



LONG TERM IMPACT OF MINIMUM SUPPORT PRICE ON AGRICULTURAL PRODUCTIVITY AND FOOD SECURITY IN INDIA

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Abstract

The present paper tries to find out the impact of Minimum Support Price on agricultural production and how it helps to improve the food security in India. We have taken data for the period 1996-97 to 2016-17 for variables production of Wheat and Rice (Paddy) from Directorate of Economics and Statistics, Department of Agriculture, Govt. of India and for variables procurement of wheat and rice from and Ministry of consumer affairs, food and public distribution. Data for variables minimum support prices of wheat and rice from CACP (Commission for Agricultural costs and prices). We have incorporated only rice and wheat because these two crops constitute more than 70% of food grains. Also, wheat and rice are the major food grains which are distributed through Public distribution system in India. We have used time series regression for our findings and found that minimum support prices of wheat and rice significantly and positively affect the production of wheat and rice in long run as minimum support price act as an incentive for farmers and works as insurance for farmers which induces them to produce more. Our regression results also find that there is a positive relationship between production of wheat and rice and procurement of wheat and rice. This reason is quite obvious as production increases procurement also increases.

Keywords: Minimum Support Price, Food Security, Co-integration, Procurement.

Introduction

Today India is world's fastest growing economy but despite of having its high growth rate we are still struggling to have inclusive growth. Still more than 60% of its population is dependent on primary sector. According to the Rangarajan report on poverty, 30.9% of the rural population and 26.4% of the urban population was below the poverty line in 2011-12. The all-India ratio was 29.5%. In rural India, 260.5 million individuals were below poverty and in urban India 102.5 million were under poverty. Totally, 363 million were below poverty in 2011-12. Food security to these poor people is accommodated by the government through various public schemes specifically, public distribution system. For the distribution of food through public distribution system Government need to procure food grains in which minimum support price play an very important role. Minimum support price acts as insurance to the farmers as well as helps in increasing the total production of food grain. So to provide incentive to farmers and food security to people who are below poverty line government need to set minimum support price such that the above goals can be met.

Literature Review

S. Mahendra Dev, Alakh N. Sharma , (2010) "Food Security in India: Performance, Challenges and Policies " suggested that pricing policy of agricultural commodities ensure minimum remunerative prices for their production so that they are motivated for higher investment and production, and along with this due to higher production the consumer get food grains at lower price. But still we need to educate farmers because only 19% of farmers knew about MSP, while another 10 per cent knew about it but did not know where to sell their produce (NSSO 59th Round 2003).

Karam Singh (2014) "Challenges of Food Security in India: Role of Food Policy and Technology " suggested that the MSP provides margin to the farmers above the cost of production significantly and has increased at 5-6% annually for wheat and rice during 1980s, and even higher at 9-10% in 1990s. Despite a freeze in the early 2000s, the MSP has almost doubled during the last 5 years. Higher productivity and remunerative MSP ensured better returns to the farmers. Effective procurement of the grains, at the declared prices, encouraged private capital investments on the farms and enhanced the use modern farm inputs to stimulate farm productivity.

Data

We have taken data for the period 1996-97 to 2016-17 for variables production of Wheat and Rice (Paddy) from Directorate of Economics and Statistics, Department of Agriculture, Govt. of India and for variables procurement of wheat and rice from and Ministry of consumer affairs, food and public distribution. Data for variables minimum support prices of wheat and rice from CACP (Commission for Agricultural costs and prices). We have incorporated only rice and wheat because these two crops constitute more than 70% of food grains. Also, wheat and rice are the major food grains which are distributed through Public distribution system in India.



Methodology

We have used time series regression analysis. Minimum Support Price of Wheat and rice (/quintal), Production of Wheat and rice (in ‘000 tonnes) and procurement of wheat and rice (in ‘000 tonnes) are the variables taken for the analysis. Following are the regression equations for our analysis:

1. Regress

$$Production_{it} = \beta_1 + \beta_2 Lag_MSP_{it} + u_{it}$$

Where, i is wheat, rice, t is year, Lag_MSP_{it} is lag value of minimum support price of commodity i.

2. Regress

$$Procurement_{it} = \beta_1 + \beta_2 Production_{it} + u_{it}$$

3. Regress

$$Procurement_{it} = \beta_1 + \beta_2 Lag_MSP_{it} + u_{it}$$

The idea behind the above three regression equations is that Minimum support price directly and positively affects the productivity and then productivity positively affects procurement. Then we see the final impact of MSP of procurement.

Results

We test all variables for stationary using Dickey-Fuller test and found that all variables were non-stationary at I(0) and to make them stationary we took first difference of all variables. We found that all variables were stationary at I(1). In our analysis, we use co integration approach to find out long run relationship between minimum support price and productivity of rice and wheat and to find out the long run relationship between production and procurement of rice and wheat.

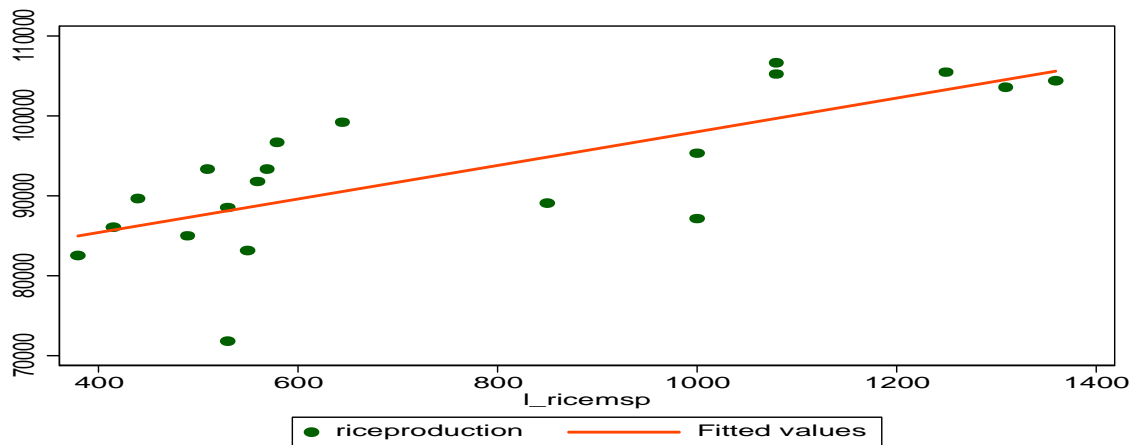
Impact of MSP of rice on production and procurement

1. Regress

$$Production_{RICE,t} = \beta_1 + \beta_2 Lag_MSP_{RICE,t} + u_{RICE,t}$$

Since, production of rice is non-stationary at I(0) and Lag_MSP of Rice is also non-stationary at I(0). But we can regress the above equation and results will not be spurious if residual term is stationary at I(0). If residual term is stationary at I(0) then Lag_MSP affects Production of rice in the long run. We found the following result.

$$Production_{RICE,t} = 76986.13_1 + 21.03767Lag_MSP_{RICE,t}$$



We found that residual term of the above regression was stationary at I(0) and the above regression suggests that in long run lag value of MSP of rice positively affects Production of rice at 1% level of significance. It suggests that in long run if lag value of MSP of rice increased by 1 then production of rice will increase by 21000 tonnes in India.

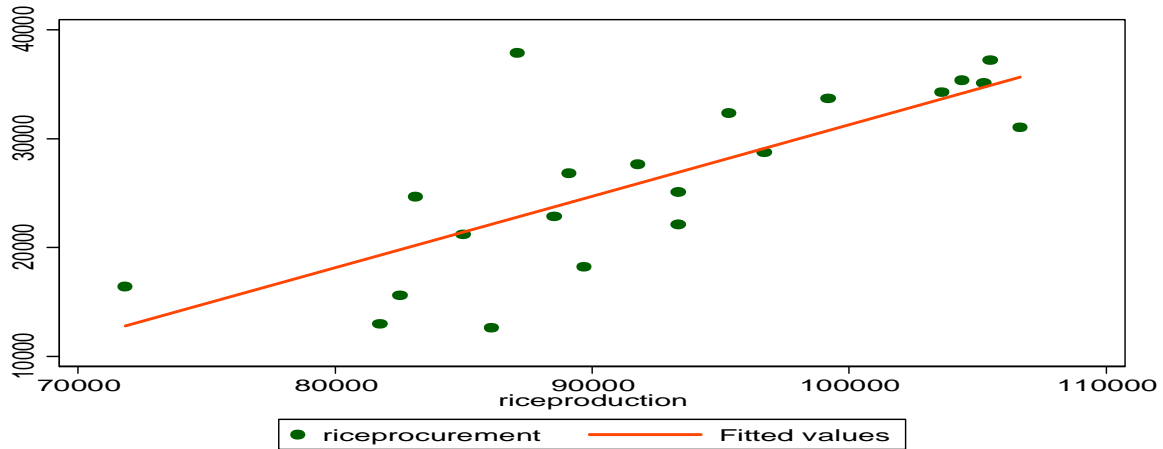


2. Regress

$$Procurement_{Rice,t} = \beta_1 + \beta_2 Production_{Rice,t} + u_{Rice,t}$$

We found the following result.

$$Procurement_{Rice,t} = -34413.23 + .6570 Production_{Rice,t}$$



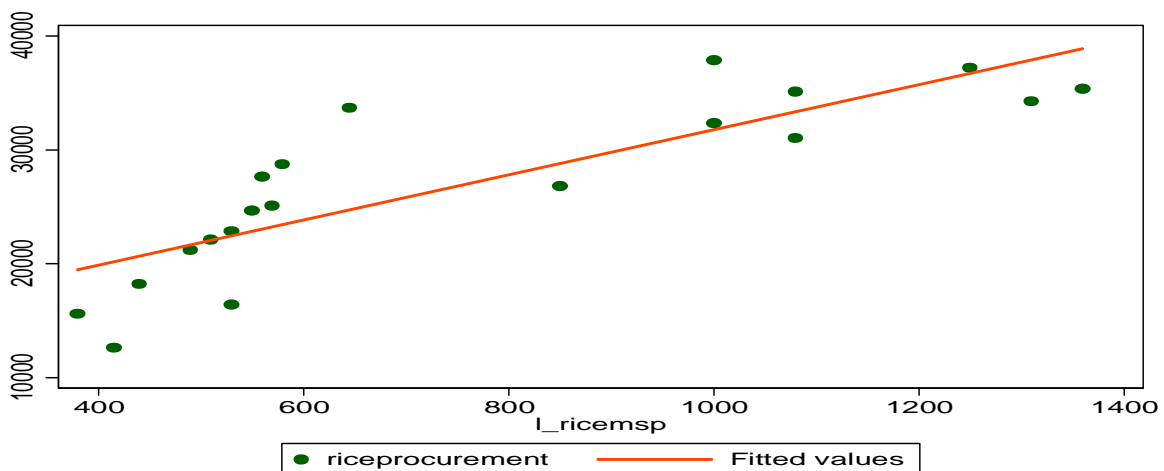
We found that residual term of the above regression was stationary at I(0) and the above regression suggests that in long run production of rice positively affects Procurement of rice at 1% level of significance. It suggests that in long run if production of rice increased by 1000 tonnes then procurement of rice will increase by 657 tonnes in India.

3. Regress

$$Procurement_{Rice,t} = \beta_1 + \beta_2 Lag_MSP_{Rice,t} + u_{Rice,t}$$

We found the following result.

$$Procurement_{Rice,t} = 11994.13_1 + 19.8321 Lag_MSP_{Rice,t}$$



We found that residual term of the above regression was stationary at I(0) and the above regression suggests that in long run lag of MSP of rice positively affects Procurement of rice at 1% level of significance. It suggests that in long run if lag value of rice increased by 1 then procurement of rice will increase by 19.83 thousand tonnes in India.



Impact of MSP of wheat on production and procurement

1. Regress

$$Production_{wheat,t} = \beta_1 + \beta_2 Lag_MSP_{wheat,t} + u_{wheat,t}$$

We found the following result.

$$Production_{wheat,t} = 55093.67_1 + 27.49Lag_MSP_{wheat,t}$$



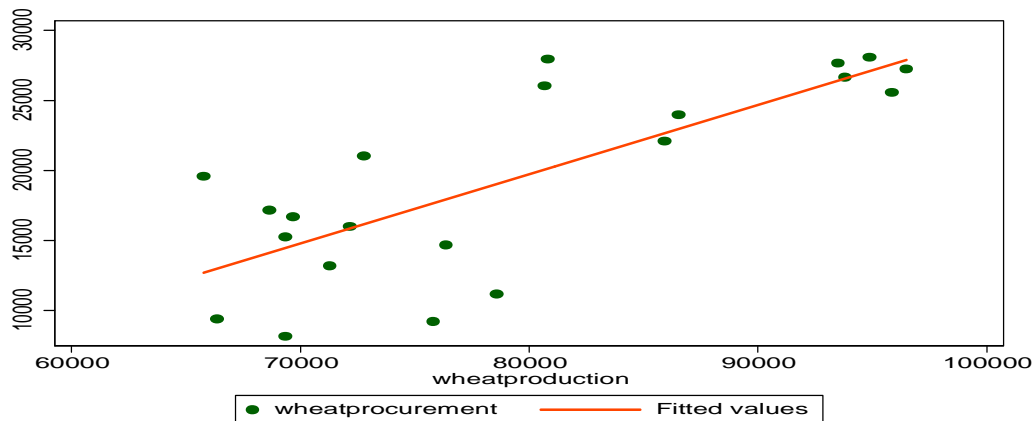
We found that residual term of the above regression was stationary at I(0) and the above regression suggests that in long run lag value of MSP of wheat positively affects Production of wheat at 1% level of significance. It suggests that in long run if lag value of MSP of wheat increased by 1 then production of wheat will increase by 27.5 thousand tonnes in India.

2. Regress

$$Procurement_{wheat,t} = \beta_1 + \beta_2 Production_{wheat,t} + u_{Rice,t}$$

We found the following result.

$$Procurement_{wheat,t} = -19755.79 + .50Production_{wheat,t} + u_{Rice,t}$$



We found that residual term of the above regression was stationary at I(0) and the above regression suggests that in long run production of wheat positively affects Procurement of wheat at 1% level of significance. It suggests that in long run if production of wheat increased by 1000 tonnes then procurement of rice will increase by 500 tonnes in India.

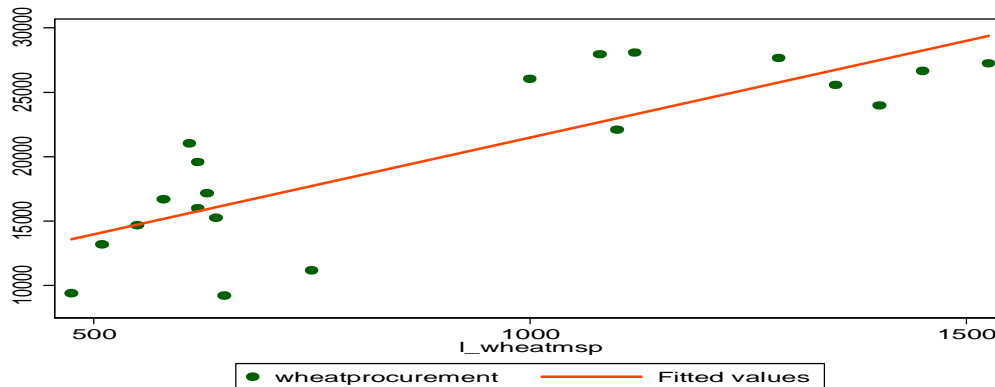


3. Regress

$$\text{Procurement}_{\text{wheat},t} = \beta_1 + \beta_2 \text{Lag_MSP}_{\text{wheat},t} + u_{\text{Rice},t}$$

We found the following result.

$$\text{Procurement}_{\text{wheat},t} = 6427.176 + 15.05 \text{Lag_MSP}_{\text{wheat},t} + u_{\text{Rice},t}$$



We found that residual term of the above regression was stationary at I(0) and the above regression suggests that in long run lag of MSP of wheat positively affects Procurement of wheat at 1% level of significance. It suggests that in long run if lag value of wheat increased by 1 then procurement of rice will increase by 15.05 thousand tonnes in India.

Conclusion

363 million people were below poverty in India in 2011-12 and 29.5% of population was living below poverty line in 2011-12. There is always a challenging task for the government to provide food security to the people living below poverty line. Minimum support price plays very important role in increase in production of food grains and the increased supply of food grains helps in the improvement in the Food Security. The above results suggest that there is a positive and significant relationship between the MSP of wheat and rice and their production as minimum support price act as an incentive for farmers and works as insurance for farmers which induces them to produce more. Our regression results also find that there is a positive relationship between production of wheat and rice and procurement of wheat and rice. Therefore it is very important for the Government to set the MSP of food grains so it boost the production level and the objective of food security could be achieved.

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