural products and food, to enhance consumers' confidence in the quality of agricultural products in China, to promote the education of Chinese food culture, and to constantly improve the consumer market atmosphere after Chinese agriculture. It is suggested to set up special funds to support the integrated development of the primary, secondary and tertiary industries in rural China, support the construction of important platforms such as industrial integration development parks, provide subsidies or loan support for the joint development of agricultural production, circulation, processing, tourism and other industries, guide leading enterprises to form cooperative entities with farmers and cooperatives, and promote the formation and improvement of a mechanism for connecting the interests

of agricultural industry chains and farmers.

PathV: Carry out the performance evaluation of the central government's agricultural investment

The first is drawing on the performance evaluation of fund projects carried out by the audit, finance, National Development and Reform Commission and other departments, we should explore the establishment of a performance evaluation system for the central finance dedicated to agricultural investment, and carry out the performance evaluation of the central government's agricultural investment. Under the background of deepening the reform of financial management system, the performance appraisal of fiscal expenditure has gradually become an important means to promote the reform of fiscal expenditure, with the goal of strengthening the management of fiscal expenditure.

The second is to evaluate the main areas and rationality of the annual central financial agricultural investment arrangement. Taking each industry and special project of agricultural investment arranged by the central finance as the evaluation object, this paper evaluates whether each project achieves the planning goal of promoting the development of specific industry or field in terms of industry, construction nature and use function. The assessment content includes the main contents of sub-industry and sub-special arrangements that match government functions and actual investment effects. Thirdly, the major projects allocated by the central government for agricultural investment each year shall be mainly evaluated, and their management methods and effects shall be evaluated.

Evaluate the specific construction projects included in various key projects, evaluate whether their management system is sound, whether the management procedures are standardized, whether the division of responsibilities is clear, and whether the investment benefits are effectively brought into play. Fourth, to realize the general idea of "driven by financial funds, linked by financial means and promoted by social capital", and form a good development pattern of agricultural and rural investment led by financial funds, effectively assisted by financial capital and actively invested by social capital.(Wang Xiaoqiu,2022). Activate the direction of

agricultural investment innovation of the central agricultural investment management system, deepen the reform of the Chinese government's agricultural macro-management under the new situation, to make the market play a decisive role in the allocation of resources, the central government should take specific measures to deepen the reform of agricultural investment system, such as perfecting the macro-control system of agricultural investment, establishing a scientific construction and implementation system, accelerating the cultivation of investment market service system, perfecting the risk restraint mechanism and supervision and control mechanism, and perfecting the legal guarantee system of agricultural investment.

Path VI: Establish and improve the legal guarantee system for agricultural investment

We should accelerate the legalization of the targets, contents and mechanisms of government investment regulation, including regulating investment behavior, establishing market rules, maintaining market order, guiding economic operation and promoting economic development. At present, there are some problems in China's investment management, such as uncoordinated regulatory objectives, unreasonable power allocation, the exercise of power needs to be standardized, the decision-making mechanism needs to be improved, the scope of rights and responsibilities between the central and local governments and between the central departments in agricultural investment is still unclear, and the joint effect of investment policies is not obvious.

We should accelerate legislation on agricultural investment, clarify the rights, responsibilities and interests of various types of investment entities and their division of functions, adjust and regulate the behaviors and interrelations among different types of investment entities through legal means, and ensure the steady growth of agricultural investment, the gradual rationalization of investment structure, and the continuous improvement of investment efficiency.

For the legal norms of agricultural investment, different levels of agricultural investment laws and regulations should be formulated according to different levels of government, from the central to the local government, to regulate and restrain. It is

suggested to accelerate the study and formulation of the Agricultural Investment Law, take the legalization of agricultural investment in China as an important measure to fully implement the rule of law, clarify the responsibility of government investment in agriculture, regulate the investment behavior of various input subjects, especially governments at all levels, clarify the investment areas and directions, and ensure that the total amount of agricultural investment continues to increase, and the proportion of agricultural investment steadily increases.

We should improve the legal guarantee system of Chinese government's agricultural investment, adjust and regulate the behaviors of different investment subjects and their mutual relations by legal means, and clarify the rights, responsibilities, interests and functional division of various investment subjects. Governments at all levels should strengthen the supervision of agricultural inputs and intensify supervision to ensure the effective implementation of agricultural investments. All regions should formulate corresponding agricultural input regulations according to the requirements of the central government in light of local conditions.

To regulate the investment behaviors of governments at all levels and other types of investment entities at the same level and below. By standardizing the agricultural investment behavior of the central government, we should put forward the principle requirements for local governments, bring agricultural investment activities into the track of management and regulation according to law, and promote the healthy development of agricultural undertakings and the whole rural economy. In accordance with the requirements of market economy development and drawing on useful international experience, the work of agricultural investment and policy management should be guided to the track of legalization, institutionalization, standardization and procedure.

Conclusions to section 3

This chapter mainly studies the investment management scheme of agricultural economy under the background of globalization. Through the analysis

and research of the current situation of agricultural investment environment management in major countries and regions of the world and the historical evolution, development status and innovation direction of China's agricultural investment management system, the management path of agricultural investment environment under the background of globalization is put forward.

First, in terms of the management status of agricultural investment in the world, the paper analyzes the management status of agricultural investment environment in the United States, Japan and the European Union. The United States is dominated by private enterprises and highly market-oriented. Farmers and enterprises will decide the direction and scale of investment according to market demand and price changes to obtain better economic benefits. However, the Japanese government plays an important role in agricultural investment, providing funds and support to agricultural producers through agricultural subsidies and loans. The European Union has invested a lot of resources in agricultural science and technology research and innovation. By funding research projects, establishing research cooperation networks, and promoting knowledge and technology transfer, the EU is committed to improving the efficiency of agricultural production, the efficiency of resource use, and the quality of agricultural products. Through these analyses, the management system and policy support of each country in terms of policy, law, finance, science and technology, and talents are revealed, further emphasizing the importance and complexity of agricultural investment management in the context of globalization.

Second, in terms of the institutional development of agricultural investment management in China, in China, agriculture is still the place for hundreds of millions of farmers to make a living in a certain period of time, and it is the top priority of high-quality development. Through the analysis, it is found that the history of China's agricultural investment management system has experienced many adjustments and reforms, and now it has formed a relatively complete management system, but it still faces some problems and challenges, including insufficient capital supply, insufficient agricultural scientific and technological innovation, rural land system problems and

ecological environment problems in terms of innovation direction and innovation measures.

Third, the path of agricultural investment management in the context of globalization is proposed. This chapter puts forward the guiding ideology of optimizing the central agricultural investment system, respecting the market economy, perfecting agricultural macro-control, integrating agricultural management resources, guiding the consumption of agricultural products with the supply-side reform, carrying out positive evaluation of the central government's agricultural investment performance, and establishing and improving the legal guarantee of agricultural investment. These management paths can provide guarantee for improving China's agricultural investment environment, promoting the growth of China's agricultural investment, increasing the scale of agricultural investment, optimizing the capital of agricultural investment and other aspects, and help to improve the management level and efficiency of China's agricultural investment.

CONCLUSIONS

The dissertation study is devoted to the issues of deepening the set of theoretical, scientific-methodical and organizational principles of managing the investment development of the agrarian sector of the Chinese economy and substantiating proposals for increasing its efficiency in the conditions of globalization. Thus, the place of investments in the system of scientific knowledge was determined, which is characterized by the interrelationships of investing with other scientific categories and allows to justify and generalize its methodological principles. The following conclusions were made:

1.As a result of the synergistic agglomeration of existing political economic theories of development, the practical meaning of the term "investment development" was singled out, which determines its belonging to the totality of economic knowledge, and is considered as a means of overcoming crisis phenomena in the agrarian economy, contributes to the restoration and growth of productive capital, and increases the efficiency of agro-industrial production , implementation of NTP achievements and acceleration of agricultural development. Investments belong to the most important indicators of the prosperity of the national economy, and the management of investment development is an indicator of changes in aggregate demand, the volume of national production and the level of employment of the population.

2.Based on the national characteristics of the economic development of the People's Republic of China, the interpretation of investments depends on socio-cultural factors, and if in Western countries it is more often associated with the acquisition of intangible assets or copyrights, then in China it is most often equated with capital investments in land, construction or other material values. Based on the generalization of the existing definitions of the term "investment", a proper one is proposed, which takes into account the priorities and peculiarities of the development of the agrarian sphere of China under the influence of globalization processes.

According to this, "management of the investment development of China's agricultural sector" is a set of economic, social, organizational and institutional measures carried out at the micro, meso and macro levels by all economic entities, regardless of the degree of subordination to the state, which ensure an increase in public welfare as a result of investing capital for a set period in any form and form in objects of the agrarian sphere, taking into account natural-climatic and socio-demographic factors, internal and external risks and other conditions of agricultural production.

3. Assessing the state of global world and Chinese investment development, as well as analyzing the current situation of investment management in the agrarian economy, is determined the weak points in the system were identified and through the analysis of influencing factors and the most common ways of investing in agriculture based on the structural equation model (SEM) was the relationship between the economy of agriculture and economic growth against the background of globalization. Based on the input parameters of the agricultural investment environment, the structure and scale of agricultural investments, the changing characteristics and trends of the general economic growth of agriculture were analyzed in order to predict the general changes in the results of the investment development management of the agricultural sector.

4. It was determined that in order to ensure investment activity in the agricultural sector, it is necessary to develop an appropriate strategy, the purpose of which will be to increase the standard of living and social protection of the population of rural areas based on investment activity and rational use of economic potential. It was established that in order to encourage investments, the state, first of all, is called to ensure the stability of the legislative field, reliable protection of property rights, support of the banking sector, and the use of international investment rules.

5. Thanks to the analysis and research of the current situation with the management of the investment environment in the main countries and regions of the world, was proposed a conceptual system of complex institutional development of the

management of agricultural investments in China, by changing the vector from fully state financing of agriculture to a public-private partnership in the field of agricultural investments. First, from the perspective of the status of agricultural investment management in the world, was analyzed the management system of the agricultural investment environment in the United States, Japan, and the European Union. Thus, certain conceptual differences were identified, which provide an individual way of managing the development of agrarian investments in each country. Through this analysis, each country's governance system and political support were identified in terms of policy, law, finance, science and technology, and talent, further underscoring the importance and complexity of managing agricultural investments in the context of globalization.

6. From the point of view of the institutional development of agricultural investment management in China, agriculture is the main source of family income for hundreds of millions of farmers, so a mechanism for attracting investments in the development of the socio-economic potential of rural areas has been determined, which will ensure the creation of an attractive investment climate in the entire country. Through the analysis, it is found that the history of China's agricultural investment management system has undergone many changes and reforms, and now it has formed a relatively complete management system, but it still faces some problems and challenges, including low capital supply, insufficient agricultural scientific and technological innovation, slow implementation land reform and the state of the ecological environment.

7. Were proposed he way of managing agrarian investments in the conditions of globalization: the ideology of optimizing the central system of agrarian investment, respect for the market economy, improvement of agricultural macro-control, integration of agricultural management resources, direction of rational consumption of agricultural products, as well as creation and improvement of regulatory and legal guarantees of agrarian investment. These management ways can guarantee the improvement of China's agricultural investment environment, promote the growth of agricultural investment in the People's Republic of China, optimize the capital

structure of participants in agricultural production and other aspects that ensure the management of the investment development of the agricultural sector of the Chinese economy.

Therefore, through comprehensive analysis, the dissertation found that China's agricultural investment management has undergone many adjustments and reforms, and has now formed a relatively complete management system, but it still faces some problems and challenges, including insufficient capital supply, insufficient agricultural scientific and technical innovations, problems of the rural land system and environmental problems. Such specific measures as strengthening agricultural scientific and technological innovation, improving the financial system and promoting the standardization of agricultural investments were proposed. Finally, from the point of view of ways of managing the agricultural investment environment in the conditions of globalization, it is proposed to implement an agricultural investment policy and increase the efficiency of agricultural production: increase non-state financial contributions to promote the development of the agricultural economy; ensuring effective logistics for the supply of agricultural products and increasing farmers' incomes; leading market self-regulation and moderate government intervention in macro-control are certain guidelines for agricultural investment management and development in China.

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APPENDIX A

Appendix Table 1: Definition of evaluation indicators of world economic development level

Index	Subject Description
Q1	Gross domestic product, current prices
Q2	Gross domestic product based on purchasing-power-parity (PPP) share of world total
Q3	Gross national savings
Q4	Inflation, average consumer prices
Q5	Unemployment rate
Q6	General government net lending/borrowing
Q7	Imports of goods and services
Q8	Exports of goods and services
Q9	Current account balance
Q10	Investment
Q11	Financial account balance
Q12	Direct investment, net
Q13	Portfolio investment, net
Q14	Financial derivatives, net
Q15	Other investment, net

Appendix Table 2: Definition of evaluation indicators of China's economic development level

Index	Illustration
Q16	GDP (RMB 100 million yuan)
Q17	Add value of agriculture, forestry, animal husbandry and fishery (RMB 100 million yuan)
Q18	Industrial added value (RMB 100 million yuan)
Q19	added value of construction industry (100 million yuan)
Q20	Wholesale and retail industry added value (RMB 100 million yuan)
Q21	Value value of transportation, storage and postal service (100 million yuan)
Q22	Value of accommodation and catering industry (100 million yuan)
Q23	Value of financial industry (100 million yuan)
Q24	Value of real estate (100 million yuan)
Q25	Value of other industries (RMB 100 million yuan)
Q26	Per capita GDP (yuan)
Q27	Consumer consumption level (Yuan)
Q28	Consumption level of urban residents (Yuan)
Q29	Consumption level of rural residents (Yuan)

Appendix Table 3: Definition of the evaluation index of China's investment and development level

Index	Illustration
Q30	The state budget for total fixed assets investment increased by (%) over the previous year
Q31	Domestic loans for fixed asset investment increased by (%) over the previous year
Q32	Foreign investment in fixed assets increased by (%) over the previous year
Q33	The total self-raised funds for fixed asset investment increased by (%) over the previous year
Q34	Other funds invested in fixed assets increased by (%) over the previous year

APPENDIX B

The One-way Analysis of Variance for Investment Scale Variables

Variable name	Variable value	Sample size	Average	Standard deviation	F	P
1(Domestic loans)	2018	1	0.008	0.000	0.000	0.000
	2020	1	0.321	0.000		
	2022	1	0.546	0.000		
	Total	3	0.072	0.439		
2(Domestic loans)	2018	1	0.011	0.000	0.000	0.000
	2020	1	0.233	0.000		
	2022	1	0.068	0.000		
	Total	3	0.059	0.156		
3(Domestic loans)	2018	1	0.258	0.000	0.000	0.000
	2020	1	0.539	0.000		
	2022	1	0.868	0.000		
	Total	3	0.024	0.745		
4(Domestic loans)	2018	1	0.441	0.000	0.000	0.000
	2020	1	0.446	0.000		
	2022	1	0.8	0.000		
	Total	3	0.265	0.641		
5(Domestic loans)	2018	1	0.298	0.000	0.000	0.000
	2020	1	0.053	0.000		
	2022	1	0.56	0.000		
	Total	3	0.304	0.254		
6(Domestic loans)	2018	1	0.32	0.000	0.000	0.000
	2020	1	0.034	0.000		
	2022	1	0.9	0.000		
	Total	3	0.182	0.638		
1(Funds raised by oneself)	2018	1	0.139	0.000	0.000	0.000
	2020	1	0.113	0.000		
	2022	1	0.321	0.000		
	Total	3	0.116	0.218		
2(Funds raised by oneself)	2018	1	0.122	0.000	0.000	0.000
	2020	1	0.136	0.000		
	2022	1	0.072	0.000		
	Total	3	0.029	0.134		
3(Funds raised by oneself)	2018	1	0.044	0.000	0.000	0.000
	2020	1	0.233	0.000		
	2022	1	0.051	0.000		
	Total	3	0.075	0.145		
4(Funds raised by oneself)	2018	1	0.231	0.000	0.000	0.000
	2020	1	0.132	0.000		
	2022	1	0.79	0.000		
	Total	3	0.296	0.464		
5(Funds raised by oneself)	2018	1	0.148	0.000	0.000	0.000
	2020	1	0.112	0.000		

	2022	1	0.056	0.000		
	Total	3	0.068	0.109		
6(Funds raised by oneself)	2018	1	0.16	0.000	0.000	0.000
	2020	1	0.059	0.000		
	2022	1	0.17	0.000		
	Total	3	0.13	0.061		
1(Introducing foreign investment)	2018	1	0.295	0.000	0.000	0.000
	2020	1	0.89	0.000		
	2022	1	0.359	0.000		
	Total	3	0.079	0.703		
2(Introducing foreign investment)	2018	1	0.352	0.000	0.000	0.000
	2020	1	0.525	0.000		
	2022	1	0.292	0.000		
	Total	3	0.04	0.49		
3(Introducing foreign investment)	2018	1	0.135	0.000	0.000	0.000
	2020	1	0.704	0.000		
	2022	1	0.88	0.000		
	Total	3	0.483	0.542		
4(Introducing foreign investment)	2018	1	0.094	0.000	0.000	0.000
	2020	1	0.864	0.000		
	2022	1	0.395	0.000		
	Total	3	0.188	0.635		
5(Introducing foreign investment)	2018	1	0.969	0.000	0.000	0.000
	2020	1	0.5	0.000		
	2022	1	0.933	0.000		
	Total	3	0.155	0.997		
6(Introducing foreign investment)	2018	1	0.453	0.000	0.000	0.000
	2020	1	0.3	0.000		
	2022	1	0.26	0.000		
	Total	3	0.338	0.102		
1(Other funds)	2018	1	0.536	0.000	0.000	0.000
	2020	1	0.11	0.000		
	2022	1	0.197	0.000		
	Total	3	0.281	0.225		
2(Other funds)	2018	1	0.233	0.000	0.000	0.000
	2020	1	0.053	0.000		
	2022	1	0.134	0.000		
	Total	3	0.14	0.09		
3(Other funds)	2018	1	0.91	0.000	0.000	0.000
	2020	1	0.339	0.000		
	2022	1	0.453	0.000		
	Total	3	0.265	0.684		
4(Other funds)	2018	1	0.469	0.000	0.000	0.000
	2020	1	0.124	0.000		
	2022	1	0.76	0.000		
	Total	3	0.368	0.451		
5(Other funds)	2018	1	0.922	0.000	0.000	0.000
	2020	1	0.345	0.000		
	2022	1	0.176	0.000		
	Total	3	0.364	0.549		

6(Other funds)	2018	1	0.88	0.000	0.000	0.000
	2020	1	0.254	0.000		
	2022	1	0.102	0.000		
	Total	3	0.412	0.412		
1(National budget)	2018	1	0.076	0.000	0.000	0.000
	2020	1	0.141	0.000		
	2022	1	0.902	0.000		
	Total	3	0.373	0.459		
2(National budget)	2018	1	0.286	0.000	0.000	0.000
	2020	1	0.425	0.000		
	2022	1	0.97	0.000		
	Total	3	0.56	0.362		
3(National budget)	2018	1	0.127	0.000	0.000	0.000
	2020	1	0.14	0.000		
	2022	1	0.96	0.000		
	Total	3	0.324	0.566		
4(National budget)	2018	1	0.242	0.000	0.000	0.000
	2020	1	0.98	0.000		
	2022	1	0.91	0.000		
	Total	3	0.549	0.686		
5(National budget)	2018	1	0.88	0.000	0.000	0.000
	2020	1	0.752	0.000		
	2022	1	0.93	0.000		
	Total	3	0.353	0.957		
6(National budget)	2018	1	0.249	0.000	0.000	0.000
	2020	1	0.119	0.000		
	2022	1	0.88	0.000		
	Total	3	0.337	0.505		

Source: Raw data from the scale of world and China agricultural investment in the IMF and Statistics of the National Bureau of China from 2018 to 2022, compiled by the authors and tested by analysis of variance. P <0.05 indicates that the test passed the significance requirement