

Urbanization strategies and agrarian change in Eastern China.

A multilevel integrated assessment of domestic land grabbing

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Giuseppina Siciliano, Ph.D.
Post-doctoral researcher at IUAV University of Venice
Faculty of Regional Planning
Venice, Italy



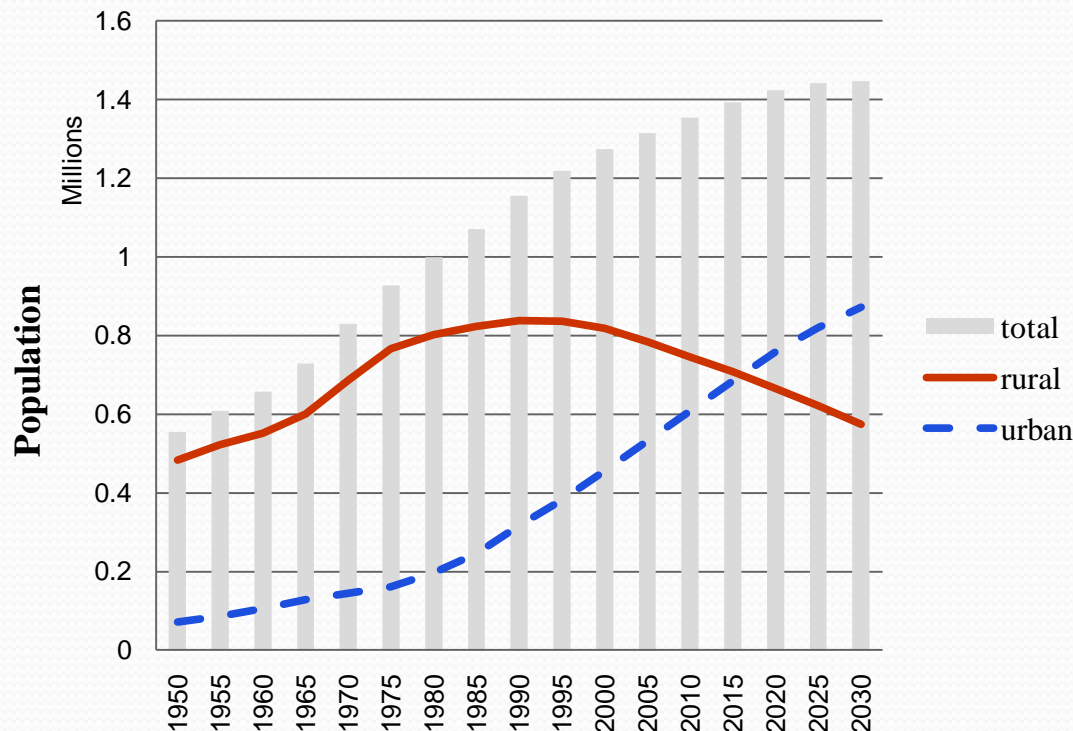
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OUTLINE

1. Background: urbanization trends in China
2. The link between rural-urban inequalities and migrations
3. Rural Development under rapid urbanization and economic growth in China
4. The Chinese Rural Development Strategy (the 11th and 12th FYPs)
5. Land dispossession and domestic land grabbing under development strategies
6. The Hongxing village case study
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1. Background: rural urbanization trends in China

- China shows one of the highest rates of urbanization all over the world



In the last few years, rural population has decreased by 13%, ranging from 73% of the total population in the 90's to 60% in 2005.

By 2030 almost 60% of the total population will live in urban areas

Changes in Chinese rural-urban population from 1950 to 2030.

Source: United Nations data and projections
(United Nations, 2005)

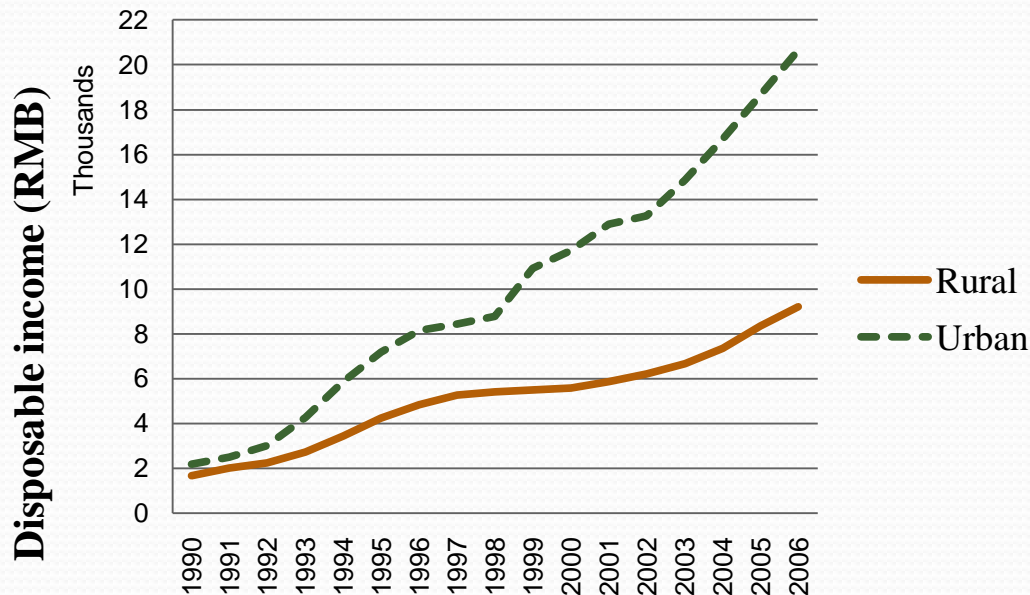
Urbanization process of China

2. The link between rural-urban inequalities and migrations

- Rural-urban migration is used to describe the population movements from the countryside to towns and cities that usually accompany economic expansion ➡ Migrants typically move to urban areas in search of economic opportunities.
- Rural-urban migration is particularly significant in transition countries, such as China, emerging from a planned economy towards a market-based economy
- In these countries, rural poverty and the rural-urban income gap are usually a side effect of rapid urbanization and economic growth (Christiansen, 2009)

3. Rural development under rapid urbanization and economic growth in China

- The major threat of development under rapid urbanization and economic growth in China is increasing rural-urban inequalities



On average, the per capita disposable income of urban residents is more than three times the per capita disposable income of rural residents.

Overall income inequality is now higher than it was before the 1949 revolution (van Westen, 2011)

Chinese rural-urban disposable income 1990-2006, Shanghai.

Source: based on data from Shanghai Statistical Bureau
(Statistical Yearbook, 2007)

Rural-urban income gap

4. The Chinese Rural Development Strategy

- The rural-urban income gap is increasingly becoming a destabilizing factor in Chinese society (van Westen, 2011)



Therefore, the reduction of the rural-urban income inequalities in China represents a priority objective of the rural development strategies



...at present, rural urbanization and agricultural modernization are taken into account by Chinese policy-makers as a way to achieve rural development

4. The Chinese Rural Development Strategy

- **10th Five-Year Plan (2001-2005):** “an effective reduction in the urban-rural income gap should be based on the transformation *from rural to urban* and from *traditional agriculture to industrial agriculture or industry and services*”
- **11th Five-Year Plan (2006-2010):** “the 11th FYP period gives top priority to the issues of agriculture, rural areas and farmers, among all strategic tasks, adheres to the *balanced rural and urban development promoting urbanization*”
- **12th Five-Year Plan (2011-2015):** “with the deepening of industrialization and urbanization, coordinated efforts should be made to push forward *rural modernization*” ... **“*Urbanizing rural China to allow at least 10,000,000 rural residents per year to move to the cities*”**
(Approved on March 14th 2011 by the PRC National People’s Congress)

4. Agrarian change, land dispossession and domestic land grabbing under urbanization strategies

The achievement of the rural development goals of China requires:

- larger plot sizes than those prevailing in rural areas of China, where the average farm size is estimated between an average of 0.4 and 1.2 hectares
- the introduction of better farming techniques (mechanization and irrigation) and capital-intensive production enterprises
- a migration of the rural population from rural to urban areas

Land dispossession and commodification



Domestic land grabbing

5. Domestic land grabbing in China

➤ Various studies have analyzed the impacts of involuntary resettlements of people due to the realization of development projects, such as the construction of hydropower plants (Zhao et al., 2011)

Evidence of the demolition of homes and displacement of people were a common practice for example on Chongming island, where whole communities had been moved to make way for infrastructures (Cole, 2009): “ A farming community of about 900 was moved to a nearby apartment complex ...”

.... “the government provided them with their apartment free of rent and two additional apartments to generate income.... ***They were no longer farmers***” (Cole, 2009)

5. Domestic land grabbing in China

- According to past experiences in China many people who have lost their farmlands could not restore their livelihoods after relocation (Yuefang et al., 2003) or they didn't receive adequate social security (Li Xiubin, 2011)
- “It is estimated that the number of landless peasants due to land acquisitions amount to about 50 million in the country “ (Li Xiubin, 2011)

In this context, the analysis of the potential implications that domestic land grabbing could have on the rural population and rural ecosystems is of paramount importance!

5. Main drivers of domestic land grabbing in China

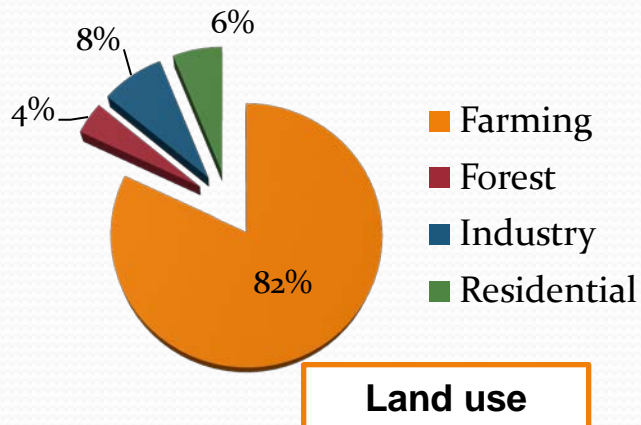
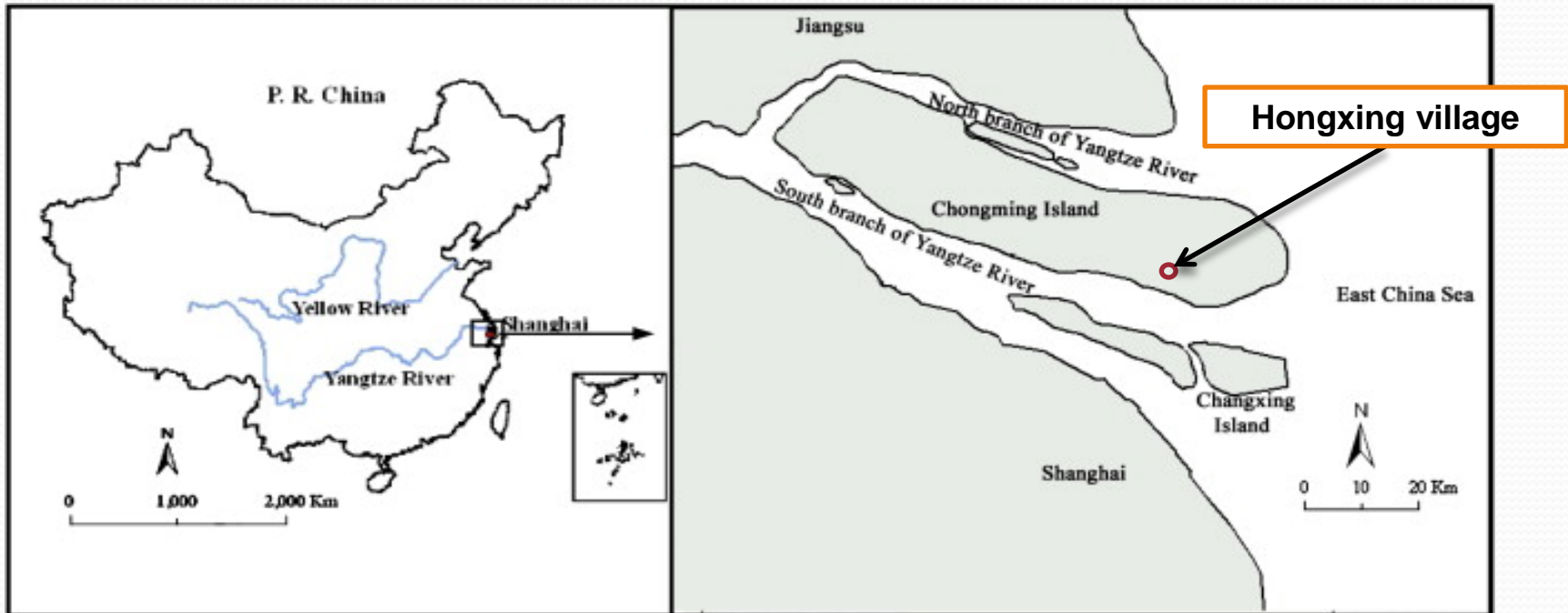
- **Food security:** introduction of intensive agricultural methods managed by investment holdings and agro-industrial firms
- **Rural-urban income gap (rural development):** involuntary rural-urban migrations to increase the income level of rural population
- **Urban sprawl:** conversion of farmland into urban land

6. The Hongxing village case study

Stated goals of the analysis: assess impacts and trade-off of rural-urban migration policy and land dispossession on local communities and ecosystems

- **Main ecosystem services and human well-being aspects considered:**
 - soil pollution
 - energy use
 - economic efficiency
 - land use changes
 - food self-sufficiency
 - diversification of risk
- **Methods used:** multi-criteria (Munda, 2008) and societal metabolism analyses within a multiple-scale approach (Giampietro, 2003)

6. Location of the study area



Main characteristics:

- Third largest island in China
- Rural vocation
- Poorest district of Shanghai
- Traditional agricultural practices based on subsistence
- Average plot size 0.4-0.6 hectares

6. Urbanization strategies in the study area

- In 2004 the Shanghai's Municipal Government launched The Master Plan of Development of Chongming (State Council of China, 2004).
- The main intervention of the plan is the gradual integration of the sparsely-located rural villages of Chongming into new denser cities located along the coast.

“... the urban development of the island will be confined to eight new, and highly-compact coastal cities at a high enough density to enable a population of approximately 600,000 people to live and work in just 15 percent of the island's total area” (SOM, 2006).

6. Urbanization strategies in the study area

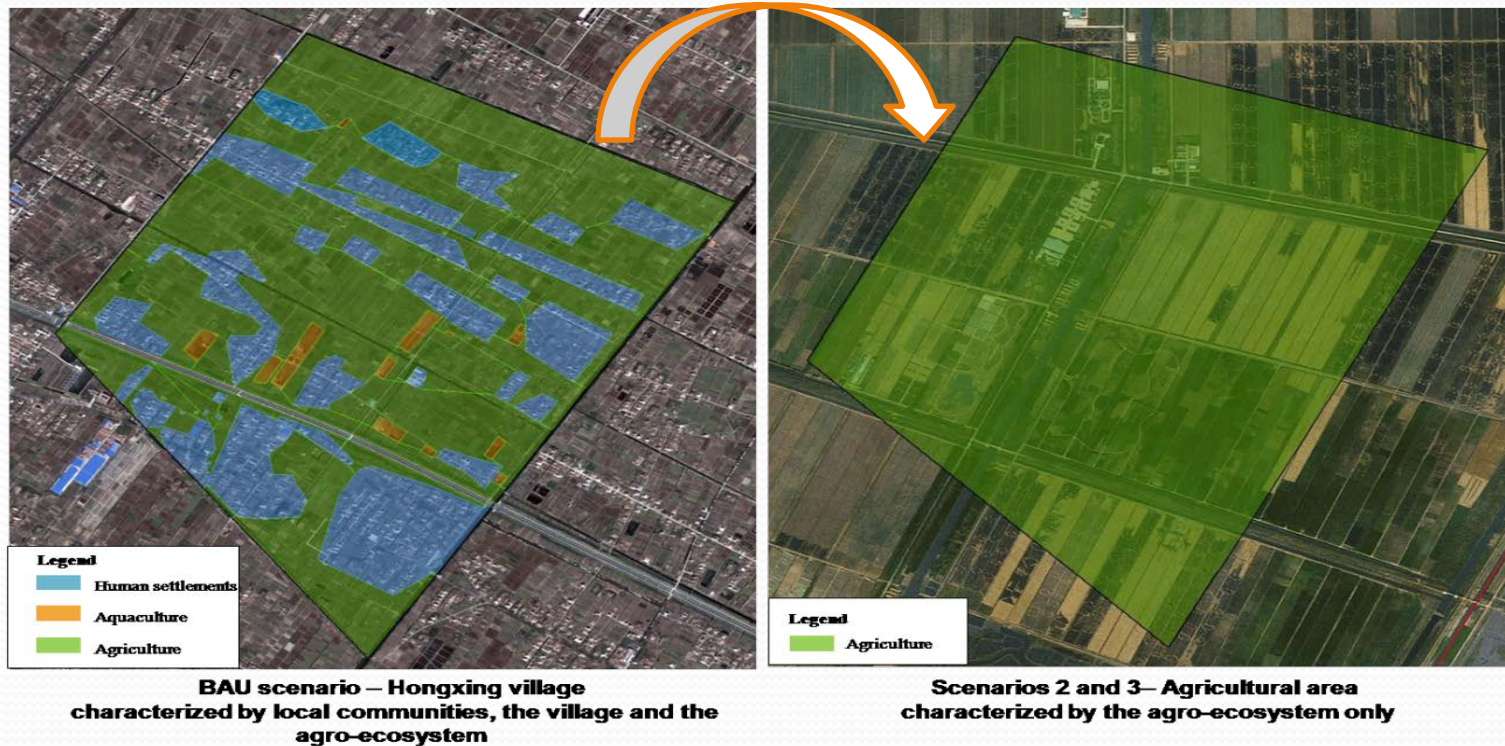
The urbanization intervention will result in:

- A massive expropriation of the village land owned by local farmers and communities, in exchange for a compensation for the affected village population
- The diffusion in the expropriated land of intensive agricultural productions managed by investment holdings and agro-industrial firms



6. Urbanization strategies in the study area

From Hongxing village to agricultural area



- (1) **Business-as-usual scenario** (i.e. Hongxing village): current land use management does not change over time
- (2) **“intensive agriculture” scenario**: shift of the land use of the village into only agricultural land and intensive methods. Displacement of the population to the city
- (3) **“input reduction program” scenario**: which is the same as the previous one in terms of land-use and the displacement of the population, but with the introduction of a fertilizer and pesticide reduction program

7. Criteria used in the analysis

Evaluation criteria used to analyze the effectiveness of the urbanization strategy to meet development targets

Evaluation criteria	Unit	Description	Policy targets and local priorities
Labor productivity	RMB/hour	Income generated per hour of work	Economic development
Energy use	MJ/ha	Energy use per unit of land	Good management of natural resources
Net income	RMB/year	Gross income generated by the household minus life expenditures	Increasing the income per capita
Food self-sufficiency	%	Percentage of food self-sufficiency or % of independence from market for food consumption	Food security
Use of pesticides	kg/ha/year	Use of chemical pesticides per unit of land in kilograms in a year	Reducing pollution on soil
Nitrogen use	kg/ha/year	Amount of nitrogen utilized in agriculture per unit of land in a year	Reducing pollution on soil
Diversification of risk	Qualitative	Qualitative evaluation based on the fractions (%) of the income generated by on-farm and off-farm activities	Increasing urbanization

Household and village levels

7. Data collection

Data collection using questionnaires and interviews to:

- agricultural technicians
- the head of the village
- experts from Chinese research institutions
- local farmers and households

Characteristics of the sample

- Total households in the village: 1073
- Sample: 104 households for a total of 277 people
- Representativeness of the sample: 10%
- local farmers and households

Household information includes:

- farm and non-farm activities,
- income by source
- energy consumption
- human time
- land use



7. Definition of household typologies

Definition of the household typologies: on-farm, off-farm and partially off-farm households

Multi-variate statistical techniques based on Principal Component Analysis (PCA) and the Agglomerative Hierarchical Clustering (AHC)

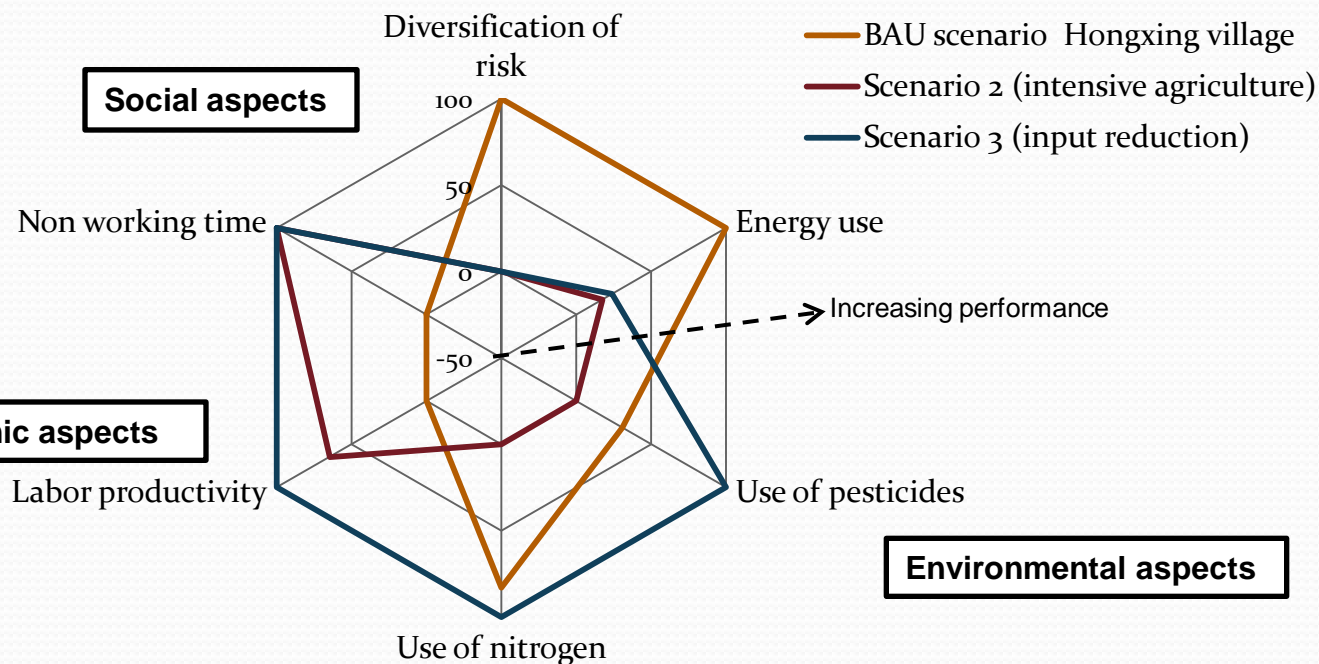
Clusters	C1	C2	C3	C4	C5	C6	C7	C8
No. of Observations	10	26	11	8	15	6	9	1
<u>Classification</u>								
Off-farm	-	x	-	-	-	-	x	-
On-farm	-	-	-	-	x	x	-	-
Partially off-farm	x	-	x	x	-	-	-	x
<u>Activities' contribution to income generation</u>								
Industry	very low	very high	-	very low	-	-	very high	-
Agriculture	very high	-	very high	very high	low	very high	-	very high
Trade & Services	-	-	-	-	-	-	very high	very high
Livestock	-	-	very low	very low	-	very high	-	-
Others*	very low	-	very high	-	low	low	-	-
Aquaculture	-	-	-	-	-	-	-	very high

8. Results

Village level

Social aspects

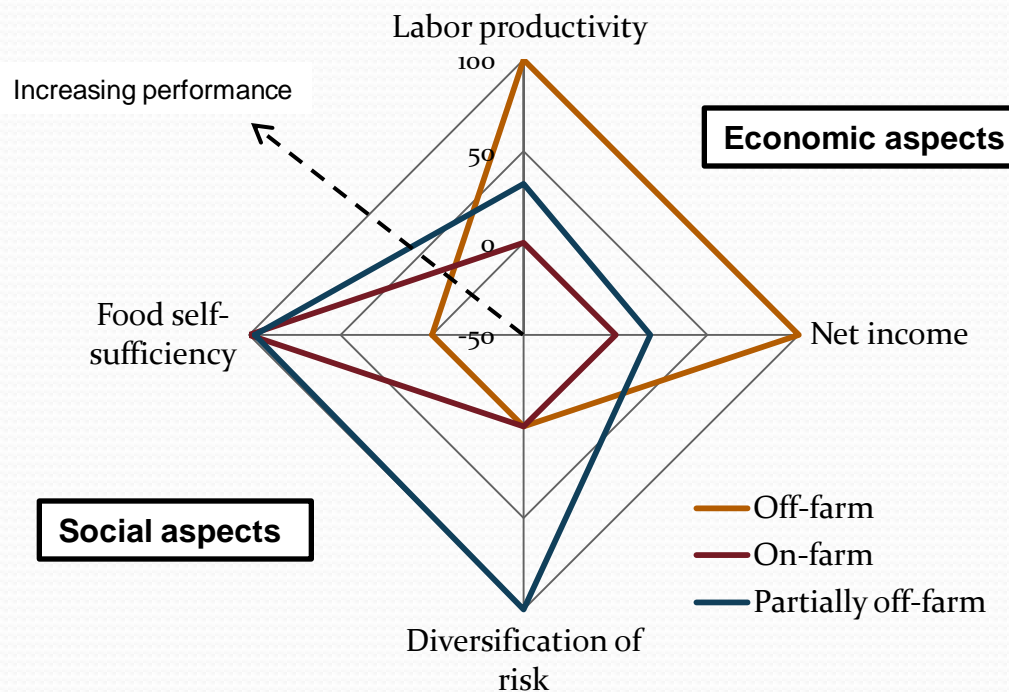
Economic aspects



Indicators	Unit of measurement	BAU scenario Hongxing village	Scenario 2 (intensive agriculture)	Scenario 3 (input reduction)
Energy use	MJ/ha/year	28,947	166,515	155,729
Labor productivity	RMB/hour/year	5.05	45	67
Diversification of risk	qualitative	very high	very low	very low
Use of pesticides	kg ha ⁻¹ year ⁻¹	5.4	7.8	0
Use of nitrogen	kg ha ⁻¹ year ⁻¹	219	291	204

8. Results

Household level



Indicators	Unit of measurement	Preferred direction	Off-farm	On-farm	Partially off-farm
Labor productivity	RMB/hour	Max (↑)	6.2	3.4	4.3
Net income	RMB/year	Max (↑)	21,155	5,909	8,827
Diversification of risk	qualitative	Max (↑)	very low	very low	very high
Food self-sufficiency	%	Max (↑)	0	92	89

9. Conclusions

- (1) **A deterioration of the environment** : in terms of fossil energy consumed and soil pollution, if appropriate environmental protection measures are not put in place, i.e. input reduction programs
- (2) **A decline of the social aspects**: the loss of the multifunctionality of rural areas together with the loss of food security and diversification of risk of rural people, together with an increased vulnerability to potential food and labor market crisis
- (3) **An increase of the rural economic efficiency**: reduction of rural-urban income gap and an increased efficiency of the agricultural sector



Trade-offs

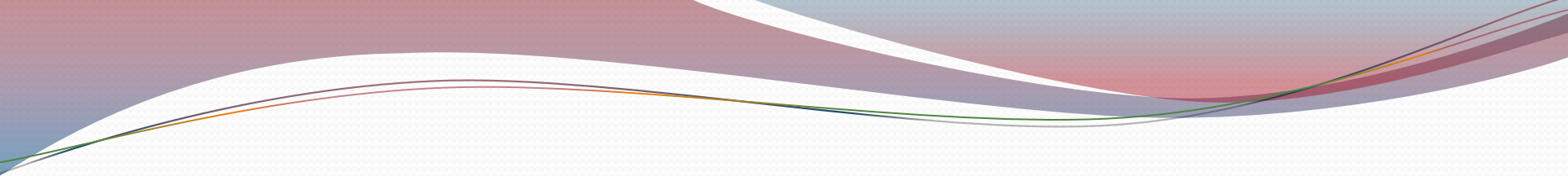
the implementation of rural urbanization strategies, linked to land dispossession and agricultural modernization, increases the efficiency of the rural economy at the expense of the environmental and social aspects

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Thank you
Dr Giuseppina Siciliano
giusici@iuav.it
Giuseppina.siciliano@gmail.com