Land Consolidation

as a Tool for Promoting

Rural Restructuring in China

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The Reality

Two different rural landscapes in nearby and remote areas of Nanjing
- Rapid Economic Growth
- Associated with rapid decrease in agricultural GDP
The per capita net income gap between urban and rural areas is fast widening.

**Graph: Per capita net income (CNY)**

- **Rural**
- **Urban**

**Background Images:**
- Beautiful night view in Nanjing City
- Decaying landscape in remote rural areas
Rapid urbanization associated with decreasing but still large rural population

- Urban (rural) population has increased (decreased) from 17.9% (82.1%) in 1978 to 56.5% (33.5%) in 2016
- Still has over 435 million people living in rural areas, and 200 million rural surplus labor working in urban areas
Background

- Rapid urbanization associated with continued non-optimized expansion of rural settlements

Expansion of villages in Yaojie Town
Urbanization ratio exceeding 70%, economic growth keeping at 6-8% per year, until 2030, 200 million people need new house and living facilities.

Hollowed, “scattered, small, and messy” villages in remote rural areas not conducive to the layout of infrastructure.

A lot of idle rural settlements.
Field investigating in Zhixi Village: Most owner-peasants only plowed a plot of 0.5 ha or less, compared to the average farm size of 4331 ha in Australia in 2015-2016.

Land Consolidation as a New Driver for Rural Restructuring in China

- Unless current small per capita farmland allotment was changed through land transfer, it is unreasonable to expect rural residents to earn higher income.
- Land consolidation (LC) can promote land tenure transfer, improve agricultural productivity.
Govt approves plan

China to spend 1.7 trillion yuan on land consolidation

The State Council has approved a plan (2020), jointly released and implemented by the National Development and Reform Commission and the Ministry of Land and Resources.

The plan is aimed at strictly protecting farmland areas, and enhancing efforts to rationalize land utilization, and to promote urbanization.

BEIJING — China will spend about 1.7 trillion yuan ($247 billion) to increase the quality of arable land and to promote urbanization.

The country will divide its land into nine zones for land consolidation over the 13th Five-year Plan period (2016-2020), according to a plan released on Feb 15.

Land consolidation refers to the rational use of land. In the case of farming, parcels of land are consolidated to provide larger holdings.
A new policy was established in 2008 for increasing urban development land quota linked with decreasing rural residential land by LC projects in developed regions, China.

Rural restructuring needs a lot of money, but idle settlements are the only resources.

Urban rapid development needs more construction land quota. Why not buy land quota from rural?
Background

Before land consolidation

Land consolidation planning

After land consolidation

Legend

- Road
- Village boundary
- Resettlement area
- Town
- Reclaimed village
- Water area
- Cultivated land
- Forest land
Objectives

- To evaluate the actual impacts of LC projects on rural restructuring in Jiangsu province, China
- To identify the main factors that influence rural restructuring in Jiangsu province, China
- To establish the mechanisms and pathways of LC projects for rural restructuring in China
- To build an executive framework for the new LC policy to better promote rural restructuring in China
Study Area

Legend
- City
- Sample
- Typical Case
- Province boundary
- Country boundary
- Water area
- Northern Jiangsu
- Central Jiangsu
- Southern Jiangsu

<table>
<thead>
<tr>
<th>Period</th>
<th>Number of projects</th>
<th>Construction scale (hm²)</th>
<th>Newly-increased cultivate land area (hm²)</th>
<th>Village reclamation area (hm²)</th>
<th>Total investment amount (×10⁸ CNY)</th>
</tr>
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<tbody>
<tr>
<td>2009</td>
<td>17</td>
<td>18068.4</td>
<td>3088.3</td>
<td>2512.9</td>
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<td>2010</td>
<td>5</td>
<td>5901.8</td>
<td>1031.2</td>
<td>843.0</td>
<td>38.0</td>
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<td>2011</td>
<td>12</td>
<td>42460.4</td>
<td>3449.0</td>
<td>1661.4</td>
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<td>2012</td>
<td>8</td>
<td>9646.6</td>
<td>1469.2</td>
<td>1272.1</td>
<td>42.8</td>
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<td>Total</td>
<td>42</td>
<td>76077.2</td>
<td>9037.7</td>
<td>6289.4</td>
<td>236.6</td>
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</tbody>
</table>

Number of resettled households of each county

Rural construction land quota for urban development

Amount of funds invested of each county
Between March to June 2016, the following datasets were collected from local statistics department, local bureau of land resources, police station, administrative villages, and field investigation:

- 42 local socio-economic sampling datasets
- newly-added farmland area
- Population
- reclamation village area
- Households
- housing size
- location of LC projects

The administrative village is the basic unit of socio-economic statistics in China.

LC projects do not break these administrative boundaries but can consist of several administrative villages.
Data Processing

• Collected raw datasets were processed to facilitate redundancy analysis, e.g. to divide income into agricultural and non-agricultural income, and construct the following 4 indices:

  • **Income change index**: which measures the changing income of rural residents before and after LC within the project areas.

  • **Employment change index**: which reflects changes in the employment structure within the project area.

  • **Land quota index**: which is defined as the ratio of the area of rural resident land quota for urban development to the total reclaimed area of the village.

  • **Welfare change index**: which reflects the changing situation of welfare benefits available for rural residents within the project area before and after LC project.
Data Analysis

• **Redundancy analysis was performed** to find main influence factors from complex socioeconomic system described by multiple factors, which are crucial to understand the changes after land consolidation.

• **Redundancy analysis** is a method to extract and summarise the variation in a set of response variables that can be explained by a set of explanatory variables.

• In this study, **redundancy analysis** was performed by using
  • CANOCO version 4.5,
  • the 4 indices, as listed in the previous slide, were denoted as the response variables to depict the progress of rural development transformation, and
  • the 18 indicators, as listed in the table on the right, were treated as explanatory variables for rural development transformation.
Impacts of LC on rural restructuring were measured in terms of changes resulted from the 42 LC projects in

- Incomes
- Employment
- Welfare
- Land quota
• The income promoting effects of LC projects differed significantly between economic regions.
  • ECI were above 0 for all projects, indicating a positive role in promoting non-agricultural employment. Non-agricultural employment increased by 26 percentage points, which is the main reason for the dramatic increase of non-agricultural income.
• The welfare reality is not so optimistic
  • Welfare change indices for most projects are about 0.3, as critical illness insurance under new rural cooperative medical insurance became mandatory in Jiangsu Province in recent 5 years.
  • Only the welfare change index of the project ID KS was 1 because the local government incorporated all villagers into the social security system.
Financial balance of rural restructuring between land quota transfer fee and capital demanded

- 2592 households opt for centralized resettlement with a centralized community area of 35.1 ha. So, rural resident land area of about 196.0 ha can be saved to the land quota for urban development. Local government can transfer these unplanned construction land use right to obtain land quota transfer fees for rural restructuring.
Over 80% of rural settlement reclaimed land was traded to acquire the land quota transfer fee for rural restructuring. Economic benefits of this policy provided local governments with economic incentives for resettlement centralization.

<table>
<thead>
<tr>
<th>Category</th>
<th>variable</th>
<th>Total</th>
<th>Typical project ID</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DF</td>
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<tr>
<td>Household</td>
<td>Number of households demolished</td>
<td>88412</td>
<td>532</td>
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<td>Townhouse resettlement households</td>
<td>11410</td>
<td>50</td>
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<td></td>
<td>Apartment resettlement households</td>
<td>58894</td>
<td>423</td>
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<td>Cash compensation households</td>
<td>18108</td>
<td>59</td>
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<td>Land (ha)</td>
<td>Village reclamation area</td>
<td>6289.4</td>
<td>35.9</td>
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<tr>
<td></td>
<td>Resettlement area</td>
<td>934.9</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>Rural-urban land quota area</td>
<td>5354.5</td>
<td>29.8</td>
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<tr>
<td>Funds (10^9CNY)</td>
<td>Cost of relocation and resettlement</td>
<td>187.0</td>
<td>1.2</td>
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<tr>
<td></td>
<td>Cash compensation expense</td>
<td>27.4</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Land quota transfer income</td>
<td>266.3</td>
<td>1.2</td>
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<tr>
<td></td>
<td>Financial balance of rural restructuring</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Environmental factors influencing rural restructuring at the provincial level were mainly related to land use, local economic development level, educational level, and location.

Environmental variables were ranked accordingly by the degree of correlation as follows:

- ACL, GIO, NFI, and PLT.
- The arrow of NFI was the longest, which suggested that NFI was the most important explanatory variable.
Rural restructuring is a powerful economic driver in China to:
- increase agricultural productivity, and
- promote land transfer and urbanization.

Results from our field survey based study indicate that rural restructuring via LC is a win-win policy for both rural development and urbanization in China!
• A field survey based study was conducted on LC for rural restructuring from March to June 2016 in Jiangsu Province, China.
• The result shows that LC can serve as a powerful tool for rural restructuring.
• The higher the local economic development level, the greater the effect the LC projects have in promoting non-agricultural employment and income.
• Education levels are an important variable affecting the non-agricultural income of rural residents.
• Local township enterprises play an important role in absorbing the surplus rural labour force.
• However, potential risks should not be ignored. A novel framework should be implemented, such as a one-vote veto system for issues relating to ecological protection and public satisfaction of sustainable community development in the future.
Thank you!