

## Agricultural Policy and Poverty Reduction: Data From Rural China

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**KEYWORDS** Economy. Rural Development. Anti-Poverty Policy. Economic Growth. Rural-Urban Equality

**ABSTRACT** Poverty reduction is linked to agricultural growth in many regions but understanding of the relation with agricultural policy limited. China has arranged a series of agricultural policies to develop the rural economy. This paper reviews the process of China's policies reforms in the last several decades and assesses the long-term impacts of various agricultural policies on the poverty reduction and rural-urban equality. Using the Statistical System data from 1978-2015, it reveals that through 30 years of gradually reform and accession into the WTO, China's agricultural sector has been greatly liberalized and marketized, meanwhile the de-collectivisation of production and Household Responsibility System and procurement prices increased income growth of farmers. China's anti-poverty strategy and rural development still face a lot of challenges from the new period, the pressure for further reforms remains.

### INTRODUCTION

Agriculture and food industry is of special meaning for China. Using nine percent of world arable land to support twenty-one percent of its population, ensuring enough food for over 1.3 billion people is always the top priority for China. However, most developing countries have adopted policies that slow down agriculture, such as Chinese heavy-industry development strategy in the pre-reform era. Unfortunately, China has found that the planned policy increase the economy growth in the initial years while it will slow down development in the longer run even ends up in failure. In the beginning of 1960s, both the developed and developing countries placed great emphasis on the role of agriculture in the economic development. Many of them reformed the policies on the agricultural industry such as common agriculture policy in Europe, and price supports, export subsidies and crop

insurance in the United States (McMillan 1989). Unlike other countries such as Eastern Europe and the former Soviet Union who had liberalized their planned economies in short time, China's agricultural policy reforms were gradual and had remarkably, long-term success (Ravallion 2009). For their cumulative effect, the real rural per capita income and earnings have increased at respectable rate during the reform period (Benjamin et al. 2005). The reforms in agricultural sector not only promote agricultural production and productivity growth but also help China develop industrial and urban area after achieving the self-sufficiency goal (Montalvo 2010; Rogers 2014; Zhou and Wang 2016). Based on China's official poverty line of US\$0.66 per day (according to 1985 Purchasing Power Parity [PPP] dollars), the rural poverty fell from 26.8 percent in 1980 to 1.6 percent in 2007 (Fig. 1), pulling more than 200 million people out of poverty (Fan 2001). According to the new poverty line of US\$1.00 per day, the rural poverty fell from 94.22 million people in 2000 to 26.88 million in 2010 (Table 1).

Many researchers studied the factors that have played important roles in Chinese agricultural growth process. Lin (1992) had shown there were two main factors contributed to the income growth prior to 1985. One was the household

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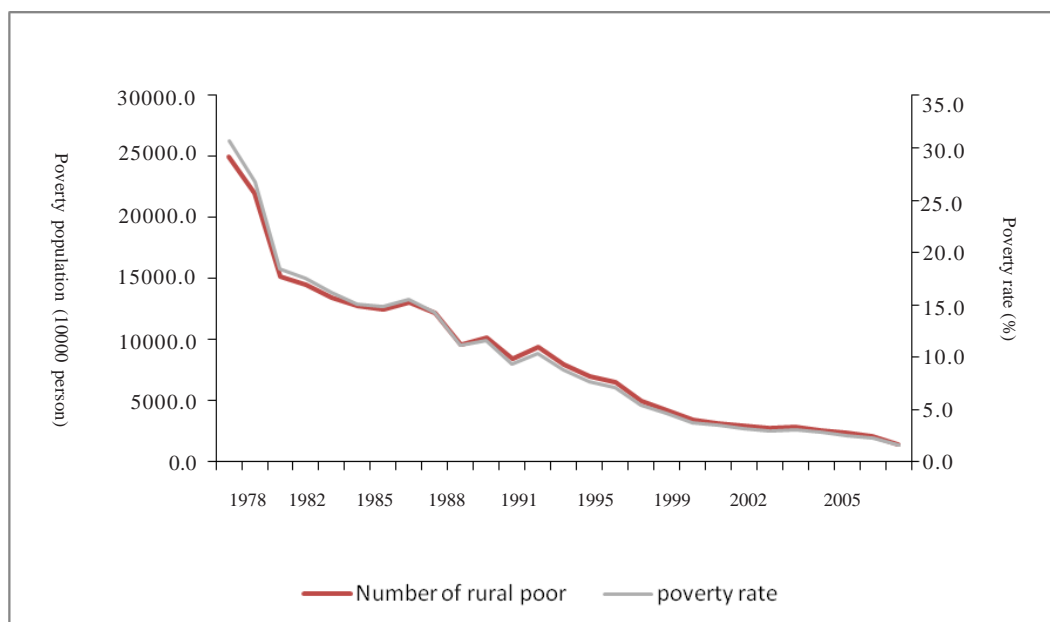
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**Fig. 1. Poverty in the rural areas of China from 1978 to 2007**

responsibility system (HRS) which increased the household's labor effort and the other one was agricultural procurement prices which made price incentives for farmers. DeBrauw et al. (2004) argued that marketization played very important roles on agricultural productivity and household earning. Some studies maintained that agricultural researches and technological changes also increased crop production significantly (Huang and Rozelle 1996, 2015) and the investments in agricultural research can improve the productivity in both agricultural and industrial sectors

(Alston et al. 2000). Besides, education, prices reforms and the international trade and foreign investment also impacted on the development of agriculture (Zhang et al. 2015; Lin 2000; Ke 2000; Tongxiao 2014).

However, there are few researchers who have assessed the agricultural policy with the poverty reduction in the People's Republic of China over the last 60 years. In this paper, we will further study the poverty reduction linked with economic growth and concentrate the reduction in four relatively brief periods, then analyze the fac-

**Table 1: Poverty in the rural areas of China from 2000 to 2015**

	2000	2005	2007	2010	2015
<i>US 0.66 Per Day (1978)*</i>					
Poverty population (million)	32.09	23.65	14.79		
Poverty ratio (%)	3.5	2.5	1.6		
<i>US 1.00 Per Day (2007)</i>					
Poverty population (million)	94.22	64.32	43.20	26.88	
Poverty ratio (%)	10.2	6.8	4.6	2.8	
<i>US 1.8 Per Day (2010)</i>					
Poverty population (million)				165.67	82.49
Poverty ratio (%)				17.2	8.5

\**US 0.66 per day (1978)*: China's official poverty line of US\$0.66 per day; *US 1.00 per day (2007)*: poverty line of US\$1.00 per day. It is the same as the World Bank poverty line; *US1.8 per day (2010)*: poverty line of US\$1.80 per day. It is a little higher than the World Bank poverty line of US\$1.25 per day

Sources: China Statistic Report

tors that impact on the agricultural and food industry during different period. To address this concern, the present study will illustrate whether the economic growth decrease the population of poverty. In the study, the researchers will review the agricultural policies in different ages and compare the policies' reform to get viewpoints of this paper.

## OBSERVATIONS AND DISCUSSION

### **The Revolution and the Effect of Poverty Reduction of Agricultural Policy**

#### ***The First Phase of the Pre-Reform Era (1949-1957)***

Land is the most basic material for farmer living and the land issue has always been the central element in the course of agriculture and rural development. Therefore the Communist government decided to take land reform in 1949. Confiscating land mostly from landlords and the riches without any compensation, the government redistributed the land mostly on the basis of population and more than 300 million small farmers received a total of 7 million mu farmland.

Because of the equitable distribution, every farmer had a plot of land and few farm tools. The land that the farmer had was too small to achieve high productivity, and they also could not expand the agricultural production. After that, the mutual assistance teams were established by the small farmers themselves. There were two forms of mutual assistance team. One was temporary team generally with 4-10 households and worked in the harvest seasons. Another one was team working all the time. Farmers collected to buy the farming tool and invest in the irrigation and other infrastructures. The effect of the land reform and new operation system on agricultural production was obvious. In 1952, China's total growth of grain output was 44.8 percent, cotton output increased by 1.9 times, with an average annual growth rate of 43.2 percent, and other agricultural production had been greatly developed (Bai 2004).

A large amount of cooperatives emerged after the farmers realized the improvement of productivity in the mutual team in 1953-1954. It was soon that the central and local government encouraged the farmers to join in the cooperatives and obtained the payment according to their la-

bor time and land size. Meanwhile the government increased the investment in rural areas. And all the investments were mainly used to improve the rural irrigation and drainage system. In addition, for the increasing grain demand from urban area and industrial sector, the staple price raised quickly which incentivized the agricultural productions. At the same period, the rural labor force were allowed to migrate to urban areas and worked in the urban industrial sector. This policy decreased the agricultural production and the price of the products raised much more. Considering the price stability and fiscal burden, China began to implement the "Tong Gou Tong Xiao" (unified grain procurement and marketing system) policy which set a solid foundation for national large-scale industrialization and implemented through the pre-reform era. With such a system, the agricultural surplus output could be diverted into industrial investment at low price. The development of industrial and agricultural sector and the improvement of the labor affectivity laid a certain foundation for the residents' income growth. During 1952-1957, China's total growth of resident consume fund increased from 44.15 billion to 61.2 billion (RMB), with an average annual growth rate of 6.7 percent. But the income gap and the inequality between urban and rural were still at relatively level.

#### ***The Second Phase of Pre-reform Form (1958 to 1978)***

In 1958, the government launched the "the Great Leap Forward" campaign in order to increase industrial development. Under this strategy, the government adopted the single and unified management instead of private household production. According to statistics, during the late August 1958 to early November, Chinese rural areas had basically realized communization. There were 740,000 cooperatives merged into 28,500 people's communes with total member of 127 million household which accounted for 99.1 percent of the total number of households. Since then, working on private plots was prohibited and farmers had no choices to decide the pool tools should must cooperate during the planting and harvest, and all the production decisions were made by the commune leader. Lacking of effective incentives, the farm workers lost the enthusiasm for production. Besides, the price and marketing of agricultural commodities and input were administrated by the local agricultural institutions.

All of these high degree collectivized farming and marketing institutions resulted in the sharply decline of production and productivity. Agricultural production and total factor productivity all declined over fourteen percent per annum. With the consequent three years natural disasters, the non-normal number of deaths in the rural area were more than 30 million which was so called "The Great Famine" (Lin and Yang 2000). However, most urban residents were protected from starvation with many exclusive subsidies and other government transfer payments.

In the second half of 1960s, the central government had taken a series of measures to reverse this serious situation. Recovering the agricultural sector was once again the most important policy. First of all, consolidated commune Three-tier ownership in which the production unit was the basic account and operation unit; secondly, distribution according to work as the principle of distribution system; thirdly, encouraged the farmers to run a sideline such as livestock industry. Fourthly, returned the private plots to farmers themselves. In 1962, Mao put forward the "two step" guiding ideology and line: the first step achieving collectivization and the second step realizing mechanization and electrification. Since 1963, the governments have invested a lot in chemical fertilizer, pesticides, machinery and new technology research. After five years recovery, the production grew at 9.4 percent annually, and the production restored to the level of 1957, and then the rural economy came into stable development period. However, the production and productivity growth experienced an unprecedented catastrophe with the breakout of "Cultural Revolution" in 1966. During this period, the government paid heavy attention to the agriculture production. The slogan "*Yi Liang Wei Gang, Gang Ju Mu Zhang*" (Grain must be taken to be the core; once it grasped, everything fall into place), reflected the spirit of this policy. From 1968 to 1977, it was reported that more than 160 million urban youths and state workers were sent to farmland to work with the farmers. Production was again controlled by the government, and farmer's income was not closely related to his political performance.

Marketing exchange of agricultural products was prohibited and some of the local agricultural markets were closed. Only the state commercial enterprises and marketing cooperatives had the exclusive entitlement to purchase agricultural

products. Because of the low incentives for farmers, inefficiency in agricultural sector was inevitable. At the same time, cash products were destroyed and the production structure was very irrational. As a result of deforestation, land reclamation, sea farmland, the rural ecological environment was deteriorated; water and soil erosion was very serious which hindered the development of rural economy and the improvement of rural residents' life.

In general, during the course of 21 years, the Chinese top leaders implemented the planned economy which aimed to make the growth of the agriculture at a planned rate. However, the negative effect of the planned economy and collective operation system resulted in the development deviated from the socio-economic condition in the rural areas. Collective operation without the freedom to decide what would be planted and sold were lack of effective incentives for farmers and commune leaders. The implementation of "Tong Gou Tong Xiao" system shrank the rural commodity markets and rapidly declined the cottage industries and small traders. Consequently, this pricing and marketing system indirectly helped the urban-industry get raw materials and other inputs at very low cost and to keep the low wages.

In order to achieve the heavy industrial strategy, farmers were not allowed to immigrate to urban areas and just locked into agriculture under the so-called hukou policies. Although machinery, equipment and infrastructure improved the means of agricultural production, the development and extension of hybrid rice increased the agricultural productivity, the gap between the great machinery input cost and the expected agricultural production return were large. The low efficiency did not solve the problem of the slow growth of agricultural production. The development of the rural area was standstill and the population of the poverty was more than 0.25 billion and the poverty ratio was up to thirty three percent.

### *Reform from 1978 to 1984*

With the urban and rural economic decline in the end of the "culture revolution", the government realized that the heavy industry strategy and collective system resulted in the low efficiency in the resource allocation and became to introduce greater incentives to agricultural pro-

ducers. In 1979, China began a series of reforms in the rural area.

Firstly, the government raised more than 18 kinds of main agricultural products' state procurement prices with the average growth of 24.8 percent. Meanwhile, they gradually reduced the scope and number of the quota products. Secondly, government reopened the urban-rural markets and fairs for farmers to exchange the agricultural products from their private plots freely after fulfillment the state procurement quotas.

The third policy reform was adopting Household responsibility system (HRS) to promote the agricultural production. It was the most important reform in Chinese history. As a result, the farmer households had a relatively independent status with the land use right, and the ownership remained collective. There's no doubt that this reform brought out the rapid growth in both production and productivity. As some studies founded that 42 - 46 percent of the total rise of the agricultural productions came from China's HRS during 1978-1984 (Lin 1992).

During this period, China had experienced consecutive bumper agricultural harvest. The value of GDP of agriculture and the grain production had increased by 7.3 percent and 4.7 percent per year respectively. In addition, the expenditure for supporting rural production and rural relief funds reached to 345.87 and 42.82 million respectively. Per capita annual net income of household increased from 133.6 yuan in 1978 to 355 yuan in 1984. The great success basically eased the tension between grain supply and demand and ensured food security to some extent.

### *The Reform Period from 1985 to 1991*

With the higher procedure price, increased production as well as the large amount of grain importation, the government subsidies grew huge and led to budget burdens (under the "dual price system" the state retail price remained low and the farmers were difficult to sell the products).

Beginning in 1985, the government began to introduce the contract procedure. The purchase price was weighted average, with thirty percent of the delivery at the old base price and seventy percent at the old surplus price. The grain surplus could be sold to free market or other grain processors and grain bureaus at negotiated price. This policy reduced the government deficit obviously. In 1987, the government further reformed

the markets for vegetables, fruits and fishery, and then more and more trading agencies and food markets established. As DeBruaw (2002) estimated that there were more than 5.2 million private trading enterprises by 1990.

Fiscal constraints limited the investments in the technologies, fertilizer and fuel, therefore seriously impacted the agricultural effectiveness and farmer's earnings. Some farmers were changed to producing cash crops and livestock/aquaculture products. Moreover, the small township enterprises which once belonged to the people's commune under the support of the government developed rapidly and people in rural area rushed to work in non-agricultural sector or migrate to the urban area. As a result the agricultural production and the area of cultivated land dropped sharply. Fortunately, the transformation of the agricultural sector and the shift in the employment absorbed a large number of rural surplus labors in return improved the farmers' income.

Because of the shortage of the grain supply, government announced the "state contract" system which lifted the average prices by sixteen percent in 1989 and took some adjustment measures, Such as established agricultural development fund and increased the investment in the construction of irrigation and water conservancy. Hence the mandatory purchase back and the agricultural production rose.

In general, the production experienced extraordinary volatility in this period. Meanwhile, the reforms have failed to liberalize the agricultural products marketing system and reduce the government interference in the market. With the rural economic growth, the central government set a large, well-organized development plan for the anti-poverty strategy. This plan made sure how the anti-poverty subsidies allocated and who can get the fund. Accordingly, the population of the poverty fell from 12.55 million in 1985 to 9.4 million in 1991, with the poverty ratio fell from 14.8 percent in 1985 to 10.4 percent in 1991.

### *The Reform Period from 1992 to 1997*

In the beginning of 1990s, with the industrialization and growth of people's income in the rural areas, the opportunity cost of agriculture improved and the agricultural structure had changed dramatically. In some areas, especially in the coastal areas, people shrank the production of grain and tended to produce more effec-

tive crops. After that, the grain supply and demand between different areas unbalanced and the state retailed prices raised. Ration prices were raised more than sixty percent in 1991. In 1992, China released the Agriculture Law which regulated to gradually liberalize the purchase and sales of agricultural products. The agriculture surplus was allowed to transfer between provincial governments. Under this arrangement, the relatively developed regions could purchase grain from other regions.

Following the decline of production, sharp food price rises and two-digit inflation, the government introduced 'governor responsibility system' to reduce the financial burden. Under this system, governors of a province must be full responsible for the regional self-sufficiency of the grain, including the stabilization of arable land area, grain price and so on. In such a case, more and more provinces set regional grain trade barriers to maintain the price stability.

Pressured by the high price, China reduced the level of formal protection on many agricultural products trade and increased grain imports substantially. Therefore, the net importation was 19.9 million tones, a record high. This helped to keep prices for the rest of 1995 fairly stable (Zhou and Tian 2006). In addition, the central and local government also established grain risk fund and reserve system respectively. Efforts also made to improve the grain production capacity, such as planning of grain production base, land reclamation and improvement under agricultural development projects, increased investment in rural infrastructure, increased assistance to agricultural extensions, stricter protection of cultivated land and increased support to farm input industries. In 1996, the sown land area reached to 16.9 million acres, the grain output exceeded 500 billion kg, of which more than 450 billion kg was grain.

In this period, with a series of reforms, China began to change the policy of deprivation of agriculture and gradually to the policy of support and protection. The food supply and demand was basically balanced to some extent. In addition, local government was financially responsible for the grain procurement instead of the central government in the old days. Despite of the negative effects of this institution arrangement, the positive effects could not be ignored that the provincial governor had the right to arrange the production plan and could facilitate

agricultural production suited to local conditions. The agricultural trade patterns became to shift from land-intensive to labor-intensive farming. More and more farmers began to plant vegetables, fruits and animal products to escape from poverty. As the SSB reported that the population of the poverty fell from 8 million in 1992 to 4.9 million in 1997, with the poverty ratio fell from 8.8 percent in 1992 to 5.4 percent in 1997.

### *Current Agricultural Policies: 1998 to Present*

Market-oriented reform continued in this period. For protecting farmers' interest and ensuring the food security, the central government set a support price level for all grains and provided the state grain marketing enterprises subsidies. But the government could not tolerate the great financial burden and further reformed the marketing system in few days. In 1998, government set the new policy "four separations and improvement". Unfortunately, it was soon replaced by another new policy "Three policies and one reform" which meant the marketing transaction monopolized by the state agencies again.

Following three years harvest, the market prices fell down even below the procedure prices and greatly impacted farmers' earning although the state set a "protective" price to purchase all surplus. In 2000, the central government introduced the plan of "strategic adjustment in the agricultural and rural economic structures". In 2001, the agricultural marketing was completely free in every province, the delivery quotas and protected prices were abolished.

The international trading system also experienced fundamentally changes recently. When in the pre-reform era, all foreign trades carried out by foreign trade corporations which were strictly controlled by administrative plan. All these trade policy slowed and hindered the development of Chinese economy. After 1992 China had adjusted the foreign trade policy step by step from allowing the provinces to establish foreign trade corporations which permitted the private firms to engage in foreign market. When China made efforts to accession into the WTO, there were many studies analysis the potential impacts on China's agricultural sector. Some researchers argued that China would lose its comparative advantage in many agricultural products and the agricultural price fluctuation would be not inevitable (Ke 2001). Other researchers illustrated that

China could get more capital and technology, and would be benefit from the huge world market in the future. (Lin 2000), and the hurt from the globalization is small (Huang et al. 2006). However, after the accession into the WTO, the sown area decreased year by year together with the adjustment of the production structure. The areas of cultivated land declined sharply from 113.79 million hectare in 1998 to 99.41 million hectare in 2003, and the grain production reduced to 430.7 million ton accordingly (Fig. 2). And China once a net exporter had turned to be a net importer since 2004 for the sharply rising demand of soybeans and the structure adjustment in crops production.

In order to improve the competitive of Chinese agricultural sector and ensure the food security goal, many measures were taken to boost the agricultural production. Firstly, government gradually reformed the subsidy system and gave direct subsidies to grain producers since 2004. Before that, the subsidies and other research and extension provided to agriculture almost flowed into large, modern enterprises, not the small farmer. Secondly, China eliminated the agricultural taxes and fees which lasting for nearly 2600 years in the history. This meant the real start of the industry support the agriculture era, and the really reduced the burden on farmers. Thirdly, all the governments increase investment in research, technology innovations and infrastruc-

ture. Under these policies, the cultivated land rose for the fifth consecutive year and reached to 106.7 million ton with the grain production of 528.5 million ton in 2008, a record high. China has maintained a relatively high level of food self-sufficiency rate over ninety five percent. Meanwhile, with the increase of the urban and rural residents' incomes, the production structure changed. The share of rice to total grain production declined from forty-four percent in 1985 to thirty-seven percent in 2005, and the maize showed a trend of growth from seventeen percent in 1985 to twenty-nine percent in 2005.

Nowadays, China also pays more attention to rural development, such as rural pension insurance system, agricultural subsidies for the new technologies and machines. The central government arranged subsidies for farmers including direct subsidies for grain, comprehensive agricultural subsidies, seed subsidies, farm machinery purchase subsidies. Sum of these four subsidies increased from 30 billion in 2006 to 165.3 billion in 2012 (Table 2). In general, China's reforms were gradual, and the cumulative effect was large. In the process of industrialization and urbanization, the government leadership has also accumulated a great deal of experience in economic development.

China's rural economy has experienced the best of times and the worst of the times (Zhou and Wang 2016). China has adopted a series of

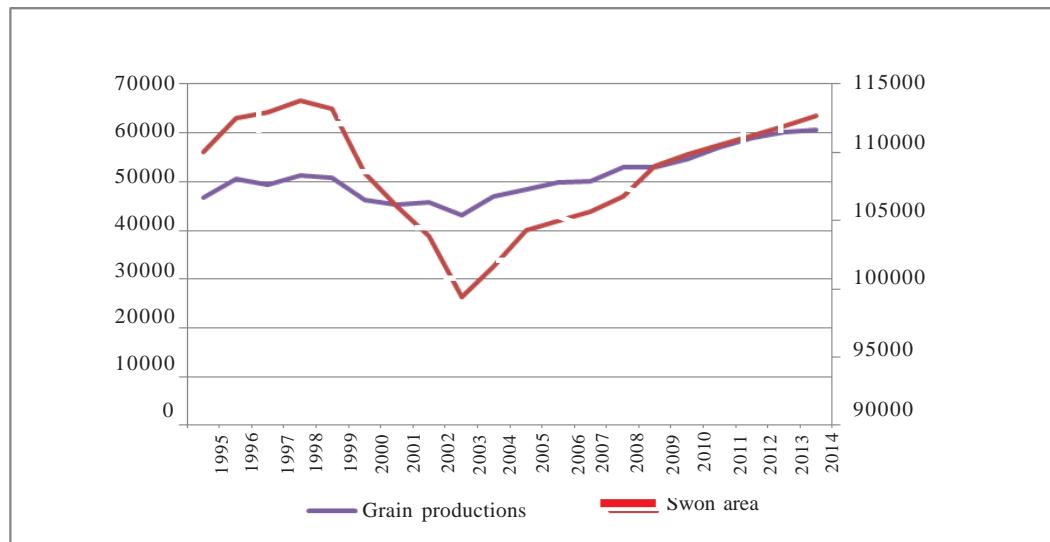


Fig. 2. Grain production and sown land from 1995 to 2014

**Table 2: Government expenditure for agriculture (100 million)**

<i>Year</i>	<i>Total expenditure for agriculture</i>	<i>Expenditure for supporting rural production</i>	<i>Expenditure for capital construction</i>	<i>Expenditure for science and technology</i>	<i>Rural relief funds</i>	<i>Others</i>	<i>Percentage of total government expenditure(%)</i>
1971-1975	401.22	161.00	174.75	0.43	23.75	41.29	-
1976-1980	693.55	345.87	238.03	5.60	42.82	61.23	-
1981-1985	658.48	437.19	158.57	8.25	49.51	4.96	-
1986-1990	1167.77	836.08	247.70	12.96	71.03	-	-
1991	347.57	243.55	75.49	2.93	25.60	-	10.26
1992	376.02	269.04	85.00	3.00	18.98	-	10.05
1999	1085.76	677.46	357.00	9.13	42.17	-	8.23
2000	1231.54	766.89	414.46	9.78	40.41	-	7.75
2003	1754.45	1134.86	527.36	12.43	79.80	-	7.12
2004	2337.63	1693.79	542.36	15.61	85.87	-	9.67
2005	2450.31	1792.40	512.63	19.90	125.38	-	7.22
2007	4318.3	1801.1	513.6 <sup>b</sup>			1415.8	8.7
2008	5955.5	2260.1	1030.4			2072.8	9.5
2009	7253.1	2679.2	1274.5			2723.2	9.5
2010	8579.7	3427.3	1225.9			3350.3	9.5
2011	10497	4089.7	1406			4381.5	9.6
2012	12387.6	4785.1	1643			5339.1	9.8

- a) Since 1998, Expenditure for agricultural capital construction included the expenditure funded from other national debt.
- b) Including direct subsidies for grain, comprehensive agricultural subsidies, seed subsidies, farm machinery purchase subsidies.
- c) Expenditure for rural social development since 2007 expenditure including rural education, rural insurance.

agricultural policy such as land reform, household responsibility system, subsidies for agricultural product price, market liberalization to promote rural economic development. The rapidly economic growth has lifted several hundred million farmers out of poverty. The same situation has happened in other countries (Czyzewski 2016), which indicates that the labor has to be distributed from farming to industry (Moseley 2016).

However, China is not yet a developed nation and there are still very poor farmers in rural areas (Rozelle and Zhang 2016). Some are still at the brink of starvation. In fact, many new challenges will be faced during the future development and world economic integration.

## CONCLUSION

This paper reviews China's agricultural policy reform in a historical context and then illustrated the impacts of rural development on poverty reduction. While from 1949 to 1977, the heavy-industry strategy and planned economy could deliver the resources and raw materials to industry at low price. But such policies plus the Cultural Revolution limited the rural development

seriously. And the low efficiency did not solve the problem of the slow growth of agricultural production. Then Chinese top leadership realized that the great importance of agriculture, they changed the policies such as the introduction of the household responsibility system (HRS) and the increasing procurement prices of agricultural products.

It can be said that agricultural policy has achieved remarkable success that is the growth of farmers' income rising significantly, the farmers' standard of living improving visibly, the number of rural poverty population reducing drastically. However, it should be clear that Chinese land ownership, financial structure and investment will continue to play important roles on the economic development. In addition, other factors will also affect the rural development such as fiscal reform, urbanization and village enterprise emergence and privatization. China still needs to make further reforms in the future because of the new challenge. Facing with China's new economy having entered a new era of normal requirements, government needs to the following that is mine internal potential of agriculture, to broaden external channels for promoting growth of farmer's incomes, to raise the quality of farmers and promote the rural poverty alleviation.

## RECOMMENDATIONS

Firstly, the farm size is too small to develop more efficient production. Given that the resident's incomes increase which contributes to demand of more high quality and safety products. In addition, the cultivated land is formally owned by the collective, the farmers are not willing to make the investment in the farm to make the land more productive. Although the rental transaction are reported which mostly are in developed provinces, there are still a lot of problems embodied such as the land cannot get loans from banks. That is why the farmers will not attempt to expand the farm size and the low agricultural productivity in China.

Secondly, the income inequality and rural poverty are still a big problem for the government. The income gap between rural and urban areas becomes bigger and bigger. The population of poverty in western China is more than in the eastern China and it will be continued in the future for employment opportunities, the weak infrastructure and severe environment resources allocation. Therefore, some poor farms are locked in the farmland, and also do not have enough money to make investments in the human capital. Without the improvement of the labor capability, they are unable to take more effective operation and high technology, and the living of farmer cannot be better.

Thirdly, the land degradation and water shortage results in a drop of production capacity and a reduction of grain production which will decrease the agricultural development. Meanwhile, with the process of industrialization and urbanization, the environment and ecosystem was destroyed by the pollution from industrial sector and human daily life and other human activities.

The deteriorated environment increases the input cost and limits the development of agricultural production.

Fourthly, the investment in science and technology is very small which results in the slow growth of agricultural production and quality. Although there was great rise in the rate of investment in agricultural sector, but is still low compared to other countries. In fact, the "Green" trade barriers have already declined the agricultural export advantages. It is reported that more than sixty percent export companies has suffered from the technical barriers. Besides, most of the increase of the investment in the agricultural re-

search has been allocated to the state research institutions which has reduced the share of funding and have negative effect on the development. Finally, as for the administrative system, the conflicts between law and regulations in agricultural sector are deeply rooted. Some local government sets the regulation and takes responsible for carrying out and implements them. It means that the ministries are the policy makers and carriers at the same time. Not surprisingly, the administrative efficiency is very low than expected. Moreover, sometimes different government authorities who represented different interests draft the different laws and regulations which are even contradictory. It is very difficult for the government and farmers to solve these kinds of problems.

In order to strengthen the role of agricultural as the foundation of the economy and continuous increase in rural incomes, we need to concentrate on improving the competitiveness of the agricultural sector and take measures to boost the agricultural and food industry, such as developing a diversified moderate scale operation system with the complement of transfer of land use right and compensation mechanism, increasing the financial support and investment in the innovation and expansion of agricultural technology and establishing a more efficient agricultural marketing service system which can adapt to the market globalization.

## ACKNOWLEDGMENT

This work is supported by the Fundamental Research Funds for the Central Universities, the National Social Science Fund of China (No. 09CJY051), Zhejiang Social Science Planning Fund Program (No.14NDJC121YB).

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**Paper received for publication on April 2015**  
**Paper accepted for publication on July 2016**