

# Farmer's Agricultural Mechanization Service Input is affected by the New Rural Pension Insurance

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## Abstract

The rural social security system is a crucial safeguard for changing how agriculture is produced. This study examines how farmers' agricultural mechanization service (AMS) inputs are affected by the new rural pension insurance (NRPI). The study found that farmers' AMS inputs were significantly increased by NRPI using the CFPS waves from 2016 and 2018. For households with and without elderly farmers, participation in the NRPI could increase AMS inputs by 18.6% and 13.2%, respectively. NRPI and AMS inputs with elderly farmers were significantly mediated by grandchild care and labour off-farm transfer, which accounted for 13.72% and 9.13% of inputs, respectively. In addition, the mechanism tests indicate that, with a proportion value of 15.41 present, the crowding-out effect of labour off-farm transfer was a fundamental transmission mechanism for the NRPI to contribute to the increase in AMS inputs for families without elderly farmers. The heterogeneity analysis also showed that the NRPI had a greater impact on the AMS inputs of elderly farmers' households with grandchild care, a low percentage of non-agricultural labour transfer, and a high level of agricultural income. When there was a low proportion of non-agricultural labour transfer and when farmers had low levels of agricultural income, the NRPI's promotion effect on the investment in AMS inputs was more pronounced for households without elderly farmers. In the conclusion, references are provided for promoting AMS and sustainable agricultural development as well as enhancing NRPI. It is acknowledged that creating an agricultural mechanization service (AMS) is a significant step toward modernizing smallholder farmers. In the countryside, AMS has developed rapidly.

**Keywords:** Heterogeneity • Non-agricultural • Agricultural income

## Introduction

Professional labor and the use of large harvesters are combined in this service. Due to the fact that small farmers account for the majority of poor people in developing nations, outsourcing a number of labor-intensive aspects of agricultural production has reduced the sunk costs of machinery that small farmers find challenging to manage. As a result of the high cost of mechanization investments, professional services are regarded as the best course of action. The majority of agricultural workers are now employed in non-agricultural fields as urbanization accelerates. The rural population's aging phenomenon has become increasingly serious, and the cost of labor has consistently increased in comparison to capital. Consequently, both factors have contributed to the rapid growth of AMS in AMS has become more conventional and accessible to smallholder farmers thanks to government subsidies and a wide range of services. The Chinese government has recently implemented a number of policies to actively encourage the growth of AMS. More specifically, China unveiled its Central Document, which proposed successively the cultivation of new agricultural business entities, the provision of services for the mechanization of the entire process of agricultural production, and the incorporation of small farmers into the contemporary agricultural industry chain.

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## Description

NRPI is one of the main social security systems in China's rural areas. It provides farm families with long-term, stable income security and, theoretically, influences farm household behaviors (such as how farmers allocate labor and land resources). The majority of studies focused on NRPI's impact on farm households' labor supply, finding that the program aims to reduce the labor supply of older rural farm households. Additionally, it was discovered that NRPI encouraged young household laborers to move away from the farm and become entrepreneurs. The reason for this is that NRPI is different from other programs in terms of how it organizes itself. NRPI primarily affects the income of older farmers, but it also has an indirect substitution effect on young and middle-aged laborers by encouraging human capital investment and employment migration. This is because NRPI conducts in-depth research on the labor supply of farm households. As a result, the impact of NRPI on the behavior of farm households in allocating land resources, such as transferring land, has gradually received Academics currently concentrate on the promotion effect of NRPI on land transfer when discussing the allocation of land and resources. Few academics have examined how NRPI affects AMS spending by rural Chinese households. The investigation of whether, to what extent, and how NRPI, a steady source of income, influences the AMS inputs of Chinese rural households has significant theoretical and policy implications [1-3].

The existing literature has provided a crucial foundation for this paper, but the particular aspects discussed in the following discussion can still be added to it. On the one hand, researchers have looked into how farm mechanization service inputs are affected by household endowment and the subsidy system, but they haven't looked at how NRPI, a major social security system factor in rural areas, affects them. On the other hand, there aren't many systematic and in-depth studies on how NRPI affects farm households' AMS inputs and how it works. One question is whether NRPI affects AMS inputs differently depending on whether the households have elderly farmers (those over 60). Because of this, there are three potential innovations in this paper. First, the study on the impact of factors in the

rural social security system on farm household AMS inputs will be expanded, with systematic discussion and testing of the impact of NRPI on such inputs from the perspective of whether or not elderly farmers are involved. The robustness test uses the Heckman two-stage model, the PSM-DID model, and the method of replacing the explained variables to improve the reliability and accuracy of the research conclusions. Second, this paper empirically evaluates the various mechanisms of NRPI's effects on the AMS inputs of both types of households, based on a theoretical analysis that examines the difference in NRPI's impact on labor allocation between households with and without elderly farmers. Thirdly, the research conclusions' external validity and representativeness will be enhanced by using large sample panel data in two phases [4,5].

## Conclusion

As a result, this study investigates the effect of NRPI on the AMS inputs of households with and without elderly farmers using this theoretical analysis. The panel data from the Family Panel Studies (CFPS) that corresponded to two periods served as the foundation for this strategy, which was based on a panel Tobit random effects model. A panel-mediated effects model with stepwise regression was also used to test the action mechanism. To get a more in-depth understanding of how NRPI affects household AMS inputs with and without elderly farmers, heterogeneity will also be studied more in depth.

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## Conflict of interest

No potential conflict of interest was reported by the authors.

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