State-led Food Localization, Farm Migration and Urban Food Security in Nanjing, China

Taiyang Zhong, Yuan Yuan
(Nanjing University, China)

Zhenzhong Si
(University of Waterloo, Canada)
Outline

• Research gaps of the nexus between migration and food security
• State-led food localization in China
• Migrant farmer and food production
• Migrant vendor and food retailing
• Effect on urban food system and security
• Concluding remarks
What does “Food localization” mean?

- *What’s meaning*
  - Food localization is regarded as a counter movement to globalization
  - Highlighting local food and local production of food
Research gaps

• Gaps in food localization studies
  ➢ Has focused on the proliferation of alternative food networks such as farmers’ markets and community supported agriculture (CSA).
  ➢ From the perspective of food quality rather than food security.

• Gaps in the nexus between migration and food security
  ➢ Investigating the impact of migration on migrant’s their own food security.
  ➢ Examining the impact of migration on migrant’s families’ food security.
  ➢ Little attention paid to the impact of migration on urban food system, contributing to urban food security
State-led food localization in China

• “Rice bag” policy
  ✓ The provincial governors and governments responsible for ensuring grain supply and price stable

• “Vegetable basket” policy
  ✓ City mayors responsible for ensuring non-grain food supply their price stability

• Consequence due to failure
  ✓ Degrading political performance assessment

• What’s meaning “local”
  ➢ For provincial governors and governments
    ✓ “local” is a province-level region
  ➢ For city mayors and prefectural government
    ✓ “local” is a prefecture-level region
State-led food localization in China: A case of Nanjing city region

- **Where is Nanjing located?**
  - Nanjing is located in the East China,
  - About 300 kilometers away from Shanghai
  - Nanjing has a population of 8.34 million with an area of 6587.02 square kilometers
State-led food localization in China: A case of Nanjing

- 4 medium-term plans for “vegetable basket project” (VBP)

- 2 annual plans
  - 2017 plan and 2018 plan

- The recent agriculture spatial plan pertinent to VBP
  - “Plan for 1115 Agriculture Project”
  - Planning period of 2011-2020
State-led food localization in China:
A case of Nanjing

“Vegetable basket project” planning over the past three decades in Nanjing
State-led food localization in China: A case of Nanjing

- More than localizing production
  - Localized food retailing
  - Mandatory requirement of wet market construction in new residential community development
  - Wet market dominated food retailing system
Migrant farmer and urban food security:  

**Supporting food local production**

Local production of main food items in Nanjing

<table>
<thead>
<tr>
<th>Year</th>
<th>Grain</th>
<th>Cooking oil</th>
<th>Vegetable</th>
<th>Pork</th>
<th>Beef &amp; mutton</th>
<th>Poultry meat</th>
<th>Fishery</th>
<th>Egg</th>
<th>Milk</th>
<th>Fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>166.11</td>
<td>54137</td>
<td>772552</td>
<td>96062</td>
<td>1459</td>
<td>40571</td>
<td>40694</td>
<td>53058</td>
<td>21153</td>
<td>8379</td>
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<tr>
<td>1990</td>
<td>173.26</td>
<td>96797</td>
<td>893368</td>
<td>97910</td>
<td>2251</td>
<td>36674</td>
<td>46947</td>
<td>54879</td>
<td>23929</td>
<td>8526</td>
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<tr>
<td>1995</td>
<td>168.57</td>
<td>144872</td>
<td>1121074</td>
<td>108144</td>
<td>3709</td>
<td>73118</td>
<td>74570</td>
<td>70068</td>
<td>25224</td>
<td>13639</td>
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<tr>
<td>2000</td>
<td>143.37</td>
<td>220119</td>
<td>106953</td>
<td>9648</td>
<td>63393</td>
<td>129342</td>
<td>68560</td>
<td>67087</td>
<td>23625</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>96.54</td>
<td>211685</td>
<td>3116210</td>
<td>120039</td>
<td>13374</td>
<td>64649</td>
<td>180414</td>
<td>83265</td>
<td>138034</td>
<td>42495</td>
</tr>
<tr>
<td>2010</td>
<td>110.64</td>
<td>117697</td>
<td>2663232</td>
<td>70068</td>
<td>5094</td>
<td>47404</td>
<td>204183</td>
<td>74756</td>
<td>86071</td>
<td>85273</td>
</tr>
<tr>
<td>2015</td>
<td>114.06</td>
<td>108415</td>
<td>3048126</td>
<td>56052</td>
<td>4166</td>
<td>44310</td>
<td>228662</td>
<td>72044</td>
<td>79668</td>
<td>154459</td>
</tr>
<tr>
<td>2017</td>
<td>102.71</td>
<td>62749</td>
<td>2568891</td>
<td>36545</td>
<td>2354</td>
<td>30107</td>
<td>210500</td>
<td>49670</td>
<td>47022</td>
<td>163181</td>
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Migrant farmer and urban food security: Maintaining self Sufficiency

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pork (%)</td>
<td>20.0</td>
<td>30.0</td>
<td>20.0</td>
<td>21.4</td>
<td>21.7</td>
<td>19.1</td>
</tr>
<tr>
<td>Vegetable (%)</td>
<td>30.0</td>
<td>30.0</td>
<td>40.0</td>
<td>74.3</td>
<td>74.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Fish (%)</td>
<td>20.0</td>
<td>10.0</td>
<td>51.4</td>
<td>45.8</td>
<td>28.2</td>
<td></td>
</tr>
<tr>
<td>Egg (%)</td>
<td>30.0</td>
<td>21.0</td>
<td>15.0</td>
<td>28.1</td>
<td>25.5</td>
<td>16.2</td>
</tr>
<tr>
<td>Beef and mutton (%)</td>
<td>&lt;1</td>
<td>&lt;20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk (%)</td>
<td>30.0</td>
<td>34.0</td>
<td>73.7</td>
<td>94.6</td>
<td>78.0</td>
<td></td>
</tr>
</tbody>
</table>
Migrant farmer and urban food security: **Greenhouse expansion**

- The area of farmland used for greenhouse cultivation since 1995
  - Rapid increase in the area of farmland used to greenhouse cultivation since 2000s
  - Greenhouse cultivation has expanded outward
  - Multi-center diffusion.

The expansion of greenhouse cultivation across Nanjing
Migrant farmer and urban food security: **Greenhouse expansion**

**Key agents:**
- **Government**: municipal government, county-level governments, township-level governments, and village committee
  - **Municipal and county-level government**: Planning, making policy and providing subsidy for greenhouse cultivation development
  - **Township-level governments and village committee**: facilitating farmland renting for greenhouse cultivation, by establishing company acting as land broker or just playing a coordinator
- **Migrant farmer**: Renting-in high tunnel or farmland & building low tunnels
- **Local farm household**: Renting-out farmland

**Key elements:**
- **Farmland**: Renting-out and renting-in,
  - **Farmland**: An annual rent of CNY ¥500-800 (USD $70-115) for farmland without greenhouse structure
  - **Tunnels**: or 1200-1500 CNY (USD $170-215) for farmland with greenhouse structure with an area of about 1 mu (about 666.67 square meters)
- **Labor**: Migrant farmer family, local aged farmer
  - **Daily wage**: around 100 CNY (about USD $15)
- **Subsidy**: included in the scope of subsidy, including greenhouse construction, high tunnel construction, road and water facilities construction in the base of “vegetable basket project”
There are two methods for township-level governments and village committee to involve in farmland rent.

- First is to establish a company or collective cooperative to rent in farmland from local farm households whose land holding is averagely around 6 mu (0.4 ha). The company or collective cooperative could directly rent out those rented-in farmland to migrant farmers or construct greenhouse structures (including greenhouse and high tunnels) then rent out those farmland with greenhouse structure.

- The second is to play a coordinator between the local famers renting-out farmland and those farmers renting-in farmland for greenhouse cultivation.

The first one is a typical mode for greenhouse vegetable farming in Nanjing (Yang et al, 2014).
Migrant farmer and urban food security: **Greenhouse expansion**

- Migrant farmers have facilitated farmland use transition to greenhouse cultivation, contributing to increase land productivity.
- Creating seasonal job opportunities for the local aged.

- Around 90 per cent of farmers involved in greenhouse cultivation are migrant worker in 2011 (Yang et al, 2014).
- About 47% of farmers in Jianye District, Nanjing were migrant farmers in 2006 (Zou and Guo, 2009).
The subsidy connects migrant farmers, village collectives and local government. Migrant farmers have directly or indirectly benefited from the subsidies.

### The frequency of response to the question of whether receiving subsidy

<table>
<thead>
<tr>
<th>Item</th>
<th>Total</th>
<th>Missing</th>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>519</td>
<td>166</td>
<td>177</td>
<td>166</td>
<td>10</td>
</tr>
<tr>
<td>Local farmer</td>
<td>431</td>
<td>166</td>
<td>168</td>
<td>87</td>
<td>10</td>
</tr>
<tr>
<td>Migrant farmer</td>
<td>88</td>
<td>0</td>
<td>31</td>
<td>21</td>
<td>36</td>
</tr>
</tbody>
</table>

**Source:** Calculated from farm household questionnaire survey conducted in 2017; Local farmer- random sampling, migrant farmer- snowball sampling.
Migrant vendor and urban food security: Improving access

- Local wholesale companies
  Zhongcai Wholesale Market, which is the biggest wholesale market of non-grain food at Nanjing, hosts more than 4,000 wholesale merchants.

| Frequency and percentage of local and non-local vendors in Zhongcai Wholesale Market |
|-----------------------------------------|------------|-----------|
| Local/Non-local                        | N          | Percentage |
| This city                              | 8          | 12.9      |
| Another city in this country           | 39         | 62.9      |
| A rural area in this country           | 15         | 24.2      |
| Total                                  | 62         | 100.0     |

Source: Calculated from retailer questionnaire survey conducted in July 2017.
Migrant vendor and urban food security: Improving access

Local food retailing - wet market

<table>
<thead>
<tr>
<th>Local/non-local</th>
<th>Wet Market (Outside Wet Vendor Markets)</th>
<th>Food Store</th>
<th>Street Vendor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>This city</td>
<td>223</td>
<td>49</td>
<td>26</td>
<td>298</td>
</tr>
<tr>
<td>Another city in this country</td>
<td>115</td>
<td>17</td>
<td>9</td>
<td>141</td>
</tr>
<tr>
<td>A rural area in this country</td>
<td>297</td>
<td>78</td>
<td>40</td>
<td>415</td>
</tr>
<tr>
<td>Total</td>
<td>635</td>
<td>144</td>
<td>75</td>
<td>854</td>
</tr>
</tbody>
</table>

Source: Calculated from retailer questionnaire survey conducted in January and February 2017.
Migrant vendor and urban food security: Improving access

- Localized food retailing - wet market

- The mean profit every month of vendors within wet markets are 8146 CNY (about USD $1150)
- There are notable difference of the profit between local and non-local, urban and rural vendors.

In the last month, what was the net profit you earned at this business

<table>
<thead>
<tr>
<th>Local/non-local</th>
<th>Mean (CNY)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>This city</td>
<td>10413.84</td>
<td>112</td>
</tr>
<tr>
<td>Another city in this country</td>
<td>7474.91</td>
<td>56</td>
</tr>
<tr>
<td>A rural area in this country</td>
<td>6554.41</td>
<td>136</td>
</tr>
<tr>
<td>Total</td>
<td>8145.87</td>
<td>304</td>
</tr>
</tbody>
</table>

Source: Calculated from retailor questionnaire survey conducted in January and February 2017.
Migrant vendor and urban food security: Improving access

- Localized food retailing - *supermarket*

<table>
<thead>
<tr>
<th></th>
<th>N of companies</th>
<th>N of shops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Local</td>
<td>2</td>
<td>126</td>
</tr>
<tr>
<td>Domestic</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>170</strong></td>
</tr>
</tbody>
</table>

*Source:* Calculated from supermarket survey conducted in 2019.

- About 68% of employee are local person (compared with 35% within wet markets)
- The mean wage per month of supermarket employee is about CNY ¥2550 (about USD $360), compared with the mean profit of USD $1150 per food stall within wet market.
Fast delivery of cooked food has ensured 24 hours available in south China, most delivers are rural migrants.
Good physical access: In 2015, 80% of surveyed urban households in Nanjing had a network distance to the nearest wet market or supermarket of less than two kilometers (Zhong et al., 2018).

Good time access: In Nanjing, supermarkets and wet markets are commonly open seven days per week and about 14 hours per day. Business hours are from around 6:00 to 20:00 for wet markets and 8:00 to 22:00 for supermarkets (Zhong et al., 2019).
Impacts on food affordability

According to our city-wide random survey of household food security conducted in Nanjing in 2015 (N=1210), about 67.5% (817) of surveyed households reported that they did not meet unaffordable issue over the past six months (Si and Zhong, 2018).

About 22.2%, 5.6%, 1.9% and 0.9% of households had the issue of unaffordability with the frequency of once a month, once a week, more than once a week and every day, respectively;

16.3%, 9.6% and 2.7% out of 1210 surveyed households came across 1, 2 and 3 unaffordable food groups, respectively.

Unaffordable food groups reported by surveyed households in 2015

Migrant vendor and urban food security: Improving affordability
Concluding remarks

- Unlike bottom-up food localization in the Western countries, food localization in China is typically state-led.
- State-led food localization not only includes localizing food production but also localizing food wholesaling and retailing.
- State-led food localization has involved migrant, especially rural migrant into food provisioning system.
- Rural migrants have contributed to ensuring urban food security through the role of migrant farmers and migrant vendors, contributing to improving food availability and accessibility.
Thank you for your attention!

Contact: Taiyang Zhong (taiyangzhong@163.com)