

Research on the Inter-Provincial Horizontal Benefit Compensation Mechanism for Grain Production and Sales Areas under the Background of National Food Security

Bei Qian*

School of Finance and Public Administration, Anhui University of Finance and Economics,
Bengbu, China

*2559405924@qq.com

Abstract

Food security is a major concern that relates to the national economy and people's livelihoods. Food production is the foundation for ensuring food security and guaranteeing national safety. The effective establishment and implementation of a benefit compensation mechanism for food production and sales regions not only pertains to an in-depth assessment of the effectiveness of national fiscal transfer payment means but also involves the stability of international food security, the construction of a new regional development pattern, the coordinated development of food production and sales areas, and the reasonable compensation for the interests of major food-producing areas. This paper analyzes the four major pain points facing inter-provincial horizontal benefit compensation in food production and sales areas: unclear compensation subjects, insufficient compensation intensity, lack of precision in compensation, an imperfect market mechanism, a single mode of production and sales cooperation, and a lack of scientific top-level system design. Meanwhile, it designs a benefit compensation mechanism for food production and sales areas from four aspects: scientifically determining compensation intensity, constructing a market framework to establish a national-level trading platform and rule system, exploring multi-dimensional cooperation models in food production and sales areas, and establishing a system framework of 'clear rights and responsibilities for central and local entities with multi-subject co-governance.' The aim is to provide feasible suggestions and policy references for promoting the coordinated development of food production and sales regions and ensuring national food security.

Keywords

National Food Security; Market Mechanism; Benefit Compensation; Top-level System Design.

1. Introduction

Food security is a top priority that concerns the national economy and people's livelihoods; it is a great matter for the nation and a cornerstone for national economic development, social stability, and national security^[1]. Since the 18th National Congress of the Communist Party of China, our country has consistently placed food security in a prominent position and implemented a series of major policies, keeping grain output steadily above 1.3 trillion jin, laying a solid material foundation for building a moderately prosperous society in all respects. At the same time, major food-producing areas have long been troubled by imbalanced benefits^[2]. Although the central government has attempted to alleviate this contradiction through vertical transfer payment methods such as rewards for major grain-producing counties, the intensity and precision of these compensations are limited, making it difficult to

fundamentally compensate for the overall losses in the main producing areas and unable to establish an incentive-compatible long-term mechanism. Therefore, exploring a new path from 'vertical compensation' to 'coordinated vertical and horizontal compensation' has become an urgent need and realistic demand to address the imbalance of interests in production and sales regions and solidify the foundation of national food security^[3].

2. Pain Points in Cross-Provincial Horizontal Compensation in Grain Production and Sales Areas

2.1. The Subjects of Compensation, the Strength of Compensation, and the Precision of Compensation are Unclear

Currently, China's provinces can generally be divided into major grain production areas, major grain consumption areas, and balanced production-consumption areas. Over time and with the development of the economy and society, the patterns among these regions have changed, making it necessary to redefine the positioning of each province according to the current economic situation and the recent grain output of the production and consumption areas^[4]. Although the principle of 'who benefits, who compensates' is recognized, it still needs to be clarified whether the major consumption areas should be the direct subjects of compensation and how the compensation responsibilities between the central government and the major consumption areas should be divided. Currently, compensation is mainly derived from vertical transfers of funds from the central government, and although the major consumption areas are significant beneficiaries, they do not directly assume corresponding compensation responsibilities, leading to a 'gap' phenomenon. Although the major consumption areas are economically developed, they also face significant fiscal expenditure pressures. Given that a large amount of tax revenue is already paid to the central government, how to reasonably determine the amount of horizontal compensation requires careful consideration. For the major production areas, they not only incur direct production costs but also bear opportunity costs due to the protection of arable land and the restrictions on the development of secondary and tertiary industries, as well as the ecological costs associated with grain production. Existing or proposed compensations often struggle to cover these comprehensive losses.

2.2. The Market Mechanism is not Yet

The irrationality of the grain production market mechanism is mainly reflected in the price formation mechanism. The grain market has some particularities, such as the seasonality and periodicity of grain production, as well as asymmetric market information, which lead to price fluctuations and market failures in the circulation of grain, thus restricting the market's pricing function and hindering the price transmission mechanism. As a result, grain prices cannot truly reflect the market supply and demand relationship and changes in production costs. Farmers, as the main bodies of grain production, often lack bargaining power and are positioned as price takers in the market, being compelled to passively accept the purchase prices offered by grain enterprises and traders. It is difficult for them to negotiate better prices collectively, further reducing their enthusiasm for grain farming. Due to the lack of clear property rights and quantifiable product standards, entities such as enterprises and social capital cannot participate in grain safety compensation like they do in carbon trading^[5]. Compensation is limited to financial actions between governments and cannot utilize market forces to expand funding sources and improve operational efficiency.

2.3. Single Mode of Production and Sales Cooperation

Currently, in practice and discussions, cooperation methods are overly simplistic, excessively reliant on financial compensation, and lack diversified and sustainable collaboration models, which severely limits the comprehensive effectiveness and long-term viability of the

compensation mechanism. Production and sales cooperation mainly revolves around short-term grain transactions, focusing primarily on the purchasing and selling stages of grain, without forming deep production-sales joint mechanisms like brand co-construction and industrial integration. Additionally, cooperation is predominantly driven by government initiatives, leaving market players such as enterprises and cooperatives in a passive position, which undermines their motivation for independent innovation and market exploration. The enthusiasm and initiative of market entities have not been fully realized. Lastly, grain production and sales cooperation is often confined to traditional production and sales areas, with production zones primarily concentrated in major grain-producing regions such as Northeast and North China, while sales zones are mainly in economically developed areas like the southeast coast. This fixed arrangement between production and sales regions limits the optimal allocation of grain resources and is detrimental to tapping into the grain production potential and market demand in other regions.

2.4. Lack of Scientific Top-Level Design for Systems

The successful establishment and operation of an inter-provincial horizontal benefit compensation mechanism is by no means achievable through spontaneous and fragmented negotiations between production and marketing areas. Essentially, it is a significant institutional innovation that involves national strategies, central-local relationships, and the redistribution of regional interests. Currently, the national level has proposed the vision of establishing an inter-provincial horizontal benefit compensation mechanism for grain production and marketing areas. However, the establishment of such a mechanism is only reflected in principle statements in documents such as the 'Grain Security Guarantee Law', lacking specific laws or implementation regulations to clarify its legal status, the rights and responsibilities of the parties involved, compensation standards, dispute resolution, and other core elements, which has become the most fundamental obstacle to transforming this theoretical concept into practical operation.

3. Solutions for Inter-provincial Horizontal Benefit Compensation in Grain Production and Marketing Areas

3.1. Scientific Assessment of Compensation Strength

The scientific determination of compensation intensity is fundamentally about constructing a multidimensional value accounting system that transcends the value of a single grain commodity. Its dynamic model of 'cost, benefit, ecology' consists of three core modules. The cost module accounts for the direct inputs required to maintain grain production capacity, including public financial costs such as high-standard farmland construction, water conservancy maintenance, and agricultural machinery subsidies, as well as the costs of production materials for farmers, ensuring that basic reproduction is not compromised. The benefit module focuses on 'net grain outflow' as the core indicator, linking it with the price differences of grain between producing and consuming regions or the self-sufficiency gap of the main selling areas, such that the more is exported, the larger the gap in the main selling area, resulting in a higher compensation amount, which directly reflects the marginal contribution of producing areas to national food security. The ecological module quantifies the positive external ecological value produced by implementing conservation tillage, reducing fertilizers and pesticides, etc., through the introduction of ecological economics methods.

3.2. Building the Market Framework: Establishing a National-Level Trading Platform and Rule System

The operation of the market requires clear rules and a reliable platform. The central government can establish an authoritative trading vehicle, led by the National Food and

Material Reserves Administration, to form a 'National Food Production and Marketing Area Interprovincial Interest Compensation Trading Center.' This platform, as the only official trading venue, will be responsible for publishing supply and demand information, organizing transactions, settling funds, and supervising contract performance, providing a public, fair, and just trading environment for buyers and sellers, significantly reducing the enormous transaction costs of one-on-one negotiations between provinces. The premise of market trading is the standardization of the traded goods, which can draw on the 'carbon sink' concept from ecological compensation to innovatively design 'grain sinks' as trading targets. It could also establish a 'carbon sink-grain' linkage compensation mechanism in grain production and marketing areas, incorporating the ecological value of carbon sequestration into the compensation framework. Main sales areas can achieve dual compensation by purchasing agricultural carbon sink quotas from production areas, paying for the food security responsibilities of the production areas as well as their ecological contributions, thus creating a new market-oriented incentive pathway of 'promoting grain through carbon and synergizing grain and carbon'.

3.3. Exploring Multidimensional Cooperation Models in Grain Production and Sales Areas

To address the issue of a single cooperation model in the inter-provincial horizontal interest compensation between grain production and sales areas, it is urgent to promote a shift from short-term 'blood transfusions' to long-term 'blood production,' and to build a diversified and sustainable collaborative development model. First, we can promote the deep integration of industries, encouraging major sales areas and major production areas to jointly build deep processing parks for agricultural products, cold chain logistics bases, and enclave economic parks. This will guide capital and technology from sales areas to flow into production areas, retaining added value from processing in the production areas and enhancing the industry's added value. Secondly, we can strengthen technical and talent cooperation by establishing a technical collaboration alliance between research institutions in sales areas and production areas, promoting quality varieties and green production technologies, implementing two-way job exchanges for cadres and talents, and improving management levels and innovation capabilities in production areas. Furthermore, we can expand market and brand cooperation, supporting sales areas in helping production areas to create regional public brands, opening up marketing channels such as supermarkets and e-commerce to achieve 'quality for a good price,' exploring consumer compensation, and guiding consumers in sales areas to prioritize purchasing products from production areas. Finally, innovating in ecological and cultural compensation is also an important means of multidimensional cooperation; designing a special ecological compensation fund to subsidize farmers using protective farming practices; and collaboratively developing agricultural cultural tourism routes to convert the ecological and cultural values of production areas into economic benefits. The above measures can create a 'diversified compensation toolbox' that covers finance, industry, technology, market, and ecology, elevating the relationship between production and sales areas from a simple buying and selling relationship to a development community of shared fate, ultimately achieving mutual benefit and win-win outcomes.

3.4. Build an Institutional Framework of 'Clear Central-local Rights and Responsibilities, Multi-subject Co-governance'

In terms of top-level institutional design, we should accelerate the establishment of a national strategic coordination mechanism, which could involve setting up a special high-specification coordination agency, such as the 'National Food Production and Marketing Area Coordinated Development Committee' at the State Council level, led by a deputy prime minister, with members including the National Development and Reform Commission, Ministry of Agriculture

and Rural Affairs, Ministry of Finance, Ministry of Commerce, State Administration for Market Regulation, Ministry of Transport, National Food and Strategic Reserves Administration, and representatives from key production and marketing provinces. This agency would be granted cross-departmental coordination authority, policy-making power, and supervision and inspection rights, completely breaking the 'nine dragons running water' pattern. At the same time, the 'Interprovincial Benefit Compensation Regulations for Food Production and Marketing Areas' should be formulated to elevate long-standing policy documents to administrative regulations, clearly defining the boundaries of rights and obligations of production and marketing areas, the basis for compensation standards, dispute resolution mechanisms, and legal liability clauses. It is particularly necessary to detail the core rules such as 'who compensates whom', 'how much to compensate', and 'how to compensate', to eliminate ambiguities. Finally, a leveled responsibility system should be established, where the central government is responsible for formulating unified rules, building a basic platform, and providing necessary transfer payments; provincial governments assume the primary responsibility for coordinating regional interests, implementing supporting funds and execution details; and municipal and county governments focus on specific project implementation and micro-level connections. By clarifying the responsibilities and powers between the central and local governments, and defining their respective tasks and divisions of labor, it will contribute to the implementation of the system.

4. Conclusion

The framework of the national food security strategy, establishing an inter-provincial horizontal benefit compensation mechanism for food production and marketing areas is key to addressing the structural contradiction of "production area contribution, consumption area benefit," achieving regional coordinated development and ensuring long-term national food security. This study concludes that the core of this mechanism lies in internalizing the ecological, safety, and strategic values of food through economic means, enabling economically developed consumer areas to provide reverse compensation to the main production areas that undertake production and ecological protection functions, thereby correcting the imbalance in benefit distribution. Ultimately, the successful implementation of this mechanism will help form a food security community across the country that shares responsibilities and benefits, strengthen the sense of responsibility for food security in major consumer areas, safeguard the development rights of major production areas, and serve as an important support for modernizing the food security governance system and capabilities, holding profound significance for solidifying the foundation of a major country's food reserve.

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