

Extended Abstract

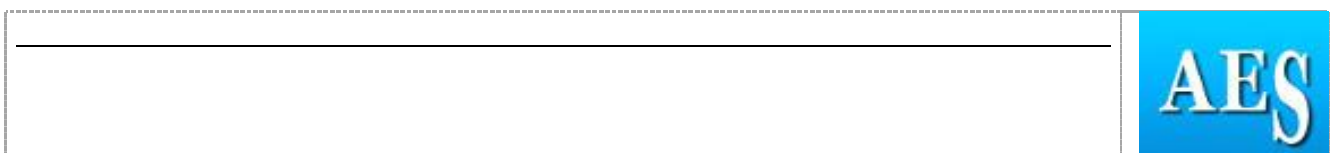
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Paper Title	The Impact of Chinese Rice Support Policies on Rice Acreages
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Abstract prepared for presentation at the 97th Annual Conference of the Agricultural Economics Society, The University of Warwick, United Kingdom

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Abstract	200 words max
<p>Declining arable land and yield stagnation pose serious challenges to food security in China. Since 2004, the Chinese government has introduced rice support policies to stimulate smallholders' rice production and increase national food security. A bundle of subsidies and income support measures were introduced, including a minimum procurement price in the main rice producing provinces. Rice acreages have increased in China since the start of this policy, but this could also be due to rising rice price levels both nationally and globally. This raises the question whether the rice support policies were effective in increasing rice acreages in China. Using a natural experiment created by the minimum procurement price policy being introduced in a selected set of Chinese regions, we use a dynamic fixed effects model to perform a difference-in-differences analysis on the effectiveness of these rice support policies. We find that indica rice acreages do respond to changes in the rice prices, and, controlling for rice prices, that China's rice support policies were effective in increasing rice acreages of both early and late indica during the period 2004 - 2017.</p>	
Keywords	Rice acreages, policy intervention, impact assessment, China
JEL Code	Q15, Q18, C23
Introduction	100 – 250 words
<p>The agricultural challenges for China include maintaining farmers' incomes, achieving sustainable agricultural development and ensuring national food security (Huang and Yang, 2017). With only 6% of fresh water and 7% of arable land in the world, China has to feed nearly</p>	



20% of the world's population (Wong and Chan, 2016). Rice is the main staple food for more than half of the world's population (Fukagawa and Ziska, 2019) and China consumes more rice than any other country, 155 million metric tons in 2021 (USDA, 2022). From 1976 to 2004 there was a declining trend in rice acreages in China (NDRC, 2017). The continuously decreasing rice acreages in combination with China's desire for national food security triggered the introduction of various policy interventions since 2004. After 2004, rice acreages stabilized and even increased by 8.3% between 2004 and 2017 (NDRC, 2017). However, in that same period, international rice prices also rose, culminating in the 2008 and 2011 price peaks (FAO, 2022). This raises the question whether the increasing rice acreage is due to the policy intervention or due to the increasing domestic rice price in line with the international rice price. The objective of this paper is to investigate whether the minimum procurement price policy had a positive effect on rice acreages in China given the increased rice prices.

Methodology

100 – 250 words

To investigate whether the minimum price policy was effective in increasing the rice acreage, we use a dynamic fixed effects (FE) panel data model that allows for doing a difference-in-differences analysis. Difference-in-differences is a quasi-experimental method that utilizes data from treated and control groups to assess a causal effect. Before estimating the dynamic FE difference-in-differences model, we first estimate a basic dynamic model to test acreage response of a variety to its lagged acreage, its expected price and a general time trend. Next, we extend this model by including a dummy capturing the period since the policy interventions, so the combined effect of the minimum procurement price and other rice support policies in general. Finally, by performing the difference-in-differences analysis, we separate the treatment effect of the minimum procurement price policy from other rice support policies.

Results

100 – 250 words

For all rice varieties, the lagged acreage has a significant impact on the current acreage showing the sluggishness of acreage adjustments. Expected prices have a statistically significant positive effect on acreages for all rice varieties. This is an important prerequisite for the rice price



subsidy to be effective, since it shows that acreages do respond to rice price changes. The estimated price elasticities are low though. A 1% increase in rice prices, only leads to acreage increases of 0.04% to 0.09% in the short run and to increases of 0.09% to 0.25% in the long run.

The minimum procurement price policy increased the acreage of early indica by 6%, which is statistically significant at 10% significance level. The treatment effect is not significant for late indica. However, an F-test rejects at 5% significance level the null hypothesis that the coefficients of the period dummy and treatment are jointly equal to zero. This means that there was a general policy effect after 2004, but the effect from the minimum procurement price policy cannot be separated from the general policy effect.

Discussion and Conclusion

100 – 250 words

Our results have some important implications for China's food self-sufficiency policy. Price support policies such as the minimum procurement price policy can be effective even when market prices are increasing. They reduce price uncertainty and stabilize volatile markets, which in turn positively influences farmers' price expectations, stimulating their planting behaviour in compliance with policy incentives. In China, the policies stimulate the cultivation of staple food, mitigated land abandonment and the decreasing trend of rice acreage in the past decades, and continue to strengthen cereals production. Although the magnitude of the effect is not large (e.g., 6% larger acreage for early indica), we need to take into consideration that the total acreage in China is large (i.e., up to 5.6 million hectares for early indica in 2004). Therefore, effective policy design and implementation has an impact on increasing the absolute size of rice cultivation, as well as further affecting land rental price according to Lin and Huang (2021).