Study on Land Consolidation and Rural Sustainable Development in China

Ge He, Abraham Tezera Gessesse*
College of Management, Sichuan Agricultural University, China, 611130
* Corresponding author

Keywords: Land consolidation, land fragmentation, land tenure, sustainable rural development, China

Abstract. Under rapid industrialization and urbanization, Land consolidation is an effective land management tool used to achieve sustainable development in China. This paper designed to reveal the key issues of rural sustainable development and explain how to land consolidation affect rural sustainable development in China and put forward some policy suggestion. We found that land property, land-use change, land fragmentation, labor force migration, and urban-rural inequality are the key factors that affect rural sustainable development in China. So, we suggest that policymakers should strength land registration and certification to provide a more reliable land property. At the same time promoting mortgage and land use transfer right of contracted land is crucial.

1. Introduction

The last 40 years saw China's rural economy has experienced rapid growth with approximately 10 percent on average annually. The per capita net income of rural residents increased from 133.57 in 1978 to 25973.2 Yuan in 2018. Institutional arrangements determine institutional performance. In 1978, China carried out a policy of opening up to the outside world and reform at home. In the field of agriculture, China abolished the people's commune system and began to implement the household contract responsibility system. There is no doubt that the household contract responsibility system has played an important role in improving agricultural production capacity in the early years. From 1978 to 2010, China's total grain output increased from 304.765 million tons to 559.113 million tons, an increase of 0.83 times; from 2010 to 2017, the total grain output increased from 559.113 million tons to 661.607 million tons, only an increase of 0.18 times. Because the household contract responsibility system not only requires an average of the number of agricultural lands but also requires an average of the quality of land, which has also harmed land tenure security, aggravate farmland fragmentation and production inefficiency later. Similarly, as the market economy grew rapidly the system cannot compete with the situation because land ownership remains in collectives and states while farmers cannot transfer their land use right. This caused a lack of long-term investment inland. On the other hand, With the rapid development of the rural economy, the protection of rural land, especially arable land, is facing new challenges. A total of 3.49 million ha of cultivated land were used for new construction land between 2002 and 2010, which means about 200,000 ha of cultivated land were lost annually during this period. Generally, these situations have attracted many scholars from all the politicians, policymakers, and academicians in the last three decades. To tackle rural challenges and problems and to enhance land tenure security, China's government introduces and implements different land policies, regulations, strategies, and programs at a different time. For example, the central government announces Rural Land Contract Law extends the land tenure period from 15 years to 30 years in the late 1980s and early 1990s. Comprehensive Agricultural Development launched in 1998. In 2005, the Ministry of Land and Resources of China announce an innovative land management policy, known as the 'Increasing Vs Decreasing Balance' land-use policy. However, there are also some dissonances from the grassroots in the process of implementing this innovative land management policy. In particular, due to neglect of villagers' will, events of forced evictions often happened and many farmers lost their housing land and were forced to live in a high rise building and thus caused resentment and
hindered local socio-economic development in the long run. The other land management strategy is to balance urban-rural development "Building New Countryside" strategy also implemented to secure advanced production, improve livelihood, clean and tidy villages, civilized social atmosphere and efficient management of land. Therefore, to overcome these challenges and problems under rapid industrialization and urbanization, it is necessary to carry out land consolidation, which is a spatial problem-solving land management instrument that attempts rural spatial restructuring. Land consolidation is one of the most important elements for helping to solve the structural problems in agriculture and agricultural production and many international advisors and consultants recommend land consolidation used as a "secret weapon" for economic growth and shared the wealth (Thomas, 2006). As far as the research results are concerned, although there are many works of literature on the topic of land consolidation, few works of literature documented the key issues and policy suggestions were put forward. Because of this, this paper analyses the key issues on land consolidation in China before some policy recommendations are given based on the existing research results. This paper unfolds as follows: section II reviews existed works of literature to introduce some viewpoints of similar topics. Section III analyses the key issues of land consolidation in China. Section IV puts forward some policy suggestions Section V concludes.

2. Literature Review

Land consolidation (LAND CONSOLIDATION) is the redistribution of land in a particular locality aiming to achieve an optimal land tenure structure to facilitate rural agricultural development (King and Burton, 1983). Land Consolidation primarily focused on the creation of competitive agricultural production, by enabling farmers to have larger and better-shaped fields, environmental protection, landscape protection, village renewal, regional projects (Vitikainen, 2004). The general objectives of land consolidation are to improving the production and working conditions in agriculture and forestry as well as promoting the general use and development of land and rural areas by rearrangement of agricultural land (Thomas, 2005). These objectives are pursued by land exchanges between real estate generally without changes of ownership or users of the land. In addition to actual land exchanges, improvement of the road and drainage network, different building, environmental management and conservation projects, and other functions necessary for the objectives may be implemented. Land consolidation is one of the most important elements for helping to solve the structural problems in agriculture and agricultural production and many international advisors and consultants recommend land consolidation used as a "secret weapon" for economic growth and shared the wealth. The above literature provides a useful reference for us to carry out this research but there are few works of literature concentrate on the key issues and policy suggestions on land consolidation in China. Because of this, this paper aims at exploring the key issues and putting forward some policy suggestions.

3. Current Issues and Challenges in Rural China

3.1. Land Tenure Insecurity

According to China's Constitution and Land Resource Management Law, the land resources in the urban region are owned by the state while in a rural region the land resources are owned by the collective economic organization. Therefore, individual farmer households obtained only land-use rights for thirty years in the scope of the law (of course, according to the current policy, the land use right of farmers can be extended after 30 years, they cannot sell their land-use rights. According to the current policy, if the farmer can find a stable job in the town, he can withdraw from the farmland management and return the land use right to all the rural collective economic organizations). According to the current laws and regulations, the state may expropriate rural collective land according to law due to the needs of public interests. However, as the state does not clearly define the public interest new construction land is obtained by land acquisition. So land acquisition and readjustment of farmer's land in China by local collective officials or states are a major threat to the security of farmers' land rights. On the other hand, due to the state's unreasonable
provisions on compensation for land acquisition, it is difficult for land acquisition to give fair compensation to farmers on the ground through market-oriented means. These adjustments entail changing farmer's land in size or location, without or with unaffordable compensation. This an increasing percentage of farmers losing their lands for non-agricultural purposes especially for urban expansion and construction development (highways, railways, airports) land takings by the local government are common in China. This leads to land tenure insecurity, an obstacle to long-term investment and production inefficiency as well as hindering food security in rural areas. Therefore, the National amendment of land tenure system with effective land management tool in rural areas of China is crucial.

3.2. Land Use Change

The data from NBS showed that agricultural lands had decreased by 124.8 million mu and grasslands by 2.08 trillion mu between 2005 to 2010 and 2005 to 2013, respectively. The loss of agricultural land threatens the grain security of the whole country while excessive control of urban expansion can also have adverse effects on the development of industrialization and urbanization. Between 1995 and 2005 the buildup of new industrial and mining areas, and urban areas had increased by 13.69 million mu and 6.8 million mu, respectively. The average farm plot size in China estimated between 0.4 to 1.2 hector and the average area of cultivated land managed by rural household per capita is very low as compared to world average landholding per capita. Between 1995 and 2003 the average cultivated land managed per capita was decreased even the amount of cultivated land increased from 94.9 million ha to 130 million ha which is by 35 million ha at a country level. The result indicated that there is land re/distribution, land fragmentation and cultivated land took off for a non-agricultural purpose such as for urban construction and development, and industrialization. The national per capita landholding is 2.57 mu during 2012. In most of the provinces, per-capita landholding is below the national average. Especially, in the fast-growing industrialization and urbanization provinces Beijing, Shanghai, Jiangsu, Fujian, Zhejiang, Guangdong-Hainan, Chongqing, Sichuan, and Guizhou the per capita landholding in are below 1.5 mu. The data shows that in 1978, the cultivated land area of Sichuan Province was 4.991 million hectares. In 2013, it was reduced to 3993800 hectares. The per capita cultivated land area also decreased from 0.07 ha to 0.04 ha.

3.3. Land Fragmentation

Land fragmentation is a major problem in China caused by the supply side driving forces which refer to institutional reasons or laws such as inheritance, demographic factors, and land reforms, and the demand side driving forces refer to voluntary land fragmentation due to farmers' production needs. These harm the high cost of production, a low grain of production efficiency, and hinder the use of agricultural mechanization. Land fragmentation causes a loss of farmland area due to the use of land for marking boundaries and foot-road, and low efficiency in irrigation water management because of the irregular shape of numerous plots. It also causes more time lost in travel and inconvenience in agricultural management. Fragmentation of landholdings is commonly regarded as a major obstacle to agricultural productivity growth in China. The small scale farm uses more laborer per unit area, it is labor-intensive. As the cost of input and labor increases, small scale farmers will be affected and land production capacity also decreased. Therefore, reshaping and readjustment of these fragmented lands to better shape and large size is required to improve per capita landholding and production efficiency of the land as well as to sustain rural development.

3.4. Labor Force Migration

One of the main challenges of rural sustainable development in many countries is internal (within the country) and external (outside the country) labor force migration (FAO, 2003). China has faced the largest number of internal labor migration in world history for the last three decades. The urban population grew by 440 million to reach 622 million in 2009 (Chan, 2010) and 697 million by the end of 2013 (NBS, 2014). The development of off-farm opportunities has drawn millions of rural laborers from their land to non-agricultural sectors in China. According to China Daily (2014) press news, the number of China's migrant workers from rural regions in 2013 reached almost 270 million, which accounted for 45 percent of the total workforce in rural areas. Meanwhile,
170 million migrant workers spent more than six months outside their hometowns. Recently, more and more rural farmers see agriculture as a secondary job and no longer attach importance to growing crops as they used to. Many farmland users were forced to withdraw from agriculture then a significant proportion of arable land is idle because of obstacles to cultivating and the absence of the present land uses. Moreland was rented out in villages where a larger portion of households derives their income predominantly from non-agricultural sources. Increasing off-farm employment opportunities in rural and urban areas induces labor reallocation from farm to off-farm activities. Besides heterogeneity in the household land, labor endowments and human capital also create demand for land transfers.

3.5. Urban-Rural Inequality

There is a growing inequality between rural and urban areas in China. The unbalanced development between urban and rural areas has a great impact on the social and economic lives of residents. Much rural area infrastructures have aged and deteriorated and become less attractive to live. The main reason for widening the urban-rural inequality is lack of government attention to rural areas, less competitive small-scale farming system, fragmented and unsuitable to manage farmlands, high price of farm inputs (labor, fertilizer and pest control), lack of agricultural types of machinery and infrastructure (irrigation and drainage systems, roads) and natural disaster this leads to reduction of agricultural productivity and high number of rural to urban migration as well as widening per capita income. According to the data from China Statistical Yearbook (2014), in 1978, the disposable income of urban residents in China was 343.4 Yuan, while the per capita net income of rural residents was 133.6 Yuan. The disposable income of urban residents is 2.5 times the per capita net income of rural residents. In 2013, the disposable income of urban residents in China was 26955.1 Yuan, while the per capita net income of rural residents was 8895.9 Yuan. The disposable income of urban residents is 3.0 times the per capita net income of rural residents.

China's urban-rural development was "Unbalanced" and China still faces many difficulties and problems in its economic and social development. Based on the Gini-coefficient which is the mathematical measurement used to measure inequality of population, China's level of income inequality increased from 0.3 in the early 1980s to more than 0.45 in 2011. Gini approaching 0.5, China's level of income inequality is in the same ballpark as that of relatively high inequality Latin America countries such as Mexico (0.51), Nicaragua (0.52), and Peru (0.48), although lower than Brazil and Hondurans which are 0.56 and 0.57, respectively. Therefore, improving the agricultural working condition and creating clean and tidy villages is important to improve agricultural production and attract the living condition and well as to optimize inequality rather than small-scale fragmented farming system and creating of unplanned hallow villages.


Land consolidation is one of the most important tool which is carried out from simple rearrangement of fragmented farming parcels to more sophisticated and complex rural development such as building irrigation and drainage system, flood and erosion control, landscape and ecology protection, water supply and electricity, constructing roads as well as creating clean and tidy village to improve the working and living circumstances towards sustainable rural development. Land consolidation also includes the improvement of land quality and machinery access for readjustment of crop structure for better rural land and labor productivity and improve rural employment and improve the rural living condition at all as well as national economic growth. Land Consolidation has a positive implication on national GDP and ensures future economic development sustainably. Therefore, Land Consolidation could be an important approach/tool for sustainable rural development and spatial restructuring for the city and countryside unification. In August 1998 the Law of Land Administration of the People's Republic of China amended Article 41: Chapter 4: Protection of cultivated land: stated that "The State encourages Land Consolidation. People's governments of counties and townships (towns) shall organize rural collective economic organizations to carry out comprehensive consolidation of fields, water surface, roads, woods and villages according to the general plans for the utilization of land to raise the quality of cultivated
land and increase areas for effective cultivation and improve the agricultural production conditions and ecological environment. Local people's governments at all levels shall adopt measures to ameliorate medium and low yielding land and consolidate idle and scattered and abandoned the land." Then after China plans a land consolidation program in the Five Year Strategic Plan. According to Wang et al. (2014) during the first decade, the 10th and 11th Five Year Strategic Plan of the project implementation 2.8 million ha of farmland was supplied and 13.3 million ha farmland with high and stable productivity was finally built through carrying out land consolidation. During the 12th Five-Year Plan (2011 to 2015) China had plan to construct 26.67 million ha high-quality farmland to ensure national grain security and consolidate, 0.3million ha rural residential land to rationalizing rural settlement, to supply new 2.64 million ha of cultivated land by consolidation 1.19 million ha from agricultural land, to reclaim 0.4 million ha damaged land and 1.05 million ha from unused land suitable for cultivation (Li et al., 2014). Still, there is a long way ahead for land consolidation plan expected during the 13th Five-Year Plan (2016 to 2020) to achieve food security and to sustain rural development socially, economically and environmentally. However, the land consolidation program is not gone as expected due to many obstacles as we discussed section three. Therefore, the aim of this section is how to land consolidation be an effective tool for sustainable rural development of China. On the other hand, through the improvement of rural infrastructure, rural land consolidation has changed the conditions of agricultural production, which not only makes agricultural mechanization possible but also increases agricultural production. Not only that, but rural land consolidation also makes the rural environment greatly improved, and meets the needs of rural residents to live and travel conveniently. Finally, rural land consolidation increased the area of agricultural land by improving the degree.

5. Land Consolidation and Land Tenure Security

Land consolidation and land tenure are components of land reform that are concerned about the protection and efficient use of rural land to maximize the production of a given land. Land reform is a framework on how to land utilized and managed under certain laws and regulations. Land tenure is the legal right of land which individual landowners lease, assign or mortgage as well as transfer their use right. As we discussed in section three the land resource in urban owned by the state government and the rural land is owned by collective economic organizations and sometimes belongs to the state. Individual landholders have only land use right they can't lease, assign, or mortgage as well as transfer their use right to other potential farmers. This discourages long-term investment and uncompetitive agricultural production. One of the preconditions for land consolidation program implementation is securing private property rights of their contracted land use and establishment of a legislative body. At the same time building land title and registration. Land mortgage: prohibition of mortgage land in China leads to fragmentation and discontinues the size and shape of farmland which hinders the utilization of modern agricultural mechanization and long-term investment in land and thereby impeding agricultural production inefficiency. However, mortgage land allows quite poor farmers to get a loan from local banks to invest in their farm and better production. Market-based transfer of land is an ultimate choice to China to improve production efficiency and welfare through hi-tech adoption Land leasing: is the enlarging of farm area of an individual farm through the transfer of use right for a defined period in terms of cash or kind. It is an effective tool to eliminate land fragmentation and appearance of LAND CONSOLIDATION as well as create an opportunity for increased production and income for the leasing farmers and increasing farm equipment per farm. At the same time, the lessee farmers accumulate wealth by leasing their farmland to potential users. Moreland was rented out in villages where a larger portion of households derives their income predominantly from non-agricultural sources. Recently, land leasing and mortgage the key agenda of China's government to encourage the land consolidation program. by the end of June 2013, 380 million mu rural arable land had been transferred and consolidated to higher production schemes. Land leasing and mortgage through liberal legislation, information campaigns, and government incentives should, therefore, to promote to reduce land fragmentation, increase investment in land, and develop agricultural mechanization
as well as to appear land consolidation, as a result, land productivity and farmers income increased.

6. Conclusions and Policy Implications

After abandoned the less efficient collective farming system and introduced HRS China's agricultural production output grew almost by double and escape hundreds of thousands of rural people from poverty. However, rural development hampered by different obstacles such as farmland fragmentation, land tenure insecurity, soil erosion, land use land cover change, high input cost, rural labor force migration, which seriously affect the production efficiency. This is further exacerbated by a large amount of idle farmland, low per capita landholding, declining arable land area for urbanization and industrial development, and female and aging farmers, as the same time, farmers permitted to lease, assign or mortgage their land-use right which has quite a long time to raise concerns over rural China's food security and urban-rural development inequality.

To overcome these problems and to maintain 1.82 billion mu farmland sustainably China's government plan five years strategic plan of land consolidation after the establishment of land consolidation since 1998. However, the land consolidation program has faced many obstacles due to lack of grassroots awareness creation, lack of community participation, lack of technical standard, lack of managerial, and monitoring and evaluation system as well as land tenure insecurity. An integrated and participatory, bottom-up approach and multidisciplinary land management tool are required for sustainable rural development. land consolidation is the ultimate choice for China's sustainable rural development. Land consolidation is a scientific special problem-solving land management instrument/procedure aiming to optimize land and labor productivity, to improve space for building modern clean and tidy townships/villages by adjustment especially fragmented and unused lands by reshaping with the socio-economic structure to realize urban-rural integration development. Therefore, land registration and certification are the first steps to be done because it provides reliable property information of the land and contracted user. At the same time promoting mortgage and land use transfer right of contracted land is crucial. This is to increase forms land tenure security and improve long-term investment inland.

Acknowledgment

This paper is sponsored by Sichuan provincial Soft Science 2018 Project (No.18RKX0774).

References