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# Solid Waste Disposal and Its Relationship with Economic Development in Rural China

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# Solid Waste Disposal and Its Relationship with Economic Development in Rural China



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## Research Questions

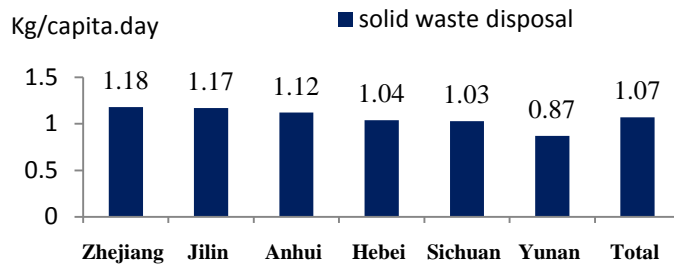
- Is there an EKC relationship between domestic solid waste discharge and per capita net income of farmers in rural China?
- If yes, what is the turning point?

## Methods and Data



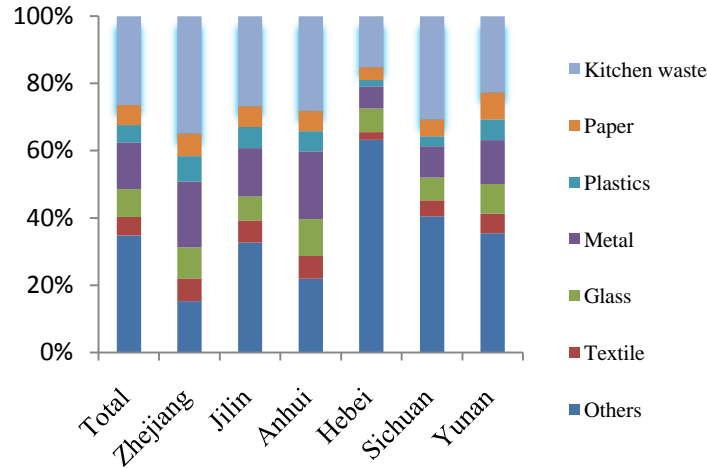
Data come from a field survey conducted in 2010, covered 1,118 farmers, and 18 counties in 6 provinces in China.

## Solid waste disposal in rural China



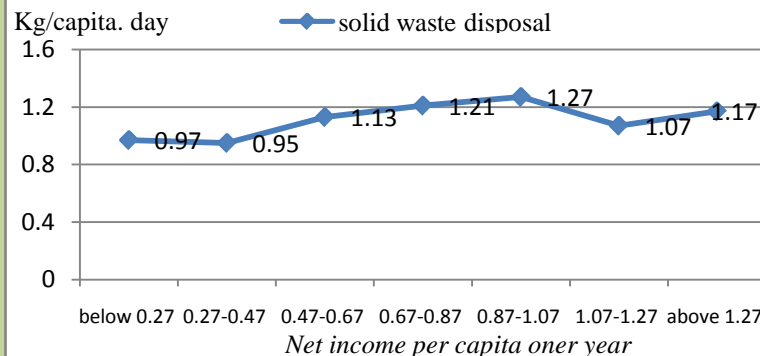
Domestic solid waste disposal is about 1.07 kg per capita per day in rural China and varies significantly across regions, from 0.87 to 1.18 kg/capita per day

## Composition of solid waste in rural China



- Kitchen waste is the most important waste of rural domestic solid waste, whose proportion is 27.6%
- There is also regional difference between different types of domestic solid waste.

## Relationship between net income and solid waste disposal



The relationship between the solid waste disposal per capita of rural domestic solid wastes and income per capita shows an obvious inverted U-shaped curve, and the turning point comes between 0.87~1.07 10<sup>4</sup> RMB net income per capita

## Econometric Model Specification

$$\ln(y_i) = \alpha_1 + \beta_1 I_i + \beta_2 I_i^2 + \beta_3 Z_i + \varepsilon_i$$

$y_i$  denotes the  $i^{th}$  household daily solid waste disposal,  $I_i$  is the net income (10<sup>4</sup> rmb/capita), and  $I_i^2$  is the quadratic item of net income;  $Z_i$  is a vector of control variables.

## Estimation Results

### Estimation results of key variables:

	Per capita solid waste disposal (kg/day)
Net income per capita (10 <sup>4</sup> /capita)	0.321 (2.78)***
Square of net income per capita	-0.092 (1.93)*
Turning point	<b>17446 RMB</b>
Observation	1, 118

Notes: t-value in parentheses; \* p<.1, \*\* p<.05, \*\*\* p<.01

The environmental Kuznets curve is empirically found for solid waste disposal. The turning point of estimated per capita net income is about 17446 RMB a year

## Conclusions and Political Implication

- Domestic solid waste disposal per capita is about 1.07 kg/day. Therefore, the government should strengthen rural solid waste management without delay.
- Domestic solid waste in rural China varies not just throughout regions, but also between different components. Consequently, the government should introduce different policies in different regions.
- The environmental Kuznets curve is empirically found for solid waste disposal in rural China. The turning point of estimated per capita net income is about 17446 RMB a year. Using any policy and marketing instruments which could significantly increase the recycling rate of these wastes are necessary.