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Title of paper

Land Consolidation in China - A critical Review

Abstract

China's growth, after the early years, has been built on industrial development in a model of unbalanced growth. This has left the rural areas trailing urban areas in development. Rural residents earn less than urban residents, have inferior physical infrastructure, and suffer poor basic amenities. These disparities have led to extensive rural-urban migration. This migration, by leaving residences unoccupied, has exacerbated inefficiencies in rural land use. The Chinese government correctly perceives the need to redress this challenge, and sees land consolidation as the appropriate approach not only to rationalize land use but also as an important component of rural development. This approach, together with a number of consolidation models, has been endorsed by many scholars. While we agree that reducing inefficiency in land use is an important policy objective in its own right, our review shows the current approach by the government suffers from major deficiencies.....

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Key words (up to six)

Income Inequality; Migration; Rural Land Consolidation; Rural Development.

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Land Consolidation in China - A Critical Review

1. Introduction

Since the initiation of reform in China in 1978, major economic achievements can be witnessed. Agriculture had been the early growth driver but has subsequently played a secondary role in supporting the growth of the urban economy, while sacrificing some opportunities for rural development. The result has been increasing disparities between urban and rural area (Long, Tang, Li & Heilig, 2007). At the same time, the rural development has been viewed solely in terms of bettering the economic condition of farmers (Cloke, 2006; Korf and Oughton, 2006).

Widening disparities between rural and urban areas have been accompanied by uneven access to social welfare services and unrecorded rural-urban migration, posing obstacles to sustainable growth of China's economy (World Bank, 2009). Triggered by the pursuit of job opportunities and better living conditions, the inflow of rural inhabitants to urban centers has added to pressures to city accommodation. Township and village enterprises (TVEs), the growth of which was abetted by the central government at the very time when rising agricultural productivity began to produce rural labor surplus,

were able to create employment opportunities to migrants for a time and prevented their marginalization from mainstream economic activity. Over time, however, the efficacy of TVEs has also declined. These developments are set against China's need to embrace a new strategy of sustainable economic growth (Golley and Song, 2010). Failure to reform the rural economy threatens this strategy.

Land is a vital resource that can drive economic development. In pursuing sustainable growth, the central government's rural development strategy is to strengthen traditional rural industries, improve employment opportunities, enhance the accessibility of local transport systems, and enrich the lives of the rural population. (Liu, 2007) These improvements will increase rural productivity, contribute to reducing urban-rural economic disparities and curtail somewhat rural out-migration. In addition, the threat of food security requires attention to optimizing the use of the rural land resource. Land consolidation has been identified by the Chinese government as a strategy that can cater to rural industrialization and residence while freeing up as much land as possible for agriculture, again with an eye on productivity.

This paper examines the role of land consolidation in contributing to the Chinese government's objective of sustainable and balanced growth of the economy. It has been argued that land consolidation represents an effective rural development strategy to achieve these objectives ([Bonner, 1987](#); [Yan et al., 1998](#); Dijk, 2002; Weiss and Maliene, 2004; Maliene et al., 2005; [Woods, 2005](#); Gao, 2005; Long et.al, 2009; Long et.at, 2012). The government also endorses this view through a number of policy announcements ("Land Administration Legislation" in 1986; "10-year land consolidation plan" in 1999; "Suggestions for Planning and Management of Land Development and Consolidation" in 2002; "11th five-year plan and "New Rural Construction" in 2005 and "Increasing vs. Decreasing Balance land use policy" in 2010). We argue that this optimism may be misplaced.

In the next section, we review the challenges posed by the current mode of economic development to the economy in general and the rural economy in particular. Section 3 looks at the current land use condition. Section 4 documents the government's policy on land consolidation and the models used. Section 5 analyzes the efficacy of these policies in relation to their objectives. Section 6 concludes with several recommendations.

2. The Rural Economy under Reform: Issues and Challenges

The economic reform in 1978 in which the eastern coastal areas of China were first opened up sowed the seeds of widening disparities and was made worse by inadequate attention to rural reform. Official statistics (National Bureau of Statistics of China 2010) show disposable rural income increased from 133.6 Yuan in 1978 to 5919.0 Yuan in 2010, more than doubling every year. However, Zhejiang, Guangdong, Jiangsu, Fujian and Shandong, the earliest to be opened up, had the highest average rural incomes (Table 1) while in these provinces, the increase in rural income was less than in urban income. This disparity in development can also be witnessed in China as a whole (Fig.1).

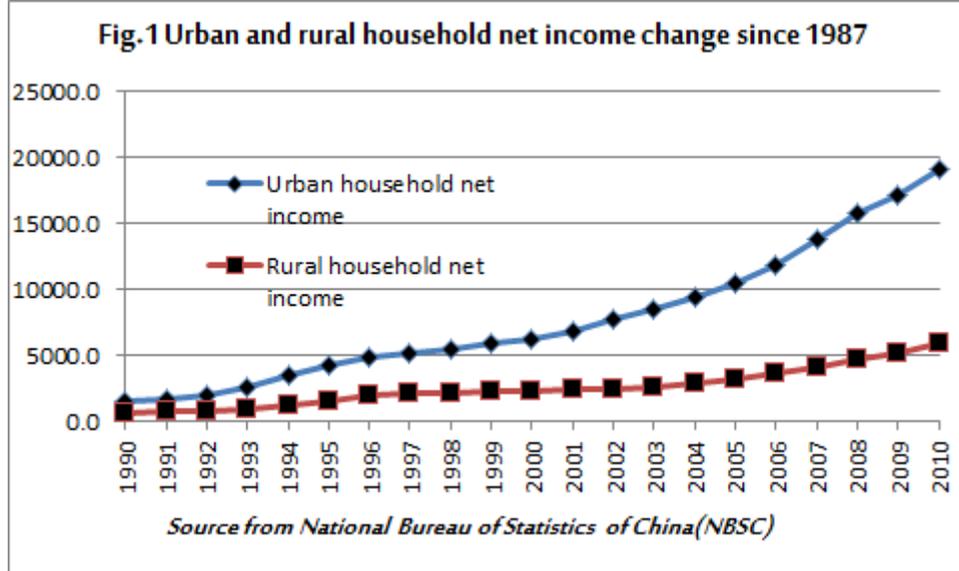


Table 1:

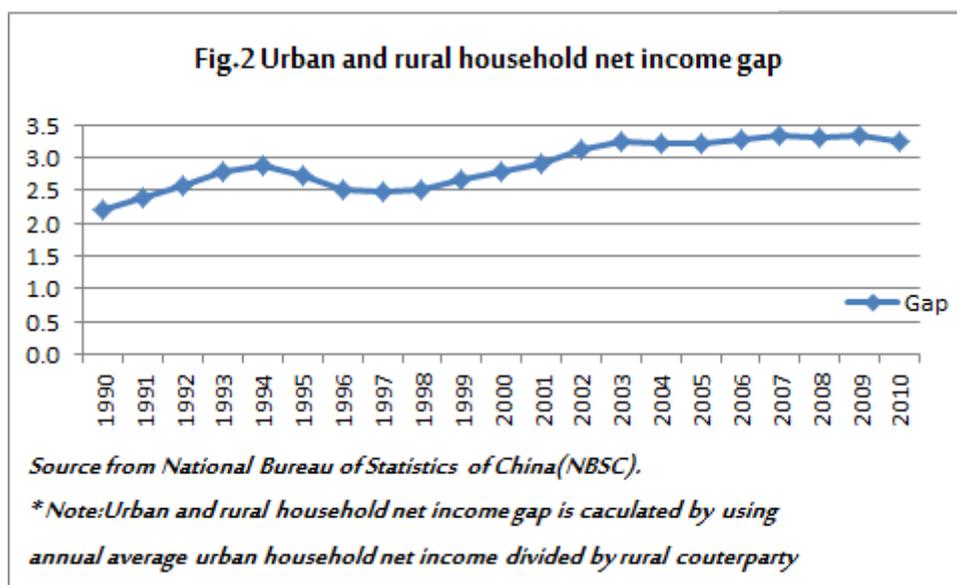
Average Rural Net Income in Provinces and Cities in China, 1990-2000

Area	Annual average rural net income (RMB)			
	1990	1995	1999	2000
China	686.3	1577.74	2210.34	2253.42
Shandong	680.18	1715.09	2549.58	2659.2
Jiangxi	669.9	1573.36	2129.45	2135.3
Fujian	764.41	2048.59	3091.39	3230.49
Anhui	539.16	1302.82	1900.29	1934.57
Zhejiang	1099.04	2966.19	3948.39	4253.67
Jiangsu	959.06	2456.86	3495.2	3595.09
Henan	526.95	1231.97	1948.36	1985.82
Hebei	670.8	1511.22	2217.08	2268.59
Hunan	664.24	1425.16	2127.46	2197.16
Guangdong	1043.03	2699.24	3628.95	3654.48
Guangxi	639.45	1446.14	2048.33	1864.51
Hainan	696.22	1519.71	2087.46	2182.26
Chongqing	—	—	1736.63	1892.44
Sichuan	557.76	1158.29	1843.47	1903.6
Guizhou	435.14	1086.62	1363.07	1374.16
Yunan	540.86	1010.97	1437.63	1478.6
Xizang	649.71	1200.31	1309.46	1330.81
Shanxi	530.8	962.89	1455.86	1443.86
Gansu	430.98	880.34	1357.28	1428.68
Qinghai	559.78	1029.77	1466.67	1490.49
Ningxia	578.13	998.75	1754.15	1724.3
Xinjiang	683.47	1136.45	1473.17	1618.08

Source: National Bureau of Statistics of China (NBSC)

This income gap did not grow monotonically. Fig.2 shows a dramatic drop in the income gap during 1978 and 1990 during the first period of rural economic reform. The central government implemented policies such as decollectivize and liberalization of trade and marketing to boost agricultural production. As a result, agricultural output increased 15.47% annually from 304.765 million tons in 1978 to 446.243 million tons in 1990 which reduced the social income inequality significantly. Indeed, as already indicated, the agriculture sector was the key driver for the success of China's early ears

of opening up (Perkins and Yusuf, 1984).



Rising rural prosperity during this period shows the close relationship between land use and rural income. According to the Department of Land and Resource, there are approximately 700 million farmers (Anderlini, 2012) for whom the land resource generates 40% to 60% of their total incomes. And 60% to 80% of necessary goods consumption is through this source of income (Chen, 2008).

After this early phase, large-scale industrial reforms took center stage and the income gap widened (Yao, 2000). This trend accelerated after 1997 and the position of rural inhabitants was worsened by the relatively low prices of agriculture products and high cost of living (Long, Zou, Pykett & Li, 2011).

Partly because of this growing disparity, China is witnessing an unprecedented rural population outflow (Rozelle, Li, Shen, Huanghart, & Giles, 1999). Table 2 below indicates the outflow from rural areas which reduced the rural population from 4.8 persons per household to 3.98, that is, almost one person in each household had left during the past 20 years. At the same time, off-farm employment surged after 1995; currently, over 200 million rural inhabitants work off-farm mostly in urban areas (deBrauw, Rozelle, Zhang, Huang, & Zhang, 2002).

Rural Population and Households	Year				
	1990	1995	2000	2009	2010
# of Households	66,960	67,340	68,116	68,190	68,190
Permanent Resident Population	321,429	301,878	286,162	271,403	269,676
# of Permanent Residents Per Household	4.8	4.48	4.2	3.98	3.9547
# of Economically Active Persons / Household	2.92	2.88	2.76	2.85156	2.8505

Source: National Bureau of Statistics of China ()

Migration associated with the emergence of rural enterprises after the market liberalization of 1978 has motivated studies on the decision making process of migrants. These studies show that the driving forces of rural population outflow are both intergenerational and economic. The young rural population prefers to work off the farm. Table 3 shows that the relationship between age and off-farm work choice is negative. The other driving force of rural population outflow is economic. Data collected by Li (2003) in 2000 and 2002 showed low income in rural areas (54.8% of respondents), lack of employment opportunities (52.1%), and non-diversified jobs (38.7%) were the main economic driving factors.

Age Group	Percentage with off-farming work	
	1990	2000
16-20	23.7	75.8
21-25	33.6	67.2
26-30	28.8	52.8
31-35	26.9	47.7
36-40	20.5	43.5
41-50	20.8	37.6

Source: de Brauw, Rozelle, Zhang, Huang, & Zhang (2002)

Rural migratory outflow also has negative consequences for the cities. It increased population density resulting in congested living, traffic congestions, environmental pollution and haphazard territorial expansion of residential areas (Nwolochoa, 2008). Rising urban unemployment from the surplus of rural labor force can also raise concerns for social stability.

A third challenge arising from growing rural-urban income disparity is food security. China possesses only 10% of total world arable land but has to support 22% of the world's population. This has put land-use policy at the top of the government's policy agenda (Zhao & Qiu, 2007 and Zhang 2004). To make things worse, urban encroachment has reduced the area available for farming further. According to the Ministry of Land and Resources of China (MLRC), over the period 1978 to 1996, the loss of cultivated land to urban construction was 0.2 million hectares. And cultivated land has shrunk by around 8.3 million hectares, equivalent to 6.4% of total farmland, between 1996 and 2008 (Long, Li, Liu, Woods, & Zou, 2012).

Land loss has affected food supply. With grain output growth much lower than the growth of population (Table.4), the government has had to encourage more efficiency in land use. Farmers were persuaded to settle in the village through farm tax privileges. Rural residential land consolidation was also promoted. Research by the Zhejiang Land Development and Reform Department estimated that the haphazard use of rural residential led to the loss of 100,000 hectares of farm land that could be reclaimed (Zhao & Qiu, 2007).

Table 4

Annual Growth Rate of Grain Production and Population, 1980-2011

Year	Growth rate (%)		Year	Growth rate (%)	
	Grain	Population		Grain	Population
1980	5.18	1.187	2000	-9.09	0.75
1985	18.27	1.426	2001	-2.06	0.69
1990	17.71	1.439	2002	0.98	0.64
1991	-2.45	1.298	2003	-5.77	0.60
1992	1.69	1.16	2004	9	0.58
1993	3.12	1.145	2005	3.1	0.58
1994	-2.49	1.121	2006	2.9	0.52
1995	4.83	1.055	2007	0.71	0.51
1996	8.13	1.042	2008	5.4	0.50
1997	-2.05	1.006	2009	0.4	0.48
1998	3.67	0.914	2010	2.95	0.47
1999	-0.76	0.818	2011	4.53	0.47

Source: National Bureau of Statistics of China(NBSC),2011

3. The Current Land Use Situation

In total land area, China is ranked the fourth largest in the world (Table.5) .However, with a large population base, the per capital land resource is only 7.012 square km, ranking China in 154th position worldwide (Central Intelligence Agency, 2008). Farmland per capital is around 0.08 hectare, much lower than the world average 0.29 hectare (World Bank 2009). The farmland is shrinking annually with fast urban development. The population is mainly distributed in the eastern part of China with 90% of total arable land (Zhang, 2004). Even though per capital land available in the west is larger than in the east, the arid soil and harsh climate there deter people from inhabiting that region and also lowers its productivity. And for both east and west, fragmentation of arable land has resulted in low productivity, land loss, and inefficient irrigation systems. And with population growth, land as a limiting factor on economic sustainable growth is becoming more obvious.

Table.5

Land Use in 2008

Land Use Type	Area (10,000 ha)	Percentage of Total Area
Cultivated Land	12171.6	12.80
Garden Land	1179.1	1.24
Forest Land	23609.2	24.83
Pasture Land	26183.5	27.54
Other Land	2544.3	2.68
Land for Residential,Industrial/Mining Stites	2691.6	2.83
Land for Transport	249.6	0.26
Land for Water Conservancy Facilities	364.5	0.38
Unused Land	26320.7	27.44

Source: China Land and Resources Statistic Yearbook 20

There are approximate 200 million rural households living in the countryside. They account for over half of all Chinese households, so that rural housing is one of the most important land use types in China. The pattern of land use is therefore closely associated with the large-scale rural migration and grain supply (Wang, Wang, Su and Tao, 2012). Most rural settlements are small and scattered haphazardly. Large rural migrant flows have resulted in decreasing rural population but increasing land use as rural settlements. During 1996 to 2008, with approximately 129 million fewer people in the rural population, the rural settlement land area increased by 100,000 ha (Huang, Li, Chen, & Li, 2011). In addition, the haphazard location of these settlements limits the efficiency of land use. For example, the per capital land used for construction in rural areas is much higher than that in cities. Per capital rural housing land is 4.88 times that of its urban counterpart (Lin and Ho, 2005). Moreover, vacant rural houses represent a waste of land in rural areas. According to Long et.al (2012), the average size of a household's residence in rural areas has expanded to over 288 square meters which exceeds the state-defined standard 150 square meters and more than 10% of rural families have more than one residential property. The inefficient land use from rural construction reduces the rural development capacity and posts a challenge for governments to allocate the land resource to rural industrialization, balance social inequality, increase the cultivated land and prevent the outflow of local population.

4. The Government's Land Use and Rural Development Policies

In retrospect, China's central government has introduced many policies to regulate land-use in rural areas. These land policies have been formulated to satisfy specific social-economic goals and the strategic focus has shifted from mere consolidation of arable land to that of optimizing land use in rural settlements. Before 1978, land use was under the planned economy. Land reform that dated from the 1950s had comprised changes in land tenure, land reallocation, and renovation of irrigation to improve the efficiency of land use. Besides, the land reform law defined the principles and provisions for land exploration and reallocation with the objective of redistributing ownership from landlords to landless farmers. This reform liberated productive forces through allowing all farmers access to land. However, it was this reform that caused land fragmentation for the first time.

With the emerging of township and village-owned enterprises since 1978, China started to worry about food supply. However the term "land consolidation" did not appear until the introduction of the Households Responsibility System (HRS) in the early 1980s. This system allowed land management to be entrusted to individual farming households, providing them with real incentives to increase production. This decollectivization of land use was a breakthrough for rural land reform and contributed to sharply increased agricultural output and markedly reduced income inequality. However, under the HRS, land tenure of a large parcel of land was granted to multiple households for 15 years, with each household required to delineate the boundaries of its own plot of land. While giving households access to land, this created not only practical difficulties for households but also led to wastage in land use. In 1986, the land administration system experienced a major change, with multiple levels of government being involved. Decisions regarding land matters having to be elevated from local, through provincial, to the central level. In the same year, the "Land Administration Legislation" issued by National People's Congress gave effect to this multi-tier system with the objective of ensuring land protection and prevent wastage in land use. But it made for greater bureaucracy and was more time consuming. Perhaps in recognition of these challenges and in line with the strategy of "feeling the stones to cross the river", pilot land development projects were initiated across the provinces, cities and counties to gain experience.

Since the late 1980s and early 1990s, the focus of China's economic reform had been shifted from rural agriculture development to urban industrialization under the slogan "Agriculture Supports Industry"(Fourth Plenary Session of Chinese Communist Party). Rural economic development was subordinated to support rapid urban growth. Triggered by city modernization and expansion, rural cultivated land was diminishing

and converted to construction land. During 1986 to 1996, construction land expansion eroded 14.268 million ha of agriculture land (Li, 2000). Besides, there was no rural land-use regulation in place until 1997 when rural land losses was serious. In that year, the Land Consolidation and Rehabilitation Center (NLCRC) was set up by as an agency to motivate the initiation of rural land consolidation, offering funds and technical guidance (MLRC).

In 1998, a new “Land Administration Law” made land fragmentation ever worse. This land administration law, targeted at more equitable land distribution, extended the land tenure from 15 to 30 years. Under this law, land was classified by soil type, access to road and irrigation facilities. Households were then given different pieces of land to ensure that each household had access to land of approximately equal quality. Therefore, a single land parcel was assigned to different individual households. This worsened land fragmentation. With tenure extended to 30 years and in the absence of an open land market, land fragmentation was locked in for a long period.

Meanwhile, the “Basic Farmland Protection Law” was passed by the National People's Congress designated farmland protection zones at the county level to avoid arable land erosion and ensure food security. More specifically, it required township government to designate specific farmland districts as protected zones to prevent arable land from conversion into other land-use patterns in those specific districts.

In the late 1990s, a 10-year land consolidation plan (2000 to 2010) was launched to address the farming land fragmentation problem and to conduct land reclamation. To facilitate this plan, the “Notice on Further Strengthening the Management of Land Development and Consolidation” was passed by the MLRC that outlined procedures for systematic land development and consolidation (Zhao, 2012). Land projects were required to go through planning, feasibility assessment, design, approval, supervised implementation, project completion inspection and ownership management.

In the following years, complementary provisions were added. These provisions created a detailed framework for each stage of land consolidation and development (Zhao, 2012). Other provincial and local land consolidation regulations such as “Stipulation of Simplifying the Management Procedure of Land Development and Consolidation Project in the Area of Tongren in Guizhou Province” covered local land development and consolidation by taking into account local characteristics in calculating newly added arable land.

Through land consolidation and development, the area under agricultural land had been increased annually (Table 6). The reclamation of land also helped supply land for rural industrialization, arrest arable land erosion, beautify the village environment, and facilitated construction of a comprehensive public infrastructure system. This would have increased the attraction of rural living. However, with the large disparity between income from agriculture and from non-farm sources, not many rural people want to conduct farming. Hence, agriculture land consolidation is not an effective means to curb rural-urban migration and reduce income inequality. In addition, a labor surplus that could not be reduced by underdeveloped rural industrialization, poor living conditions, education and public facilities in rural areas spur them to leave the countryside. The labor shortage is the main restriction on rural economy.

The central government realized the need for further reform in rural land construction and consolidation. In 2005, the Ministry of Land and Resources proposed a policy named “Increasing vs. Decreasing Balance”. Under this policy, rural households willing to give up land for consolidation would be compensated by being given urban land. The aim was to motivate farmers to release their abandoned houses for consolidation to address the prevalent phenomenon of “Hollowed Out Villages” and participate in village land rationalization. This urban land given as compensation could then be traded for newly reclaimed arable land.

Table 6.

Increase in Agriculture Land from Land Consolidation and Development						
Year	Total Area (10,000ha)	Increase ratio (%)	Number of Projects			
2001	20.26	0.29	—			
2002	26.08	0.08	—			
2003	28.09	0.04	731			
2004	29.16	-0.10	775			
2005	26.37	0.08	1326			
2006	28.54	0.02	563			
2007	29.05	0.16	116			
2008	33.6	0.14	23,523			
2009	38.35	0.01	10,769			
2010	38.75	-0.38	—			
2011	23.91	-1.00	10,800			

Source: China Land and Resources Statistic Yearbook 2011 and Annual Public Announcement of Ministry of Land and Resources

In 2008 “Decisions Regarding Major Issues of Rural Reform and Development” called for the integration of urban and rural land markets to increase land use efficiency. In 2010, the “Increasing vs. Decreasing Balance” land consolidation policy was formally adopted and implemented in the whole of China after successful pilot experience.

The central government suggested the use of several models for rural construction and consolidation. The essence of these current models is “centralization”. The current models such as “Reconstruction within the Village” and “Spatial-territory Reorganization” involve the demolition of vacant houses and rearrangement of the layout of rural settlements to a geographic center. In “Spatial-territory Reorganization” model, it is used to merge scattered villages into an identified village or town by breaking up the villages. The apartment living mode is encouraged by governments to reduce the amount of land used for housing. Whether to reclaim the consolidated land for agriculture or to construct on it for industry development is determined by local economic and social demand.

The scope of land consolidation in China has been expanded from mere arable land consolidation to rural settlement consolidation. During the early year of land consolidation, arable land was paid too much attention while rural settlement was paid too little. But experience from both success and failure has taught the government the importance using of rural land construction to drive the local economy. As a result, the Chinese government has shifted the emphasis from mere arable land to cover residential areas land consolidation (Long, Liu, Li & Chen, 2010).

5. Critique of Government Response

China has gone through a long period of land reform to adjust its land use structure and land tenure system to increase land use efficiency (Hu, 1997; Wang et.al, 2012; Kung, Wu & Wu 2012). Currently, three kinds of land consolidation models are used. These are (a) consolidation of fields, water, roads and villages in the plains, (b) consolidation of hilly areas with added mountains development and (c) single land consolidation (Fu, Wang & Wang, 2007).

The main criticism of these models is that they are too general and their lack of specificity requires local governments to make adjustments to them as they see fit. Even local level land consolidation regulations do not adequately reflect local socio-economic

conditions (Zhao, 2012). Further, land consolidation provisions were formulated more as an administrative tool without the involvement of the farmers who are key stakeholders and the beneficiaries/victims of such consolidation. (Yan, 2008).

Those regulations have effectively controlled the loss of farm land. However the quality of land after reclamation has not been preserved. This is because the land development priorities in each region have not changed. In the eastern regions, the rapid development of economy has rendered food security a secondary consideration for provinces so that non-agriculture development has been given priority in land planning. The loss of cultivated land in eastern provinces is supposed to be compensated or offset by land development and reclamation in western China. However, the newly reclaimed arable land in the west is inferior in fertility to the land lost in the east. In addition, the newly reclaimed farm land had no irrigation. For instance, 67% of cultivated land with irrigation facilities was converted to development land in 2005 but only half of reclaimed land had irrigation facilities (Wang, Chen, Shao, Zhang & Cao, 2012). This replacement of high quality land with low quality land has meant that the potential for agricultural production has been compromised. In addition, not all the reclaimed land can be used for farming. Some of them had degraded to barren and sandy land.¹¹

There have also been conflicts between local cadres and central governments. As the local governments' main revenue source is from land development, their interests run counter to the central government's objective of preserving farmland. And funds provided by the central government to compensate those villagers whose lands are requisitioned during land consolidation are usually siphoned off by the cadres administering the consolidation. What the villagers receive is then insufficiently attractive for villagers to give up their vacant houses and land (Zhong, 2011).

Without a sound land rent market, it is hard to reduce the land fragmentation and land waste (Wang et.al, 2012). The inefficient pattern of residential land use in rural China can only be reduced through well-functioning land markets accompanied by reform of the "Hukou" system.¹² With limited right to trade their houses and land tenure and without social welfare with city Hukou, out-migrants cannot afford city housing that can allow them to live in cities permanently. The houses they leave behind in their original settlement that could have been the subject of consolidation also cannot be released for consolidation.

Nevertheless, there has been some experimentation with establishing land markets. Chongqing is picked as one of the pilot areas. Here, a "land voucher" system has been introduced in which rural residents who were compensated with urban land were issued these tradable vouchers. This in effect eliminates the need for rural residents to wait for the conversion of title for the urban land they were compensated with, and hence reduce avenues for corruption from local officials in charge of title conversion. With the establishment of a market for vouchers, effectively a land market, rural residents can sell these vouchers for cash or trade them for other types of land they prefer (Zhong, 2011).

Land market experiments that operationalize the "increase and decrease balance" land use policy have made some contribution to reducing the incentive for rural-urban migration. Spatial-territorial reorganization to consolidate hollowed out villages also offers some potential for the revitalization of local industry and boosts agricultural land (Long et.at, 2012). However, whether in poor areas funds can be found to demolish the vacant rural houses without taking out loans is unclear. If loans are contracted, any vouchers issued would be held as collateral by lenders until such loans are repaid. And for farmers giving up their rural residence, living in an urban setting, most likely high-rise apartments, the compensation they receive might not be sufficient to offset the many inconveniences they have to endure working in their farms that are far removed from their residence. Finally, rising urban land prices is opening a large gap between market value of land and the actual compensation they are paid. As a result, farmers have limited incentive to release their land for consolidation (Long et.at, 2012).

While success with land reclamation and consolidation will elevate the economic

situation of rural residents, failure to make progress will not only leave residents trapped in the vicious circle of continued land loss leading to lower incomes which in turn leads to further land loss because rural residents could not, even with compensation, afford to relocate. Also with reduced incomes, public services and social welfare for rural residents would likely suffer. The net impact then is to increase income disparities between rural and urban areas. At the same time, land use efficiency will deteriorate when rural residents moved out for sake of better income opportunities, leaving behind empty houses and hollowed-out villages.

6. Conclusion

China's growth, after the early years, has been built on industrial development in a model of unbalanced growth. This has left the rural areas trailing urban areas in development. Rural residents earn less than urban residents, have inferior physical infrastructure, and suffer poor basic amenities. These disparities have led to extensive rural-urban migration. This migration, by leaving residences unoccupied, has exacerbated inefficiencies in rural land use.

These inefficiencies have multiple origins. First, the rapid land loss to urban construction and industrial development cannot be compensated by land development in the Western interior because of the latter's inferior quality. Second, ownership of multiple residences in villages and farms has been common in rural communities, but there has been resistance to giving up unused residences even with compensation.

Third, the historical haphazard location of village residences has led to considerable wastage.

In a country with 22 percent of the world's population living on 10 percent of the world's arable land, reducing inefficiencies in land use is particularly important. China's food production from agriculture has not kept up with the country's already low population growth.

The Chinese government correctly perceives the need to redress this challenge, and sees land consolidation as the appropriate approach not only to rationalize land use but also as an important component of rural development. This approach, together with a number of consolidation models, has been endorsed by many scholars.

While we agree that reducing inefficiency in land use is an important policy objective in its own right, our review shows the current approach by the government suffers from major deficiencies. The first is that far from preventing land fragmentation, land reform has contributed not only to fragmentation but in entrenching it. The second is the conflicting interests of the central and local government bureaucrats. A third is the existing absence of an established land market which will take time to establish on a large scale. The fourth is the impact of external factors, such as escalating house prices in urban areas, which render incentives to rural residents to vacate their land unattractive. The fifth is the deficiencies in the consolidation models themselves. It is therefore not surprising that the total quantum of land consolidated has been modest.

As a final footnote, even if the government efforts are successful, it would be too much to expect that land consolidation can contribute much to narrowing the rural urban gap.

Factors making for migration, even with the *hukou* system that discriminates against rural residents, are too compelling for land consolidation to make a difference.

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