



China Agricultural Economic Review

Poverty alleviation in rural China: policy changes, future challenges and policy implications

Yansui Liu, Yuanzhi Guo, Yang Zhou,

Article information:

To cite this document:

Yansui Liu, Yuanzhi Guo, Yang Zhou, "Poverty alleviation in rural China: policy changes, future challenges and policy implications", China Agricultural Economic Review, <https://doi.org/10.1108/CAER-10-2017-0192>

Permanent link to this document:

<https://doi.org/10.1108/CAER-10-2017-0192>

Downloaded on: 10 May 2018, At: 01:00 (PT)

References: this document contains references to 0 other documents.

To copy this document: permissions@emeraldinsight.com

The fulltext of this document has been downloaded 22 times since 2018*

Users who downloaded this article also downloaded:

(2016), "Realizing targeted poverty alleviation in China: People's voices, implementation challenges and policy implications", China Agricultural Economic Review, Vol. 8 Iss 3 pp. 443-454 https://doi.org/10.1108/CAER-11-2015-0157

Access to this document was granted through an Emerald subscription provided by emerald-srm:453579 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

Poverty alleviation in rural China: Policy changes, future challenges and policy implications

Abstract

Purpose – Poverty alleviation is a global challenge. Human society has never ceased to fight against poverty. China was once the developing country with the largest rural poor population in the world. Remarkable achievements have been made in China's anti-poverty program over the past decades, shaping a unique poverty reduction strategy with Chinese characteristics. This paper first reviewed the history of China's rural reform and anti-poverty, and then analyzed the related policy systems, mechanism innovations and future challenges in poverty alleviation and development. At last, some specific policy implications were provided.

Design/methodology/approach – Literature on China's antipoverty history was reviewed and mechanism innovations on targeted poverty alleviation strategy was investigated.

Findings – Along with the deepening of the rural reform, the poverty alleviation and development in new China has undergone six stages, and experienced a transformation from relief-oriented to development-oriented poverty alleviation. The object of poverty alleviation has gradually targeted with a transformation from poor counties/areas to villages/households, and the effectiveness of poverty alleviation is also gradually improved. However, the increasing in the difficulty of antipoverty, fragile ecological environment, rapid population aging and rural decline pose challenges to the construction of a well-off society in an all-round way in China. Specific antipoverty measures were put forward based on the investigation. Finally, we emphasize the importance of strengthening the study of poverty geography.

Originality/value – This study investigates the history of China's antipoverty policy and analyzes the future challenges for implementing targeted poverty alleviation policy. These findings will lay a foundation for the formulation of China's antipoverty policies after 2020, and provide experience for poverty alleviation in other developing countries around the world.

Key words Rural poverty alleviation, rural reform, targeted poverty alleviation strategy, policy changes, future challenges, China

Paper type Research paper

1. Introduction

Poverty is a challenge facing all countries. Eliminating poverty is an ideal that humanity constantly pursues. The international community has never stopped to alleviate or eliminate poverty (Mani *et al.*, 2013; Haushofer and Fehr, 2014; Zhang *et al.*, 2015; Tollefson, 2015). Among the 17 sustainable development goals (SDGs) of

the UN 2030 Agenda for Sustainable Development, the first is to end poverty in all its forms everywhere [1]. It has become generally accepted worldwide that the measurement of poverty has gradually changed from one-dimensional measurement of income or consumption poverty to multidimensional measurement of education, health, standard of living (Wagle, 2002; Cao *et al.*, 2009; Alkire and Foster, 2011; Glauben *et al.*, 2012; Alkire and Santos, 2014; UNDP, 2016; Alkire *et al.*, 2017). Globally, remarkable achievements in poverty alleviation have been made due to global, regional, national and local joint efforts (Sen, 1976; Foster *et al.*, 1984; Lrz *et al.*, 2001; Sachs, 2008; Alkire and Foster, 2011; UN, 2015). The number of people worldwide living on less than \$1.90 a day has decreased from 1.8 billion in 1990 to 0.776 billion in 2013 (World Bank, 2017). The global drop in the percentage of population living in extreme poverty can be largely attributable to China's poverty reduction efforts (UN, 2015). China has realized, ahead of schedule, the goal of cutting the poverty-stricken population by half, as listed in the United Nations Millennium Development Goals, thus making great contributions to the world's poverty reduction efforts (UN, 2015; Zhou *et al.*, 2017). China's development-oriented poverty reduction program is an important component of the world's poverty reduction efforts.

China is the world's most populous developing country and a hilly country with mountainous regions (Liu *et al.*, 2017). It is also a country dominated by agriculture and feeds one fifth of the world's population with less than one tenth of the world's arable lands. Harsh natural condition, backward economic development level, uneven healthcare and educational resources, poor infrastructure and public services all contributed to a large number of poor people living in rural areas of China (Liu *et al.*, 2016a; Liu and Xu, 2016; Zhou *et al.*, 2017). The Chinese government has been committed to the eradication of poverty since the founding of new China in 1949. Over the past decades, a great deal of work on poverty alleviation have been done both at the governmental and academic level. Researches on China's rural poverty involve the definition and type of poverty (Jalan and Ravallion, 1998; 2000; Hu and Li, 2001; Duclos *et al.*, 2010; Ward, 2016), poverty standard line (Tong and Lin, 1994), poverty (multi-dimensional poverty) measurement (Park and Wang, 2001; Wang and Alkire, 2009; Wang, 2009; Guo and Wu, 2012), poverty targeting (Park *et al.*, 2002; Wang, 2007), economic growth and antipoverty (Fan *et al.*, 2002; Montalvo and Ravallion, 2010), old-age poverty (Wang *et al.*, 2011), mechanism and spatial pattern of poverty (Brown and Park, 2002; Du *et al.*, 2005; Liu *et al.*, 2016a; Liu and Li, 2017a), poverty vulnerability (McCulloch and Calandrino, 2003; Imai *et al.*, 2010; Cao *et al.*, 2016; Ward, 2016), anti-poverty policy or strategy (Miao and Zhong, 2006; Xu *et al.*, 2007; Li, 2013; Zhang and Wang, 2013), migration and poverty (Du *et al.*, 2005), and targeted poverty alleviation (Deng, 2014; Huang and Tang, 2015; Wang and Guo, 2015). It is generally recognized that poverty includes absolute and relative poverty (Foster, 1998; Madden, 2000; Bourguignon and Chakravarty, 2003). Absolute poverty is transient and relative poverty is chronic or persistent (Liu *et al.*, 2017). Poverty (relative poverty) can only be reduced but not eliminated (Bourguignon and Chakravarty, 2003). Inadequate natural endowments (Jalan and Ravallion, 2002),

ecological degradation (Yang et al., 2006; Liu et al., 2008), and frequent natural disasters (Zhang and Wan, 2006; Glauben et al., 2012) were responsible for relative poverty in rural China. Unstable sources of income (Jalan and Ravallion, 2000; Klasen et al., 2016), low education levels (Knight et al., 2010), high unemployment rates (Bitler and Hoynes, 2015), and lack of access to economic activities (Glauben et al., 2012), lack of ability to work (Yeo and Moore, 2003), lack of motivation (Bullock, 1999) and of subjective initiative (Nasser, 2007), uneven allocation of resources (Rogers, 2014), social exclusion (MacInnes et al., 2013) and under-investment as a response to risk (Yu, 2013), were seen as the important factors impacting absolute poverty in rural China (Liu et al., 2017). These findings have laid a solid theoretical foundation for formulating and implementing China's antipoverty policies. Between 1990 and 2014, the proportion of people living in extreme poverty in China fell by half from 73.5 percent to 7.2 percent (NBS, 2016). However, China has still 14 contiguous poor areas, 128,000 impoverished villages and more than 70 million poor people in 2014. To lift the remaining rural poor out of poverty by 2020, the country has established a mechanism for targeted poverty alleviation to ensure an effective support to the poor. The implementation of the targeted poverty alleviation strategy has attracted worldwide attention. To better promote the new antipoverty strategy, it is necessary to review China's antipoverty history and study the policy system and mechanism innovation of the targeted poverty alleviation as well as future challenges. These results would provide theoretical guidance and practical supports for formulating China's poverty alleviation strategy after 2020, and can help other developing countries with experience as they design their own strategies.

The structure of this paper is organized as follows: Section 2 describes briefly antipoverty history in new China; Section 3 introduces mechanism innovation of targeted poverty alleviation; Section 4 presents the future challenges on implementing targeted poverty alleviation policy; Section 5 offers conclusions and policy implications.

2. History of Chinese poverty alleviation and rural reform

Poverty is a worldwide problem, and anti-poverty is a historical task facing all humankind. Over the past decades, the Chinese government has long persevered in its attempts to alleviate poverty. Between 1949 and 1978, rural areas in China were in a state of universal poverty, and antipoverty work at this period was mainly aimed at meeting the most basic needs (food and clothing) of the poor by governmental relief and aid. Since the initiation of reform and opening up in 1978, the Chinese government has spared no efforts to alleviate poverty, including established special poverty alleviation institutions, identifying impoverished areas and population, allocating specialized funds, adjusting timely poverty standards, formulating special preferential policies and innovating poverty-relief mechanism (China Daily, 2016). The anti-poverty actions mainly include improving rural infrastructure, providing public services and helping the poor groups to increase income. Subsequently, China has timely adjusted the standard of poverty alleviation according to level of socio-economic development (Table 1). Poverty line has increased from 366 yuan

RMB in 1978 to 2,952 yuan RMB in 2016 (at 2010 price). In the mid-1980s, the Chinese government designated the state poverty-stricken counties for the first time and adjusted them in 1994, 2000 and 2011, respectively (Figure 1) [2]. The count shows that of the 592 state-designated poverty counties, 472 ones remained unchanged from 1994 to 2011. Correspondingly, the overall aim of anti-poverty has transformed from focusing initially on the basic needs (food and clothing) to comprehensive guarantees (food, clothing, compulsory education, basic medical care and housing security) of the poor groups.

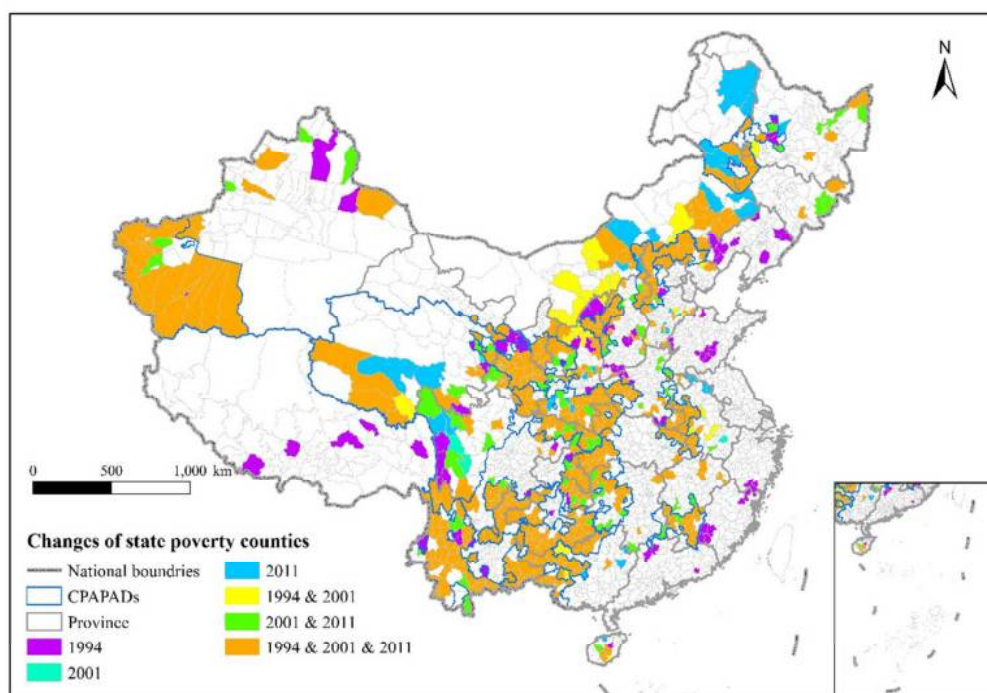


Figure 1. Adjustment of China's state-designated poverty-stricken counties
Source: made by the author(s) and the data are obtained from a publicly accessible website (http://www.gov.cn/gzdt/2012-06/14/content_2161045.htm).

Table 1. Rural poor population in China between 1978 and 2010

Year	1978 standard			2008 standard			2010 standard		
	Poverty line (Yuan)	Poor population (million)	Headcount ratio (%)	Poverty line (Yuan)	Poor population (million)	Headcount ratio (%)	Poverty line (Yuan)	Poor population (million)	Headcount ratio (%)
1978	100	250	30.7				366	770.39	97.5
1980	130	220	26.8				403	765.42	96.2
1985	206	125	15.5				482	661.01	78.3
1990	300	85	9.4				807	658.49	73.5
1995	530	65.4	7.1				1511	554.63	60.5
2000	625	32.09	3.5	865	94.22	10.2	1528	462.24	49.8
2005	683	23.65	2.5	944	64.32	6.8	1742	286.62	30.2

2008				1196	40.7	4.2	2172		
2010				1274	26.88	2.8	2300	165.67	17.2
2011							2536	122.38	12.7
2012							2625	98.99	10.2
2013							2736	92.49	8.5
2014							2800	70.17	7.2
2015							2855	55.75	5.7
2016							2952	43.35	4.5

Notes: 1978 standard include rural poverty standard (1978-1999) and absolute poverty standard (2000-2007), 2008 standard include rural low-income standard (2000-2007) and rural poverty standard (2008-2010) and 2010 standard is the new standard of rural poverty alleviation in China (NBS, 2016).

The 18th National Congress of the Communist Party of China (CPC) (2012) sets a magnificent target of building up comprehensively a well-off society. China's State Council has decided to set October 17th as the country's Poverty Alleviation Day since 2014. Due to national, provincial and local joint efforts, China's rural poor population has dropped from 250 million in 1978 to 43.35 million in 2016 (NBS, 2016). The success of China's anti-poverty benefited from a series of policy arrangements and institutional reforms aiming at the rural poor groups (Liu *et al.*, 2017). In other words, China's rural reform and poverty alleviation are interlinked and mutually promoted. The concepts, policies and models of poverty alleviation and development in China keep up with the times and constantly deepen. Overall, China's help-the-poor program has largely experienced six stages (Yan, 2015; Zhou *et al.*, 2017) (Figure 2).

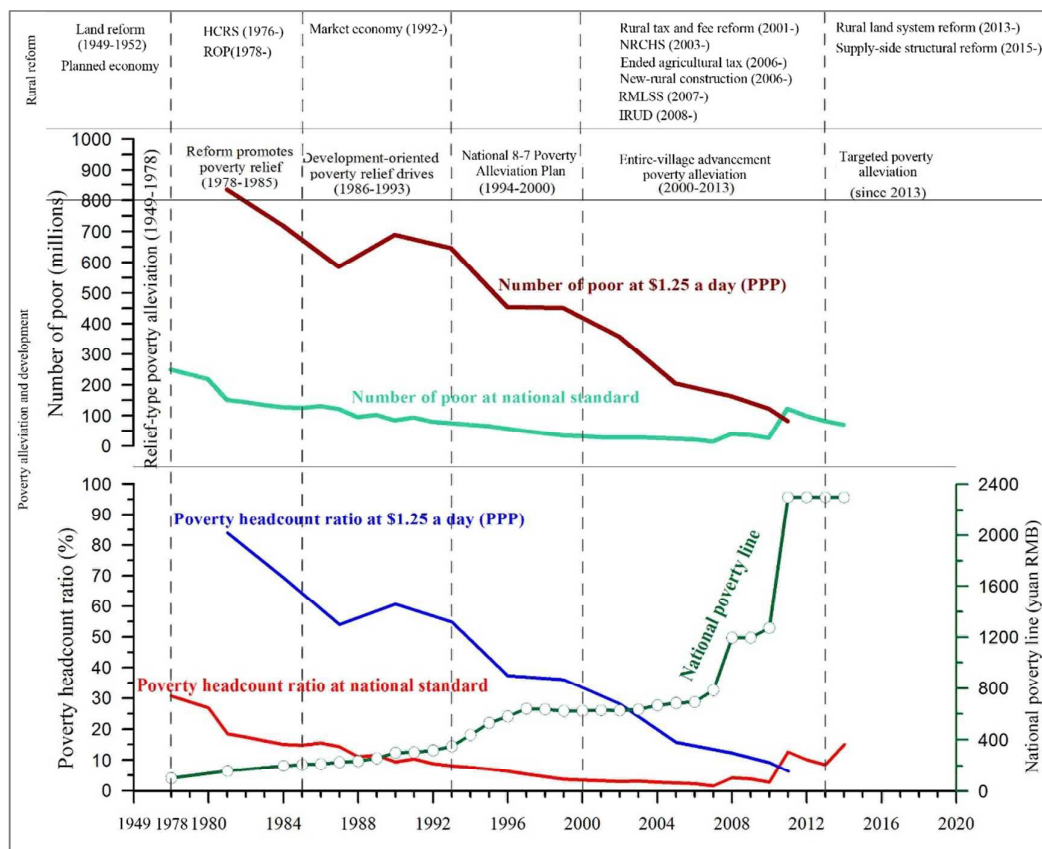


Figure 2. Major poverty alleviation policies/programs in China.

Sources: Data from NBS, 2016; <http://povertydata.worldbank.org/poverty/country/CHN>.

2.1 Relief-type anti-poverty under planned economy (1949-1977)

In the early years of new China, rural economic development was slow. As a result of successive years of war and frequent natural disasters, the whole Chinese society was in the state of universal poverty. At that time, the goal of China's anti-poverty was to meet the basic needs of the majority. The main measures were to ensure the minimum standard of living for the poor through financial subsidies or physical relief, which belongs to the typical blood-transfusion poverty alleviation (Dong, 2010). During that period, China implemented land reform (1949-1952) and the rural areas were mainly represented by the people's Commune (1958-1962). Due to the egalitarian distribution system of the people's Commune, the polarization between the rich and the poor in the countryside was largely restrained and the absolute poverty was temporarily alleviated. This anti-poverty type can only play a temporary role in the plight of the impoverished population, but cannot really stimulate the endogenous dynamics of the poor groups. At the same time, the country practiced monopoly for the purchase and marketing of grain, cotton and corn, and adopted the price scissors between industrial and agricultural products. In addition, the separation of urban and rural areas as a result of the household registration system has greatly limited the flow of rural labor, further exacerbating rural poverty (Guo and Chou, 2005). Xu *et al* (2007) also emphasized that China's anti-poverty policy should turn from social assistance to social protection. As of 1978, Chinese farmers' per capita net income was only 134

yuan RMB. Statistics showed that about 250 million population was living in extreme poverty and the incidence of poverty was 30.7 percent (Gustafsson and Zhong, 2000).

2.2 Structural reform promotes poverty relief (1978-1985)

Before the implementation of the reform and opening policy (ROP) in 1978, the main reason for rural poverty in China was irrational institutional arrangements. The country gradually realized that only institutional reform can promote the rural socioeconomic development and poverty reduction. The reform of rural system at that period involves in two aspects. The first one is land management system reform that replaced the collective management system of the people's commune with the household contract responsibility system (HCRS) since 1976 (Ding, 2003). This new system gave the peasants' contractual right for rural land and kindled their enthusiasm for labor, thus greatly improving the land output and increasing farmers' income (Lin, 1990; 1992; Lin *et al.*, 1998). The second one was the trade liberalization on agriculture, which laid the foundation for developing market economy system (Lau *et al.*, 2000). In the mid-1980s, the rapid rise of the township enterprises in rural China broken the pattern of the single agricultural investment and employment system and improved the rural economic structure. In this period, the rural surplus labor force began to transfer to non-agricultural employment and the sources of farmers' income diversified, which effectively alleviate poverty (Fan *et al.*, 2004; Park and Wang, 2010). These reforms accelerated the development of the national economy and made the poor benefit from the increase in agricultural products prices, and optimized agricultural products and nonagricultural employment of rural laborers. Thus, structural reform greatly alleviated poverty in the rural areas. Statistics showed that between 1978 and 1985, per capita grain output increased by 14% and per capita net income grew from 160.7 yuan RMB to 397.6 yuan RMB in China's rural areas. The number of poor people in rural China decreased from 250 million in 1978 to 125 million in 1985, with an annual decrease rate of 9%.

2.3 Development-oriented poverty relief drives (1986-1993)

Promoted by the reform and opening-up policy (ROP) since 1978, Chinese rural economy grew rapidly. However, the disequilibrium of rural development between the Midwest and the eastern coastal areas gradually emerged. In the mid-1980s, the Chinese government established a special anti-poverty organization, i.e., the State Council Leading Group on Economic Development in Poor Areas (later renamed the State Council Leading Group on Poverty Alleviation and Development in 1993), to further reduce poverty. Subsequently, the provincial, prefectural and county governmental also established corresponding institutions to responsible for local antipoverty work. Meanwhile, the country designated the national poverty counties, and allocated special funds and implemented special favorable policies for these counties to alleviate poverty. Market economic system has been gradually established since 1992. Thanks to the efforts made by national and local governments, the number of people living on less than the national poverty line (hereafter referred to as the rural poor) dropped from 125 million in 1986 to 80 million in 1993, with an annual decrease of 6.4 million on average.

2.4 National Eight-Seven Poverty Alleviation Plan (1994-2000)

Along with the deepening of the rural reform and the long-term efforts in development-oriented poverty relief, the number of the rural poor has gradually shrunk. However, most of the country's rural poor population gradually gathered in its remote mountainous areas of the Midwest with harsh natural conditions, weak infrastructure, and poor public services. Thus, China's poverty-relief work entered a stage of tackling the key problems. Faced with daunting task of poverty alleviation, China implemented a National Eight-seven Poverty Alleviation Plan to resolve food and clothing problems of the remaining 80 million poor population in around seven years. The Plan was the first poverty alleviation program in the history of New China with clear objectives, targets, measures and duration of antipoverty program. Between 1997 and 1999, the country solved the problem of food and clothing for 8 million rural poor population as scheduled. By the end of 2000, the targets of the Plan have been achieved. Between 1994 and 2000, the per capita net income of farmers in the state-designated counties increased by 38 percent (Meng, 2013). Thanks to the great importance by all levels of governments, China's rural poor population dropped from 80 million in 1994 to 32 million in 2000, with an average annual decrease of 12.3%.

2.5 Entire-village advancement poverty alleviation (2001-2012)

In 2001, China formulated and implemented the Outline for Development-Oriented Poverty Reduction for China's Rural Areas (2001-2010). The Outline put forward that the country shifted the focus of poverty alleviation from county level to village level. About 148 thousand poor villages were identified based on production, living conditions and farmers' health and education status for each village (Wang, 2007; Gao *et al.*, 2003). At that period, China took the whole village advancement to achieve the integrated development of rural infrastructure, social services and cultural training. In 2001, China implemented rural tax and fee reform to lower farmers' burden. In 2003, the new-type rural cooperative healthcare system (NRCHS) was adopted to prevent people from falling into poverty due to illness. In 2006, China ended the agricultural tax that has been continuing for two thousands of years. To promote the development of rural economy and improve the rural environment, China has also carried out the strategy of building a new countryside since 2006 (Long *et al.*, 2010; 2011; 2012). In 2007, the country has implemented the rural minimum living security system (RMLSS) and made an attempt to connect the policy of poverty alleviation and the minimum living security system. To narrow the rural-urban disparities, China has formulated and implemented the integration of rural-urban development (IRUD) strategy since 2008 (Liu *et al.*, 2013). These policies and measures had lifted 67.34 million people out of poverty between 2001 and 2010. According to the 2010 national poverty standard (1,274 yuan RMB), the rural poor population had fallen to 26.88 million people, with a headcount ratio of 2.8%. To further alleviate rural poverty, in 2011, China has implemented the new Outline for Development-Oriented Poverty Alleviation for China's Rural Areas (2011-2020) [3]. The Outline delimited 14 contiguous poor areas with special difficulties and puts these areas as the main battlefield for poverty alleviation efforts in the new period [4]. The Outline put forward the targets for ensuring the rural poor to be guaranteed access to food, clothing, compulsory education, basic medical care and housing security by 2020.

2.6 Targeted poverty alleviation (since 2013)

Since the 18th National Congress of the CPC, general secretary Xi Jinping has attached great importance to poverty alleviation and development, and put forward a series of new ideas and requirements for poverty alleviation. To help the remaining poor people shake off poverty by 2020 as scheduled, China has proposed and implemented targeted poverty alleviation strategy since 2013. A key programmatic document for poverty alleviation, “Opinions on Promoting Rural Poverty Alleviation through Innovation Mechanisms” issued by the State Council in 2013, has proposed to establish the mechanism for targeted poverty alleviation, which definitely points out the direction for China’s poverty alleviation and development in the new era. The Opinions requires local governments to establish the accurate identification mechanism for poverty, build up the electronic archives for each poor village and household with dynamic government to ensure an effective support to the real poor (Li *et al.*, 2016; Zhou *et al.*, 2017). The targeted poverty alleviation has thus become a basic strategy for China’s fight against poverty. In addition, the Chinese central government has carried out the reforms of rural land system and supply side structure.

3. Mechanism innovations of implementing the targeted poverty

alleviation

Since 2013, local departments at all levels has implemented the targeted poverty strategy and took antipoverty as a major political task and livelihood project. It transmits pressure and compacts responsibility for poverty alleviation from top to bottom, which has gradually formed an atmosphere of joint efforts of the provincial, municipal, county, township and village leaders to alleviate poverty. Related policies and measures have been formulated and implemented to promote the targeted poverty alleviation strategy. The specific measures include six accurate measures (*Liuge Jingzhun*), five batches (*Wuge Yipi*), ten poverty alleviation projects and six actions (*Liuxiang Xingdong*). Specifically, six accurate measures include accurate poverty identification, accurate project arrangement, accurate use of funds, accurate implementation of helping measures and sending the helping carders to poverty-stricken villages and households to ensure the accuracy of the effect of poverty alleviation (Li *et al.*, 2016). The five batches include: a) supporting the poor households who have the ability to work to develop their industries; b) relocating ten million of the poor in remote areas with harsh living condition to more hospitable villages or towns; c) implementing ecological compensation policies to lift those people who live in the ecologically reserve out of poverty; d) preventing the intergenerational transmission of poverty by strengthening education; and e) helping the physical disability and social groups with special difficulties out of poverty through the guarantee of social security (Wang, 2016). The ten antipoverty projects include the vocational education and training, helping cadres residency in impoverished villages, microfinance, ex-situ poverty alleviation relocation, e-commerce, tourism, photovoltaic power generation, papyrifera planting, entrepreneurship training of the rich leaders, and leading enterprises driving poverty

alleviation (Zhou *et al.*, 2017). The six actions for antipoverty include: 1) poverty alleviation through strengthen education, which aims to block the intergenerational transmission of poverty; 2) health poverty alleviation, which aims to prevent people from falling into poverty due to illness; 3) financial poverty alleviation, which aims to solve the problems of difficult and expensive loans for poor households who have willingness and abilities to develop and support them getting rid of poverty through the development of industry; 4) service cooperation docking, which aims to encourage the eastern regions and large and medium-sized cities to absorb the employment of the poor labor force, and promote the employment of the poor; 5) hundred counties and ten thousand villages project, which aims to improve the infrastructure facilities in 108 poverty-stricken counties and solve the water circuit problems of the poor people in 10,000 poor villages through some central enterprises; and 6) ten thousand enterprises help ten thousand villages, which organizes more than 10,000 private enterprises to help 10,000 impoverished villages (Zhou *et al.*, 2017).

For the identification of poor villages, poor villages need to meet the standards that its incidence of poverty is more than twice as high as the province. In 2013, the per capita net income of farmers in the village was less than 60% of the province's average, and the village had no collective economic income [5]. For the accurate identification of poor households, the national poverty alleviation standard for rural areas in 2013 was 2,736 yuan RMB. In the first half of 2014, the country has organized about 0.8 million people to identify the poor households and poor villages. A total of 128 thousand poor villages, 29.48 million poor households and 89.62 million poor people were identified in the country. The distribution of poor people and cause of poverty can be largely understood according to this identification. From August 2015 to June 2016, the country organized nearly two million people to carry out re-identifying. About 8.07 million people were re-identified as the poor population and 9.29 million non-real poor population that was previously inaccurately recognized were eliminated. In February 2017, the country re-identified the people who have been designated as non-impoverished people in 2016. From June to August 2017, the country carried out dynamic management for poor population to further identify the poor. Accurate identification of the objects have made Chinese antipoverty work targeting to the poor villages and households. Based on accurate identification of poor objects, targeted pro-poor measures and corresponding helping funds to the poor have been adopted. In addition, more than 0.54 million villages' cadres were sent to the poor villages and 0.188 million outstanding cadres were sent to the poor village as the first secretary to enhance the masses' ability to shake off poverty [6].

To improve the effectiveness of help- the-poor work, China has established the third-party evaluation system of poverty alleviation performance for relevant departments at all levels (Li, 2016). These appraisal systems involve in accurate identification and assistance of poor people, antipoverty work performance and help-the-poor fund use for the head of provincial party committees and governments [7]. In addition, the country has set up an exit mechanism for poor people, poor villages and poor counties [8]. Meanwhile, it also is exploring and establishing an asset income support system (AISS) to guarantee the poor without working ability

benefiting from the assets they own. The AISS aims to convert the fragmented, scattered and sleeping resources into assets. Local departments use the special financial aid funds as a share of the poor to participate in production and management of professional large family farms, cooperatives and leading enterprises, thereby increasing the farmers' property income (Yu, 2016).

The targeted poverty alleviation measures has greatly improved the face of rural poverty in China. The number of rural poor has dropped from 82.49 million in 2013 to 43.35 million in 2016 and the corresponding poverty headcount ratio has decreased from 8.5% to 4.5% (NBS, 2016). The farmers' income growth in poor areas is higher than the national rural average level, and the income gap of rural residents between the poor areas and the whole country has been shrinking. In 2015, the per capita income of rural residents in poverty-stricken areas is 7,653 yuan RMB, with 2.9% higher than the average level of rural residents in China (NBS, 2016). In addition, infrastructure and public service level in poor areas have been continuously improved, and the urban-rural gap has gradually been narrowed (NBS, 2016).

4. Future challenges on implementing the targeted poverty

alleviation

China's development-oriented poverty reduction program is an important component of the world's antipoverty efforts. The success of China's poverty alleviation program has attracted global attention, which has become a world model and can provide a benefit reference for the world's poorest countries. While remarkable achievements have been made in China's poverty alleviation, it remains the world's largest developing county facing unprecedented challenges in narrowing the economic gaps between rural and urban areas and across regions.

Firstly, China's poverty alleviation has been entered into a sprint period of tackling tough issues. China's poverty problems remain serious and have become increasingly more difficult to reduce by conventional poverty alleviation strategies and measures, which is characterized by the coexistence of chronic and transient poverty as well as regional and dispersed poverty (Liu *et al.*, 2016a; 2017). Poverty scale is still large and anti-poverty tasks are pressing. By the end of 2016, China still has about 43.35 million people living below the poverty line in rural areas (at 2010 prices) (NBS, 2016). Besides, natural disasters occur frequently in poverty-stricken areas and the capacity to prevent and mitigate disasters is insufficient, increasing the difficulty of eradicating poverty (Zhou *et al.*, 2014; 2015). In addition, suffering from diseases is a major cause of poverty in China's farmers' poverty and the proportion of poverty due to illness has gradually increased [9]. Overall, regional poverty has not yet fundamentally changed (Liu *et al.*, 2017).

Secondly, the identification of poor people needs to be further targeted. Although China has launched multi-round identification of the poor population, a large number of marginalized or vulnerable groups still exist. When an external shock occurs, they are prone to falling into poverty. Usually, it is difficult to determine whether it is poor or not by a single index. In addition, the standard for identifying the poor in rural

China is to judge whether a household can stable access to food and clothing, or nine-year compulsory education, and basic medical services and housing security, or average annual net income per family below the national poverty line or not. However, the recognition results may be varied due to the inconsistency of judgement standard among regions in practice. Importantly, because of the difference in regional economic development level, the poor people who have been identified in the relatively wealthy provinces or counties may not be the real poor people in the poverty-stricken areas.

Thirdly, the current poverty alleviation mechanism may lead to new social injustices. The current antipoverty work (including the input of help-the-poor fund, full-time cadres stationed in the village to help the poor and infrastructure construction) mainly target to the poor villages and poor households in impoverished counties. The poor in non-impoverished counties or villages are often marginalized. Meanwhile, the non-poor people, especially the marginalized groups, did not get help. Statistics showed that 41% of the country's poor people are distributed in non-poverty villages, and 45% of the poor are distributed in non-poverty counties (Gu, 2016). Coupled with the implementation of policy that the people in the antipoverty system who have lifted out poverty still enjoy the same poverty alleviation policies as the poor households do, the poor is getting richer and the marginal people is getting poorer over time. This may lead to new social injustices. As the old saying said, "Inequality rather than want is the cause of trouble."

Fourthly, potential trade-off challenges exist between poverty alleviation and development and ecological conservation (Adams *et al.*, 2004). In June 2011, the State Council issued the National Main Function-Oriented Zone Planning. The Planning divided China's territorial space into the development-optimized areas, development-prioritized areas, development-restricted areas and development-prohibited areas. The development-restricted areas include the national agricultural producing and the key ecological function areas where large-scale urbanization and industrialization are restricted. However, there exists a high degree of overlap between the national key ecological function areas and the contiguous poverty-stricken areas with special difficulties in China, which brings severe challenges to the state's anti-poverty program (Figure 3). It is estimated that more than 50% of the poverty-stricken areas (i.e., about 2.2 million square kilometers and account for a quarter of the country's land area) with 34 million poor populations are within the scope of the national development-restricted areas (3.86 million square kilometers). Besides, the country's ecological compensation mechanisms are not perfect with a low compensation cost. Current, the subsidy for private and community-owned forest has increased from 10 yuan in 2010 to 15 yuan (\$2.34) per mu (15 mu equals one hectare) in 2013 [10], but it cannot meet basic requirements for many poverty-stricken areas letting themselves out of poverty as the country's poverty line rises.

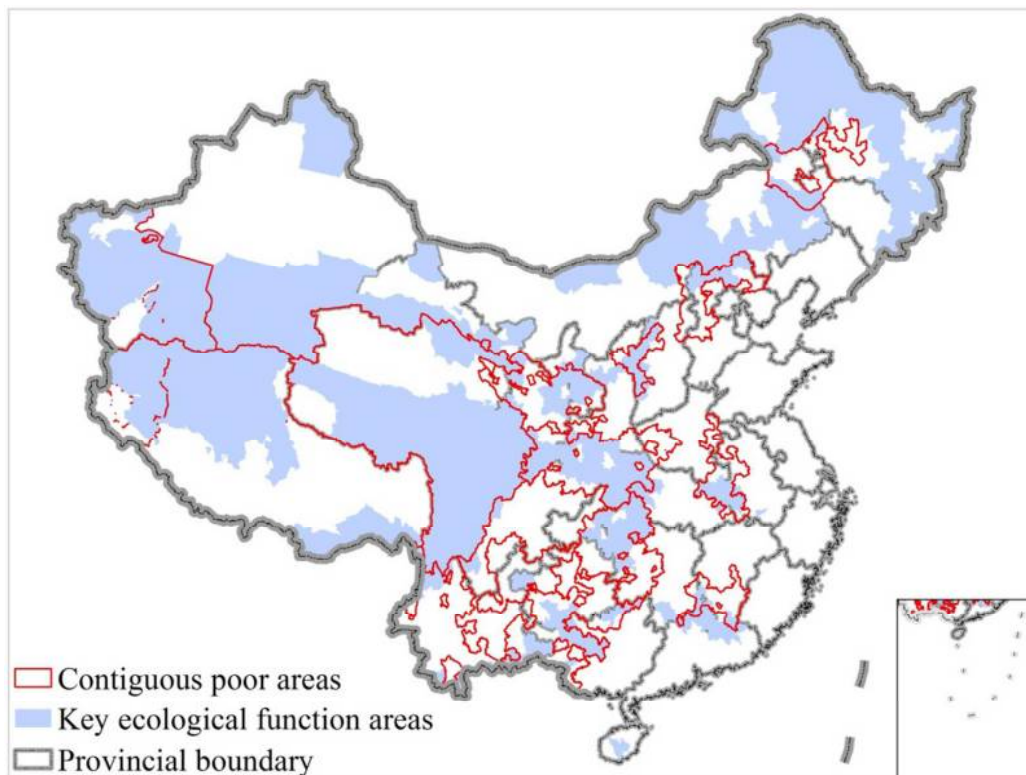


Figure 3. The contiguous poor areas with special difficulties and key ecological function areas. Sources: The data on contiguous poor areas are sourced from the Outline for Development-oriented Poverty Reduction for China's Rural Areas (2011-2020) (http://www.gov.cn/gzdt/2012-06/14/content_2161045.htm), and the key ecological function areas are obtained from the National Main Function-Oriented Zone Planning (http://www.gov.cn/zwgk/2011-06/08/content_1879180.htm).

Source: Made by the author(s). The data on contiguous poor areas are obtained from a publicly website (http://www.gov.cn/gzdt/2012-06/14/content_2161045.htm), and the data on the key ecological function areas are obtained from the National Main Function-Oriented Zone Planning (http://www.gov.cn/zwgk/2011-06/08/content_1879180.htm).

Fifthly, rural hollowing, rural decline and aging are becoming increasingly serious (Liu *et al.*, 2011; Liu and Li, 2017b). With the rapid urbanization, China has 273.95 million migrant workers without adequate social security due to household registration system in 2014 (Bai *et al.*, 2014). Meanwhile, more than 50 million elderly, 47 million women and 61 million children have been left behind in rural communities (Yang, 2013). More importantly, in 2014, the rate of aging (aged over 60 years) has reached 15.5% with a higher aging level in rural China than that in urban, far exceeding the internationally accepted level of 10% (NBS, 2015). The poverty headcount ratio of the elderly in rural China exceeded three times that in the urban (Cai *et al.*, 2012). It is estimated that there are more than one-fifth poor counties with extremely serious aging characteristics locating in the 14 contiguous poor areas (including 679 poverty-stricken counties), which concentrates in the Wuling Mountain and Qinba Mountain areas and Yunnan-Guizhou-Guangxi rocky desertification area (Figure 4). In the last decade, China's rural hollowing has been developing rapidly

(Liu *et al.*, 2013). Undoubtedly, population aging and village hollowing in rural China will lead to insufficient internal impetus driving economic growth, bringing new challenges to the country's poverty reduction.

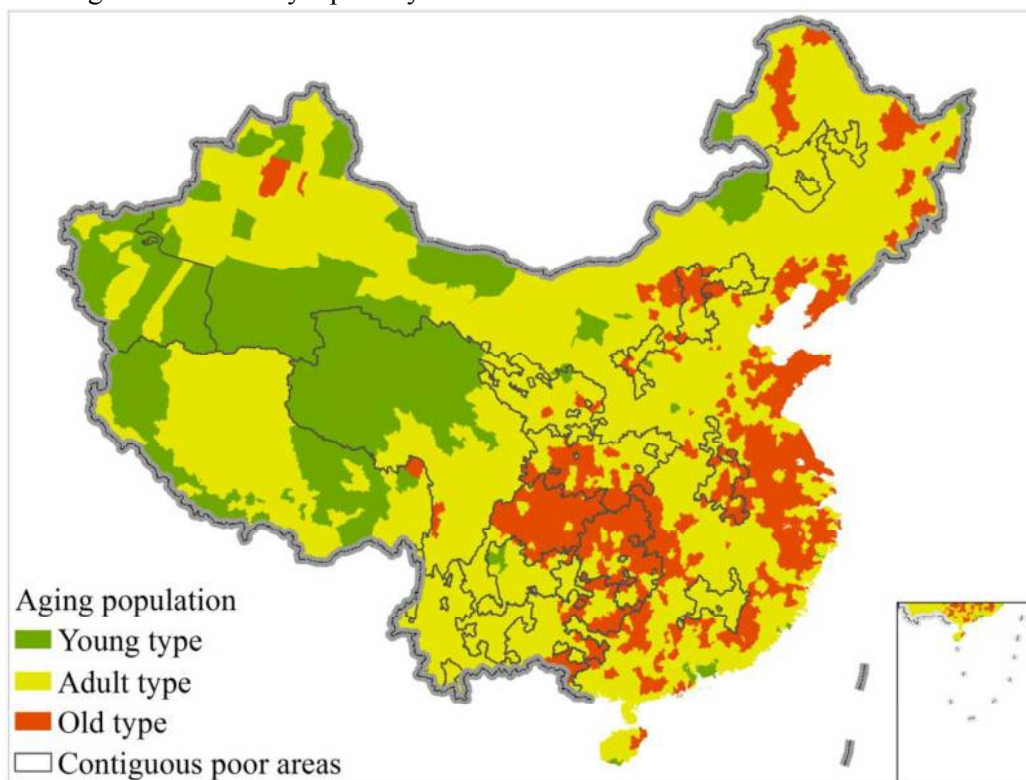


Figure 4. Spatial distribution of the elderly population (aged over 65 years) in 2010. Note: According to the standard of the United Nations population aging, a country or region can be divided into the young population type (the proportion of people over 65 less than 5%), the adult type (5% < the aged < 10%) and the old type (the aged > 10%).

Sources: made by the author(s). The data on contiguous poor areas are obtained from a publicly website (http://www.gov.cn/gzdt/2012-06/14/content_2161045.htm), and the data on spatial distribution of the elderly population are available from the Tabulation on the 2010 Population Census of the People's Republic of China (<http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/indexch.htm>).

Sixthly, the return-to-poverty phenomenon is still rather prominent in China. The poverty-stricken families usually live in remote area with a harsh environment, poor living conditions, and a high re-poverty-stricken rate. Some groups who have move out of poverty are vulnerable to fall back into it once struck by natural disasters, critical illnesses and economic fluctuations. Re-poverty-stricken rate (or rate of return to poverty) is the proportion that the people who has lifted out of poverty fall back into poverty in an area over a specific period. Official data showed that 66.2 percent of the poverty-stricken population in 2008 was lifted out of poverty in 2009, while 50.5 percent of the impoverished population in 2009 was thrown back into poverty again (NBS, 2010). During the 11th Five-Year Plan (2006-2010) period, the re-poverty-stricken rate in northwest China reached at 15 to 25 percent, which is mainly caused by diseases (Yao and Xu, 2012).

Lastly, anti-poverty is a systematic project. The report of the 19th CPC National Congress pointed out that China has entered a new era. Despite this, China still faces the arduous task of tackling poverty, the large disparities between urban and rural development and the difficulties in employment, education, healthcare, housing, and elderly care. The remaining poor population in China has gradually gathered in remote deep rocky mountainous areas and the “island effect” of rural poverty is emerging (Liu *et al.*, 2016a; 2017). Fortunately, China attaches great importance to poverty alleviation and promises to win the battle against poverty. The 19th Party Congress report has stressed the importance of focusing on the task of poverty alleviation in deep poverty-stricken areas and put forward the strategy of rural revitalization [11]. The areas of deep poverty are mainly concentrated in Tibet area, Tibetan ethnic area in Sichuan, Yunnan, Gansu and Qinghai provinces, South Xinjiang area, Liangshan area of Sichuan province, Nujiang area of Yunnan province and Linxia area of Gansu province [12]. The country will continue to implement the targeted poverty alleviation strategy and attach importance to spiritual poverty reduction to ensure all rural residents living below the current poverty line being lifted out of poverty by 2020.

5. Conclusions and policy implications

China has entered a new period of relative poverty. The impoverished areas are still the short boards in China’s ambition of building an all-round well-off society until 2020 (Zhou *et al.*, 2017; Liu *et al.*, 2016b). Fixing the short-board for poor areas needs to constantly adjust strategies and countermeasures to adapt to the evolving social needs. Since the founding of new China, the Chinese government has always attached importance to rural development problems and adopted a series of rural reforms to promote poverty alleviation and development work. Overall, China’s antipoverty has mainly experienced six stages and realized the transformation from relief-type to development-oriented poverty alleviation. The accuracy of antipoverty has been increasing, and its effectiveness has become increasingly apparent. China’s antipoverty practices have formed a pattern of poverty alleviation with Chinese characteristics. The success of China’s poverty alleviation program has attracted global attention. China’s government-led antipoverty models, targeted poverty alleviation measures and innovations in antipoverty mechanisms will become a world model, which can provide a benefit reference for the world’s poorest countries. However, China’s targeted poverty alleviation work still face many challenges, i.e., accurate identification of the real poor, aged poverty, ecological protection, and rural hollowing or decline. New situation and problems emerge in an endless stream. Specific measures are suggested to adapt and respond to the emergence of a variety of complex new problems.

Firstly, the differentiated and targeted poverty alleviation strategy should be further developed and implemented. Due to the differences in natural condition, socioeconomic status, historical background and macro-regional policies, the causes and levels of poverty in rural China varies across regions. Targeted poverty alleviation should take into account the poverty-stricken population in both impoverished and

non-impooverished counties as well as poor and non-poor villages. Effective pro-poor strategies involve in individual, local and central initiatives. The central government needs to formulate scientifically the regional and differentiated anti-poverty planning. Local government should make full use of the late-developing advantages in poverty-stricken areas and deepen supply-side reform to improve the effectiveness of poverty alleviation and complete rural short board (Liu *et al.*, 2017). The individual level needs to fully tap its potential for development and the endogenous dynamic as well as avoid bad habits. Poverty alleviation needs to focus on spiritual poverty and to cultivate wisdom of the poor by education, which is an important way to cut off the intergenerational transmission of poverty.

Secondly, further poverty alleviation and development should focus on the deep poverty areas with a large population of extreme poverty. These areas are characterized by abominable living environment, fragile ecology and frequent natural disasters, complex causes of poverty, poor infrastructure and public services. It is necessary to identify the main causes of deep poverty and take the targeted measures for poverty alleviation. Relevant policies and funds should be inclined to the areas of deep poverty. Inclusive and special policies for poverty alleviation should be carried out. For the poor with a certain working capacity, the country can implement the capacity-building project or the vocational skill training to help them to improve self-developing ability. For the special poor groups without working capability (i.e., the elderly, the disabled, and the sick suffering from chronic diseases), social security systems are the last line of defense. For the impoverished villages or poor living in remote mountainous areas with fragile eco-system and frequent natural disasters, relocation to less poor areas may be required.

Thirdly, the construction of a well-off society in an all-round way should pay attention to both rural and urban poverty. With the concern about poverty in rural China, the problem of urban poverty has become increasingly prominent (Cheng *et al.*, 2002; Meng *et al.*, 2005). At present, there is no unified standard for the measurement of urban poor population in China. If using the international poverty line of \$1.90 a day as urban poverty line, the number of urban poor in China reached 3.68 million in 2013, accounting for 0.51% of the country's urban population [13]. Therefore, urban poverty reduction should be put on the agenda in the post-2020 anti-poverty policy in China.

Fourthly, China should insist on laying equal stress on ecological protection and poverty alleviation and development. The government needs to explore the establishment of system for payment-based resource use and compensation for ecological conservation in poor areas (Liu *et al.*, 2016a). The ex situ poverty alleviation relocation, as an important measure of targeted poverty alleviation strategy, should be based on adequate scientific research and planning and fully respect farmers' willingness. Infrastructure construction in poor areas should fully consider the local population structure and needs of economic development.

Fifthly, the role of export of labor services in poverty alleviation should be further emphasized. The migration of rural labor force into cities and towns contributes to the increase in household income and socioeconomic development as well as the

transformation of production and lifestyle in poor areas (Long *et al.*, 2016). In the field investigation, the income structure of poor households is mainly wage income (He, 2017). The wage income for migrant workers contributed obviously the poverty reduction (Luo, 2010; Long *et al.*, 2016). Therefore, it is critical to provide institutional support for the agriculture workforce to benefit in cities and make them urbanizing in the neighborhood and on the spot.

Lastly, researches on poverty geography and policy impact assessment should be strengthened. Poverty is a manifestation of the imbalance between human and land relations (Liu *et al.*, 2016; 2017). The first goal of the UN 2030 Agenda for Sustainable Development was to end extreme poverty by 2030 (Griggs *et al.*, 2013). The fifth Plenary Session of the 18th CPC central Committee set out the goal of realizing the impoverished counties all quit and solving the regional poverty by 2020 [14]. This goal is in line with the eradication of extreme poverty in the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) of the United Nations. To respond to the UN 2030 goal for sustainable development, China needs to strengthen the study of the geographical distribution of poverty, the causes and driving forces of poverty, the ways and effects of poverty alleviation, and the successful experience in poverty reduction. After all the poverty counties quit in 2020, the question on how to target the poverty reduction goals of the new round is worth studying in depth. These questions will provide opportunities and challenges for deepening the study of poverty geography.

Acknowledgement

This work was supported by the Major Program of National Social Science Foundation of China (Grant No. 15ZDA021), the Natural Science Foundation of China (Grant No. 41601172; 41371186), and the Certificate of China Postdoctoral Science Foundation Grant (Grant No. 2016M591105). Cordial thanks should give to two helpful and constructive reviewers whose comments greatly improved our manuscript.

Notes

1. The 17 sustainable development goals (SDGs) proposed by 2030 Agenda for Sustainable Development. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.
2. The determination and adjustment process of poor counties in China. <http://www.chinanews.com/cj/2014/01-26/5781982.shtml>.
3. The Outline of China Rural Poverty Alleviation and Development Program (2011-2020). http://www.gov.cn/jrzq/2011-12/01/content_2008462.htm.
4. The 14 contiguous poor areas with special difficulties include Liupan Mountain area, Wumeng Mountain area, South Xinjiang area, Lvliang Mountain area, Tibetan ethnic area in Sichuan, Yunnan, Gansu and Qinghai provinces, south area of Greater Khingan Mountains, Dabie Mountain area, Wuling Mountain area, border area in Western Yunnan, rocky desertification area in Yunnan, Guizhou and Guangxi provinces, Yanshan-Taihang Mountain area, Qinba Mountain area,

- Luoxiao Mountain area, and Tibet area.
http://www.gov.cn/gzdt/2012-06/14/content_2161045.htm.
5. Scheme of poverty alleviation filing cards work.
<http://www.scfpym.gov.cn/show.aspx?id=25605>.
 6. In 2016, the country reduced poverty by 12.4 million people.
http://economy.gmw.cn/2017-02/28/content_23851924.htm.
 7. Measures for assessing the effectiveness of provincial Party committees and governments in poverty alleviation and development.
http://www.gov.cn/xinwen/2016-02/16/content_5041672.htm.
 8. Opinions on the Establishment of a Poverty Quit Mechanism.
<http://www.scio.gov.cn/xwfbh/xwfbh/yg/2/Document/1476593/1476593.htm>.
 9. Health care for the poor is an important part of the fight against poverty.
http://www.sohu.com/a/101246722_148781.
 10. China pays more to farmers for preserving forests.
<http://www.globaltimes.cn/content/813816.shtml>.
 11. Full text of Xi Jinping's report at 19th CPC National Congress.
http://www.chinadaily.com.cn/china/19thcpcnationalcongress/2017-11/04/content_34115212.htm.
 12. Suggestions on support for poverty alleviation and hard work in deep poverty areas.
http://news.xinhuanet.com/politics/2017-11/21/c_1121990069.htm.
 13. PovcalNet: an online analysis tool for global poverty monitoring.
<http://iresearch.worldbank.org/PovcalNet/home.aspx>.
 14. Decision on winning the war on Poverty Alleviation.
http://www.gov.cn/xinwen/2015-12/07/content_5020963.htm.

References

- Alkire, S. and Foster, J. (2011), "Counting and multidimensional poverty measurement", *Journal of Public Economics*, Vol. 95 No. 7, pp. 476-487.
- Alkire, S., Roche, J.M. and Vaz, A. (2017), "Changes over time in multidimensional poverty: Methodology and results for 34 countries", *World Development*, Vol. 94 Vol. s1, pp. 232-249.
- Alkire, S. and Santos, M.E. (2014), "Measuring acute poverty in the developing world: Robustness and scope of the multidimensional poverty index", *World Development*, Vol. 59, pp. 251-274.
- Bai, X., Shi, P. and Liu, Y. (2014), "Realizing China's urban dream", *Nature*, Vol. 509 No. 7501, pp. 158-160.
- Bitler, M. and Hoynes, H. (2015), "Heterogeneity in the Impact of Economic Cycles and the Great Recession: Effects within and across the Income Distribution", *American Economic Review*, Vol. 105 No. 5, pp. 154-160.
- Bourguignon, F. and Chakravarty, S.R. (2003) "The measurement of multidimensional poverty", *Journal of Economic inequality*, Vol. 1 No. 1, pp. 25-49.

- Brown, P.H. and Park, A. (2002), "Education and poverty in rural China", *Economics of Education Review*, Vol. 21 No. 6, pp. 523-541.
- Bullock, H.E. (1999), "Attributions for Poverty: A Comparison of Middle-Class and Welfare Recipient Attitudes", *Journal of Applied Social Psychology*, Vol. 29 No. 10, pp. 2059-2082.
- Cao, M., Xu, D., Xie, F. and Liu, S. (2016), "The influence factors analysis of households' poverty vulnerability in southwest ethnic areas of China based on the hierarchical linear model: A case study of Liangshan Yi autonomous prefecture", *Applied Geography*, Vol. 66, pp. 144-152.
- Cao, S., Wang, X. and Wang, G. (2009), "Lessons learned from China's fall into the poverty trap", *Journal of Policy Modeling*, Vol. 31 No. 2, pp. 298-307.
- China Daily. (2016), Progress in poverty reduction and human rights. https://www.chinadaily.com.cn/opinion/2016-10/18/content_27090271.htm.
- Deng, W. (2014), "The difficulty, countermeasure and path choice of targeted poverty alleviation", *Rural Economy*, (In Chinese), No. 6, pp. 78-81.
- Department of Household Surveys of National Bureau of Statistics of China (NBS). (2016), "Poverty monitoring report of rural China 2016", China Statistics Press, Beijing, (In Chinese).
- Ding, C. (2003), "Land policy reform in China: assessment and prospects", *Land use policy*, Vol. 20 No. 2, pp. 109-120.
- Dong, X. (2010), "Research on the strategic turn of anti-poverty in rural areas. From a single development oriented poverty alleviation to a comprehensive anti-poverty program", *Social Security Research*, (In Chinese), No. 1, pp. 151-179.
- Du, Y., Park, A. and Wang, S. (2005), "Migration and rural poverty in China", *Journal of Comparative Economics*, Vol. 33 No. 4, pp. 688-709.
- Duclos, J.Y. Araar, A. and Giles, J. (2010), "Chronic and transient poverty: Measurement and estimation, with evidence from China", *Journal of Development Economics*, Vol. 91 No. 2, pp. 266-277.
- Fan, S., Zhang, L. and Zhang, X. (2004), "Reforms, investment, and poverty in rural China", *Economic Development and Cultural Change*, Vol. 52 No. 2, pp. 395-421.
- Fan, S., Zhang, L. and Zhang, X. (2002), "Economic growth, regional disparities and poverty: Rural public investment research in China", China Agriculture Press, Beijing, (in Chinese).
- Fang, C., Zhang, X. and Fan, S. (2002), "Emergence of urban poverty and inequality in China: evidence from household survey", *China Economic Review*, Vol. 13 No. 4, pp. 430-443.
- Foster, J.E. (1998). "Absolute versus relative poverty", *The American Economic Review*, Vol 88 No. 2, pp. 335-341.
- Foster, J., Greer, J. and Thorbecke, E. (1984), "A class of decomposable poverty measures", *Econometrica: Journal of the Econometric Society*, Vol. 52, No. 3, pp. 761-766.

- Gao, H., Wang, W. and Huang, C. (2003), “Research on poverty alleviation and development planning”, China finance and Economics Press, Beijing, (in Chinese).
- Glauben, T., Herzfeld, T., Rozelle, S. and Wang, X. (2012), “Persistent poverty in rural China: Where, why, and how to escape?”, *World Development*, Vol. 40 No. 4, pp. 784-795.
- Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Ohman, M.C., Shyamsundar, P., Steffen, W., Glaser, G., Kanie, N. and Noble, I. (2013), “Policy: Sustainable development goals for people and planet”, *Nature*, Vol. 495 No. 7441, pp. 305-307.
- Gu, Z. (2017), “Poverty alleviation cannot stay ‘dead corner’”, *People’s Daily*, , Access by September 27, 2017. <http://sd.people.com.cn/n2/2016/0918/c362710-29016064.html> (In Chinese).
- Guo, H. and Qiu, G. (2005), “Marginal trend and Countermeasures of financial investment on poverty alleviation in rural areas”, *Modern Economic Science*, (In Chinese) Vol. 27 No. 5 pp. 53-57.
- Guo, J. and Wu, G. (2012), “Multidimensional Poverty Measurement Based on different indicators and weight selection: a case study of poor counties in Shanxi province”, *China Rural Economy*, (In Chinese), No. 2, pp. 12-20.
- Gustafsson, B. and Zhong, W. (2000), “How and why has poverty in China changed? A study based on microdata for 1988 and 1995”, *The China Quarterly*, Vol. 164, pp. 983-1006.
- Haushofer, J. and Fehr, E. (2014), “On the psychology of poverty”. *Science*, Vol. 344 No. 6186, pp. 862–867.
- He, X. (2017), “Research on anti-poverty in rural China: Types, misunderstandings and countermeasures”, *Social Science*, (in Chinese) No. 4, pp. 57-63.
- Hu, A. and Li, C. (2001), “New poverty during the New Century: Knowledge poverty”, *Social Sciences in China*, (In Chinese) No. 3, pp. 70-81.
- Huang, C. and Tan, Z. (2015), “On the construction of poverty alleviation and national poverty alleviation governance system”, *Journal of Yanan Institute of Cadres, China*, (In Chinese) No. 1, pp. 131-136.
- Imai, K.S., Wang, X. and Kang, W. (2010), “Poverty and vulnerability in rural China: effects of taxation”, *Journal of Chinese Economic and Business Studies*, Vol. 8 No. 4, pp. 399-425.
- Irz, X., Lin, L., Thirtle, C. and Wiggins, S. (2001), “Agricultural productivity growth and poverty alleviation”, *Development Policy Review*, 2001, Vol. 19 No. 4, pp. 449-466.
- Jalan, J. and Ravallion, M. (1998), “Transient poverty in postreform rural China”, *Journal of Comparative Economics*, Vol. 26 No. 2, pp. 338-357.
- Jalan, J. and Ravallion, M. (2002), “Geographic poverty traps? A micro model of consumption growth in rural China”, *American Economic Journal-Applied Economics*, Vol. 17 No. 4, pp. 329–346.
- Jalan, J. and Ravallion, M. (2000), “Is transient poverty different? Evidence for rural China”, *The Journal of Development Studies*, Vol. 36 No. 6, pp. 82-99.

- Klasen, S., Krivobokova, T., Greb, F., Lahoti, R. and Pasaribu, S. (2016), "International income poverty measurement: which way now?", *The Journal of Economic Inequality*, Vol. 14 No. 2, pp. 199-225.
- Knight, J., Li, S. and Deng, Q. (2010), "Education and the poverty trap in rural China: Closing the trap", *Oxford Development Studies*, Vol. 38 No. 1, pp. 1-24.
- Lau, L., Qian, Y. and Roland, G. (2000), "Reform without losers: An interpretation of China's dual-track approach to transition", *Journal of Political Economy*, Vol. 108 No. 1, pp. 120-143.
- Li, Y. (2016), "Geographers have presided over the major tasks of the third-party evaluation of the National Precision poverty alleviation". *Acta Geographica Sinica*, (In Chinese) Vol. 71 No. 7, pp. 12.
- Li, X. (2013), "Issues on the governance of rural poverty alleviation strategy in China", *Guizhou Social Sciences*, (In Chinese), Vol. 7, pp. 101-106.
- Li, Y, Su, B. and Liu, Y. (2016), "Realizing targeted poverty alleviation in China: People's voices, implementation challenges and policy implications", *China Agricultural Economic Review*, Vol. 8 No. 3, pp. 443-454.
- Lin, J., Cai, F. and Li, Z. (1998), "Competition, policy burdens, and state-owned enterprise reform", *The American Economic Review*, Vol. 88 No. 2, pp. 422-427.
- Lin, J. (1990), "Collectivization and China's agricultural crisis in 1959-1961", *Journal of Political Economy*, Vol. 98 No. 6, pp. 1228-1252.
- Lin, J. (1992), "Rural reforms and agricultural growth in China", *The American economic review*, Vol. 82 No. 1, pp. 34-51.
- Liu, Y. and Li, J. (2017), "The geographical exploration and optimization decision of the mechanism of poverty differentiation in rural areas of China", *Acta Geographic Sinica*, (In Chinese) Vol. 72 No. 1, pp. 161-173.
- Liu, Y. and Li, Y. (2017), "Revitalize the world's countryside", *Nature*, Vol. 548 No. 7667, pp. 275-277.
- Liu, Y., Long, H. and Chen, Y. (2011), "Research report on rural development in China: Hollowed village and its renovation strategy", Science Press, Beijing, (In Chinese).
- Liu, Y., Liu, J. and Zhou, Y. (2017), "Spatio-temporal patterns of rural poverty in China and targeted poverty alleviation strategies", *Journal of Rural Studies*, Vol. 52, pp. 66-75.
- Liu, Y., Liu, J. and Zhou, Y. (2016a), "Regional differentiation characteristics of rural poverty and its targeted poverty alleviation strategy in China", *Bulletin of the Chinese Academy of Sciences*, (In Chinese) Vol. 31 No. 3, pp. 269-278.
- Liu, Y., Long, H., Chen, Y., Wang, J., Li, Y., Li, Y., Yang, Y. and Zhou, Y. (2016b), "Progress of research on urban-rural transformation and rural development in China in the past decade and future prospects", *Journal of Geographical Sciences*, Vol. 26 No. 8, pp. 1117-1132.
- Liu, Y., Lu, S. and Chen, Y. (2013), "Spatio-temporal change of urban-rural equalized development patterns in China and its driving factors", *Journal of Rural Studies*, Vol. 32, pp. 320-330.

- Long, H., Tu, S. and Ge, D. (2016), “Effects of New-type urbanization on poverty alleviation and development and corresponding countermeasures”, *Bulletin of Chinese Academy of Sciences*, (In Chinese) Vol, 31 No. 3, pp. 309-319.
- Long, H., Liu, Y., Li, X. and Chen, Y. (2010), “Building new countryside in China: A geographical perspective”, *Land Use Policy*, Vol. 27 No. 2, pp. 457-470.
- Liu, Y., Wang, J. and Deng, X. (2008), “Rocky land desertification and its driving forces in the karst areas of rural Guangxi, Southwest China”, *Journal of Mountain Science*, Vol. 5 No. 4, pp. 350–357.
- Liu, Y. and Xu, Y. (2016), “A geographic identification of multidimensional poverty in rural China under the framework of sustainable livelihoods analysis”, *Applied Geography*, Vol. 73 No. , pp. 62-76.
- Long, H., Zou, J., Pykett, J. and Li, Yurui. (2011), “Analysis of rural transformation development in China since the turn of the new millennium”. *Applied Geography*, Vol. 31 No. 3, pp. 1094-1105.
- Luo, C. (2010), “Poverty dynamics in rural China”, *Economic Research Journal*, (In Chinese) Vol. 5, pp. 123-138.
- MacInnes, T., Aldridge, H., Bushe, S. and Kenway, P. (2013), “Monitoring poverty and social exclusion 2013”, York: Joseph Rowntree Foundation and The New Policy Institute.
- Madden, D. (2000), “Relative or absolute poverty lines: a new approach”, *Review of Income and Wealth*, Vol. 46 No. 2, pp. 181-199.
- Mani, A., Mullainathan, S., Shafir, E. and Zhao, J. (2013), “Poverty impedes cognitive function”, *Science*, Vol. 341 No. 6419, pp. 976-980.
- McCulloch, N. and Calandrino, M. (2003), “Vulnerability and chronic poverty in rural Sichuan”, *World Development*, Vol. 31 No. 3, pp. 611-628.
- Meng, L. (2013), “Evaluating China's poverty alleviation program: A regression discontinuity approach”, *Journal of Public Economics*, Vol. 101, pp. 1-11.
- Meng, X., Gregory, R. and Wang, Y. (2005), “Poverty, inequality, and growth in urban China, 1986–2000”, *Journal of Comparative Economics*, Vol. 33 No. 4, pp. 710-729.
- Miao, Q. and Zhong F. (2006), “Changes in China's rural poverty and policy orientation of poverty alleviation”, *China Rural Economy*, (In Chinese), Vol. 12, pp. 55-61.
- Montalvo, J.G. and Ravallion, M. (2010), “The pattern of growth and poverty reduction in China”, *Journal of Comparative Economics*, Vol. 38 No. 1, pp. 2-16.
- Nasser, R. (2007), “Does subjective class predict the causal attribution for poverty”, *Journal of Social Sciences*, Vol. 3 No. 4, pp. 197-201.
- National Bureau of Statistics (NBS). (2015), “National Report on Migrant Worker Monitoring and Survey 2014”. [2015-04-29]. http://www.stats.gov.cn/tjsj/zxfb/201504/t20150429_797821.html, (In Chinese)
- Park, A. and Wang, S. (2010), “Community-based development and poverty alleviation: An evaluation of China's poor village investment program”, *Journal of Public Economics*, Vol. 94 No. 9, pp. 790-799.

- Park, A., Wang, S. and Wu, G. (2002), "Regional poverty targeting in China", *Journal of Public Economics*, Vol. 86 No 1, pp. 123-153.
- Park, A. and Wang, S. (2001), "China's poverty statistics", *China Economic Review*, Vol. 12 No. 4, pp. 384-398.
- Rogers, S. (2014), "Betting on the strong: Local government resource allocation in China's poverty counties", *Journal Rural Studies*, Vol. 36, pp. 197-206.
- Rural Survey Department of National Bureau of Statistics (NBS). (2010), "Poverty monitoring report of rural China 2010", China Statistics Press, Beijing, (In Chinese).
- Sachs, J. (2008), "The end of poverty: economic possibilities for our time", *European Journal of Dental Education*, Vol. 12, pp. 17-21.
- Sen, A (1976), "Poverty: an ordinal approach to measurement", *Econometrica: Journal of the Econometric Society*, Vol. 44, No. 2, pp. 219-231.
- Tollefson, J. (2015), "Can randomized trials eliminate global poverty?" *Nature*, Vol. 524 No. 7564, pp. 150-153.
- Tong, X. and Lin M. (1994), "Study on standard line of rural poverty in China", *Social Sciences in China*, (In Chinese), Vol. 3, pp. 86-98.
- United Nations Development Programme. (2016). Human Development Report 2010. <http://hdr.undp.org/en/2016-report>.
- United Nations (UN), (2015), "The Millennium Development Goals Report 2015", New York.
- Wagle, U. (2002), "Rethinking poverty: Definition and measurement", *International Social Science Journal*, Vol. 54 No. 171, pp. 155-165.
- Wang, S. (2016), "Precision poverty relief: China's new anti-poverty strategy", China Pictorial, Beijing, (In Chinese).
- Wang, S. and Guo, Z. (2015), "On the precision poverty alleviation in China", *Guizhou Social Sciences*, (In Chinese), Vol. 5, pp. 147-150.
- Wang, S. (2007). "Rural poverty alleviation and village poverty targeting in the new period of China", *Management World*, (In Chinese), Vol. 1, pp. 56-64.
- Wang, X. and Alkire, S. (2009), "Multidimensional measurement of poverty in China: Estimation and policy implications", *Chinese Rural Economy*, (In Chinese) No.12, pp. 4-10.
- Wang, X., Shang, X. and Xu, L. (2011), "Subjective Well-being Poverty of the Elderly Population in China", *Social Policy & Administration*, Vol. 45 No. 6, pp. 714-731.
- Wang, X. (2009), "Multidimensional Poverty Measurement in China: estimates and policy implications", *Chinese Agricultural Economy*, (In Chinese), Vol. 12, pp. 4-10.
- Wang, X. (2016). "Poverty measurement: Theories and methods (Second Edition). Beijing: Social Science Literature Press, (In Chinese).
- Ward, P.S. (2016), "Transient poverty, poverty dynamics, and vulnerability to poverty: An empirical analysis using a balanced panel from rural China", *World Development*, Vol. 78, pp. 541-553.

- World Bank Group. (2017), “World Development Indicators 2017”. World Bank, <http://data.worldbank.org/wdi>.
- Xu, Y., Liu, F. and Zhang, X. (2007), “Reflection on China’s rural antipoverty policies: Transition from social assistance to social protection”, *Social Sciences in China*, (In Chinese) No. 3, pp. 40-53.
- Yan, K. (2015), “Poverty alleviation in China: A theoretical and empirical study”, Springer.
- Yang, X. (2013), “China's rapid urbanization”, *Science*, Vol. 342 No. 6156, pp. 310-310.
- Yang, Z.S., Liu, Y.S., Bao, G.J., Li, Z.G. and He, Y.M. (2006), “Rehabilitation and sustainable use pattern of rocky-desertified land in Southwest China’s poverty-stricken Karst mountainous areas”, *Journal of Mountain Science*, Vol. 3 No. 3, pp. 237–246.
- Yeo, R. and Moore, K. (2003), “Including disabled people in poverty reduction work: Nothing about us, without us”, *World Development*, Vol. 31 No. 3, pp. 571-590.
- Yu, J.T. (2013), “Multidimensional poverty in China: Findings based on the CHNS”, *Social Indicator Researches*, Vol. 112 No. 2, pp. 315–336.
- Yu, J. (2016), “The support system of asset returns: precise poverty”, *Red Flag Manuscript*, (In Chinese) No.2, pp. 19-21.
- Zhang, K., Dearing, J.A., Dawson, T.P., Dong, X., Yang, X. and Zhang, W. (2015), “Poverty alleviation strategies in eastern China lead to critical ecological dynamics”, *Science of The Total Environment*, Vol. 506-507, pp.164-181.
- Zhang, W. and Wang, S. (2013), “Poverty alleviation policy, income distribution and poverty reduction in rural China”, *Issues in Agricultural Economy*, (In Chinese) No.2 pp. 66-75.
- Zhang, Y. and Wan, G. (2006), “The impact of growth and inequality on rural poverty in China”, *Journal of Comparative Economics*, Vol. 34 No. 4, pp. 694–712.
- Zhou, Y., Guo, Y., Liu, Y. and Li, Y. (2017), “Targeted poverty alleviation and land policy innovation: Some practice and policy implications from China”, *Land Use Policy*, DOI:10.1016/j.landusepol.2017.04.037.
- Zhou, Y., Li, N., Wu, W., Wu, J. and Shi, P. (2014), “Local spatial and temporal factors influencing population and societal vulnerability to natural disasters”, *Risk Analysis*, Vol. 34 No. 4, pp. 614-639.
- Zhou, Y., Liu, Y., Wu, W. and Li, N. (2015), “Integrated risk assessment of natural hazards in China”, *Natural Hazards*, Vol. 78 No. 1, pp. 257-280.