Agricultural Support Policy and Farmers' Income in China

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Abstract This paper reviewed the main components and contents of agricultural support policy system in China. By using the fundamental definition and measuring method from OECD, the research studied the relation between agricultural support level and farmers' income from 2003 to 2012. The aim of the paper is to discuss the effect of agricultural support policy on farmers' income, and provide policy suggestions for the policy makers.

Key words Agricultural support, Farmers' income, Policy, China

1 Introduction

The OECD defines agricultural support policy (ASP) as the support, subsidy, and assistance to agriculture from the government to reduce the production cost and raise the farmers' income. The definition proposed the targets of ASP, is to increase the income of agriculture producers. The development economics argue that agriculture stays at a relative weak status. A nation begins to support agriculture when it enters the stage of industrialization, to acquire the necessary materials from agriculture to complete the industrialization, such as capital, raw materials, labor and market. Developed countries started their agricultural support when the GDP per capita reached 1000 US dollars based on the statistics from World Bank. In 2003, GDP per capita in China hit the line of 1000 US dollars. Then, 11 No. 1 policies from the central government are all focused on agriculture. China begins its era of "industry supporting agriculture". Understanding the level of agricultural support, relation between support and farmer incomes in China will provide a base for further policy adjustment.

2 The framework of OECD on ASP

The framework on ASP by OECD is a popular method. Understanding the framework and current status of ASP levels in OECD countries provides the base for further analysis in the next stage.

2.1 Classification of ASPs OECD classifies the ASPs into three groups, producer support estimate (PSE), customer support estimate (CSE) and general service support estimate (GSSE). PSE contains two parts, market price support (MPS) and budget transfer (BT). PSE calculates the monetary transfer from consumers and tax-payers to producers. MPS includes tariff, import quota, producing quota, administration price and public shareholdings. MPS provides the channel of transfer from consumers to producers. BT is the all other transfer except MPS, and it offers the route from tax-payers to producers. CSE calculates the support to consumers by policy, includes the payment to ensure that the domestic prices are higher than the boarder prices, and payment to certain groups such as the poor. CSE is negative method as the transfer will lead to higher consuming tax, which draws back the effect of CSE. GSSE is the budget transfer to agricultural producers to improve the producing conditions. It includes R&D, agricultural school, testing service, infrastructure construction, marketing, public storage and etc.

2.2 The support levels in OECD countries The farmers' nominal receiving amount is less than the real receiving amount from the support policy. Farmers have to enlarge their production scale, increase the service, and invest more producing factors which are all extra costs. According to the calculation by OECD, the transfer rate stays at a low level that is only 25% by MPS and 50% by BT. From the perspective of the weight of PSE in farm, the average rate is 19% in OECD countries, while two thirds of them is MPS. Along with the reduction of agricultural support by the commitment on WTO Uruguay Round, PSE declines in recent years in OECD countries. However, in 2012, some developed countries still maintained a high level of support, such as Japan, Korea, and Norway. The rate is above 50% in these countries. From 1998 to 2000, US, EU and OECD on the average also reached 25 %, 40% and 35% in the history.

3 ASPs in China

Since 2003, China has established its ASP system by "four subsidy", minimum grain price, temporary storage and environmental protection policies. The four subsidy policies include grain direct subsidy, comprehensive subsidy to agricultural materials, purchasing subsidy to agricultural machines and fine seed subsidy. The temporary storage covers grain, oil, sugar and pork. Environmental protection policies contain green farming land policies. According to the classification by OECD, China's ASPs can be classified as shown in Table 1.

3.1 Producer support estimate

3.1.1 Market price support. MPS is the core part of China's ASP and the key policy is Grain Minimum Purchasing Price Policy. The plicy started in 2005, aiming to protect the incentive of farmers production on grains. The minimum price is set by several central government departments and only is applied to key grain

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producing provinces. These areas provide 80% of grain in China. When the grain price in the market is lower than the minimum price, the policy implementing unit in the corresponding area starts to purchase grain at the minimum price from the farmers.

Table 1 Classification of China's ASPs

OECD classification		China's ASPs
PSE	MPS	Grain Minimum Purchasing Price
	BT	Grain Direct Subsidy
		Comprehensive Subsidy to Materials
		Subsidy to Agricultural Machines
		Subsidy to Fine Seeds
GSSE		Temporary Storage
		Green Farming Land Policy
		New Rural Endowment Insurance
		Agricultural Insurance Plan
CSE		China Rural Aid and Development Plan

3.1.2 Budget transfer. The grain direct subsidy was proposed in 2004. It only covered 13 key grain production provinces at first, and enlarged the coverage to all of the country now. The types of subsidy include rice, wheat, corn, and the levels of subsidy are promoting yearly. Since 2008, the overall amount has been stable at 15.1 billion yuan. Comprehensive subsidy to agricultural materials began in 2006, aiming to reduce the cost of production, smooth the impact of price fluctuation on agricultural materials to farmers' incentives. The coverage includes diesel oil, fertilizer, pesticide and plastic membrane. The standards of subsidy kept increasing and reached 107.8 billion yuan in 2012. Subsidy to agricultural machines began in 2004. It aims to promote the utilization of agricultural machines, producing efficiency and enlarge the planting area. The average rate of subsidy is 30% of the price of machines, and individual machine subsidy is no more than 50000 yuan. The overall subsidy is increasing and reached 20 billion in 2012. Fine seed subsidy started in 2002, aiming to encourage agricultural producers using fine agro-products to speed up the scale enlargement and standardization. The coverage of fine seed is enlarging and includes almost agro-products in China. In 2012, the subsidy was 22 billion yuan.

3.2 General service support estimate The GSSE in China has temporary storage, green farming land policy, new rural endowment insurance and agricultural insurance plan. The temporary storage policy started in 2008, and aimed to smooth the price fluctuation of price, which may lead to the decrease of farmers' income and instablity in domestic market. It contains grain, oil, sugar and pork. Green farming land policy was proposed in 2004. The government pays the farmers by cash based on the area of converting from farming land to forest and meadow. In 2012, the budget transfer reached 17.6 billion yuan. However, due to the consideration of food security, the implementation of this policy slowed down. New rural endowment insurance started in 2009, and covered nearly all rural areas in 2012. Agricultural insurance plan began the trial in 2007, and the coverage increased from 6 provinces to all provinces in China. The subsidy amount reached 14.5 billion yuan in 2012. However, due to the large rural population, the effect of GSSE and average support level to each farmer is quite limited. The influence on farmers' income is rare.

3.3 Consumer Support Estimate CSE is negative and the main policy that belongs to CSE is rural aid and development plan. However, compare to the overall support level, the amount of this plan is limited.

4 The relation between asps and farmers' income

In order to analyze the effect of ASP on farmers' income, the first step is to compare the general change of ASP and farmers' income from 2003 to 2012. According to the analysis, Engel coefficient and agricultural producing cost are introduced to examine the relation among these indicators.

4.1 The General Trends of ASP Levels and Farmers' Income To describe the relation between ASP levels and Farmers' income, data are derived from OECD and China National Statistics Bureau, as shown in Fig. 1.

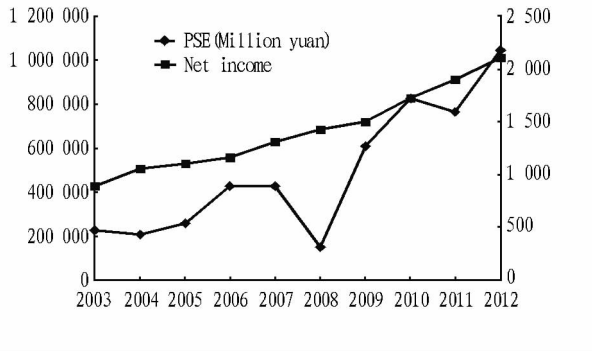

Fig. 1 Trends of ASP levels and farmers' income

By comparing the two curves, the following analyzing results can be summarized: a) the farmers' income was increasing at a steady speed during these ten years; b) PSE level fluctuated but maintained a general growing trend. It dropped dramatically in 2008 and then bounded back quickly in the following years; c) both curves reached the highest level in 2012; d) although both of the curves show an increasing trend in general, there is no obvious relation in changing between PSE and farmers' income. However, if we remove the extreme point in 2008, PSE also shows a general increasing trend with a relative stable speed. Thus, there is a positive relation between PSE and farmers' income. The growth of farmers' income is along with the general increase of PSE. The ASP policy had a positive support effect on the farmers' income. The reason for extremely point in 2008 can be illustrated as the follows: a) the impact of financial crisis. In 2008, subprime crisis in US resulted in worldwide slump in economy. China's economic growth slowed down due to the deteriorating environment of export. Government revenue was reduced then. As the unoptimistic expectation for future economy, the support and subsidy to agriculture drew back; b) food price hit the highest level in 2008. Agricultural producers can sell their products in the market at a high price and obtain interest from consumers. The weight of relying on

ASP was less than previous years. According to the statistics by FAO in UN, as shown in Fig. 2, international food price accelerated in 2006 and reached the highest level in 2008.

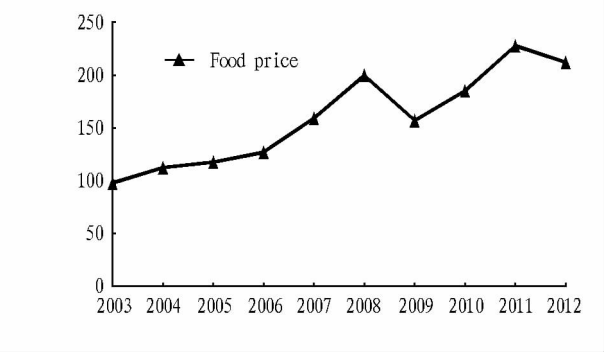

Fig. 2 Changes of international food price

The level in 2008 was more than twice as the one in 2003. China is still a developing country. The government has to balance the benefit for both the producer and consumer. Thus, the support to agricultural was cut as the international food price reached a high level. Although the PSE dropped significantly, the farmers' income still kept a steady growth trend.

4.2 The relation of ASP levels with producing cost and Engel Coefficient To identify the effect of ASP on farmers' income more accurately, two additional indicators are introduced, producing cost per mu, and Engel coefficient. The data for these two indicators are derived from the National Bureau of Statistics and OECD. Due to the large rural population in China, to improve the quality of comparison analysis, PSE was converted to average value on each person based on the population data from National Bureau of Statistics. The four curves, the producing cost per mu, net income per person, PSE per capita and Engel Coefficient are described in the same coordinate, as shown in Fig. 3.

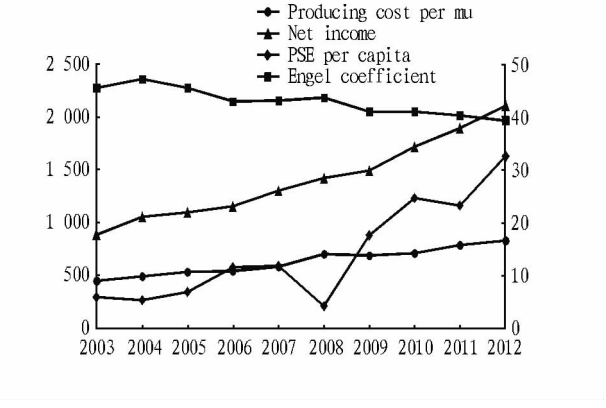

Fig. 3 The relation among producing cost, net income, ASP and Engel Coefficient

According to the comparison of these four curves, the analyzing results can be summarized as follows.

4.2.1 The average producing cost per mu is ascending, but slower than the increase of net income of each farmer. The average producing cost per mu grew from 450 yuan in 2003 to 835 yuan in 2012, 185% of increase. However, the farmer' income in the same period grew from 886 yuan in 2003 to 2107 yuan in 2012, which increased by 238%. The growing speed of farmer's income was much higher than the increase of average producing cost. Thus, although there was some fluctuation in PSE per capita value, the agricultural support smoothed the huge change and increase of producing costs.

4.2.2 The Engel Coefficient declined constantly. In 2003, the Engel Coefficient in rural area was 45.6. Nearly half of the income of farmers went to food consuming. In 2012, the value was 39.3, which declined 6.3%. Thus, the disposable income of farmers increased steadily in these ten years. ASP had a positive effect on the farmers' income.

4.2.3 The declining speed of Engel Coefficient, growing speed of farmer's income was slower than the increasing of PSE value. From 2003 to 2012, the PSE per capita grew from 294 yuan to 1627 yuan, with the increase of 553%. However, in the same period, Engel Coefficient declined 6.3%, and the farmer's income increased 238%. The promotion of ASP levels was faster than the growth of farmers' income.

4.3 The huge rural population held the speed of ASP growth Based on the previous discussion, there was not a direct ratio between the growth of ASP and increase of farmers' income. This was mainly due to the large population in the China's rural area. According to the data from National Bureau of Statistics, the weight of budget transfer in farmers' income increased steadily, from 6% in 2003 to 19% in 2012, as shown in Fig. 4.

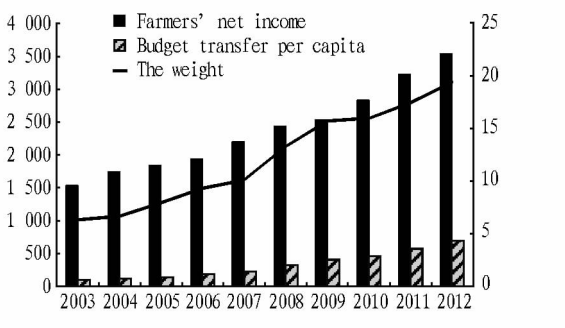

Fig. 4 Weight of budget transfer in farmers' net income

This proves that the positive effect of ASPs on farmers' income. However, this growth rate was only 13% in ten years, which was much slower than the increase of farmers' income. The average weight was 12.2%, which indicated that there was only 12.2 yuan out of 100 yuan in the farmer's income. Though it achieved the highest level in 2012, the value was only 19%. Large rural population drew back the capita level of ASPs' effect. The low proportion of ASPs value in farmers' income had limited incentive to farmer's agricultural production.

4.4 Conclusions The analysis of ASPs and farmers' income can be summarized as follows: a) there was a positive effect of ASPs on farmers' income; b) ASP smoothed the fluctuation of agricultural producing cost which led to negative effect on farmer's

income; c) ASPs had positive effect on the growth of disposable farmers' income; d) the transferring rate of ASPs to farmers' income was low. This was mainly due to the large rural population in China.

5 Policy recommendations

Oriented from the analyzing summary above, the recommendations for future China ASP policies are proposed.

5.1 Promoting the level of ASPs to increase the farmers' income The current ASP system in China, which is constituted by four subsidies, minimum purchasing prices on grain and wheat, has a positive effect on promoting the farmers' income. However, due to the large population in China' rural area, the level of ASP on each farmer is low. The effect of ASP on decision making in agricultural production is limited. According to the commitment of China to WTO, the agricultural support value cannot exceed 8.5% of total value of production. The current support level is far below that limit. Thus, to ensure the food security, it is necessary to encourage the farmers to increase grain production, accomplish the industrialization, and avoid falling into the middle - income country trap. China has to promote the level of agricultural support constantly.

5.2 Adjusting the type of support and focusing on GSSE In 2012, the weight of PSE on farm's income was 15%, which was approaching the average level of OECD members of 19%. Weights in Japan, South Korea in Asia and some countries with self - sufficiency targets are much higher than this level. Although China's ASP levels do not reach this level and not even mention to reduce the support like developed countries, it should be noticed from the perspective of the long term. Concentrated limited financial resources on grain, and GSSE support can optimize the agricultural support structure in China, and improve the consistent development and competition of agriculture in the future.

5.3 Stabilizing the polices as laws In US, EU, Japan and other developed countries, ASPs are made and implemented as laws. Besides, there is a certain amount of budget proposed along with each policy. These policies cannot be amended due to external factor changes. The consistency of policy ensures the implementation of them and the forecast of agricultural producers. Taking Japan as an example, in 1999, it proposed the new general agricultural support policy as Basic Law of Food, Agriculture and Rural Areas. It is required that a plan has to be made every five years to ensure the implementation of the law. In 2000, 2005 and 2010, three Basic Plan of Food, Agriculture and Rural Area were launched sequentially. China can borrow the experience from these countries, complete the law system on agricultural support policies and avoid the low efficiency or waste due to the large and complex administration system.

5.4 Accelerating the process of urbanization Large rural population held back the level of the agricultural support in China. Thus, reducing the number of farmers can help to increase their income at the same level of support. Although the labor transfer from rural to urban areas may lead to many other problems, such as social security system, social stability, reducing number of rural population is a trend in the process of industrialization, and it could contribute to the growth of farmers' income.

5.5 Establishing evaluation systems for policies China has not reached the stages to reduce agricultural support. However, reasonable and proper level of support has to be monitored to promote the efficiency of government budget. Evaluation systems for policies are needed and experience from developed countries can be borrowed to set the level of support. Government will not burden unnecessary stresses and the agricultural producers will also not rely heavily on agricultural support in the long term.

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