Domestic Solid Waste Discharge: Volume, Structure and Determinants in Rural China

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Backgrounds

- Rural domestic solid wastes accounts for 53% of all rural pollution sources in China
- The massive discharge of rural domestic solid wastes has posed serious impact on rural environments
- The research on rural domestic solid wastes is not enough, there even have no statistical data about the discharge of rural domestic solid wastes in China

Questions

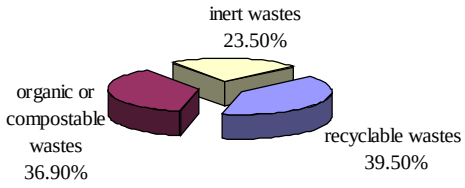
- What is the total discharge volume of rural domestic solid wastes in China?
- How about the characteristics of the rural domestic solid wastes discharge?
- What are the determinants of discharge volume of the rural domestic solid wastes in China?

Methods and Data

- Econometric model analysis.
- Data come from a face to face field survey conducted in 2010, covered 1,104 farmers, 105 villages and 18 counties in 6 provinces in China.

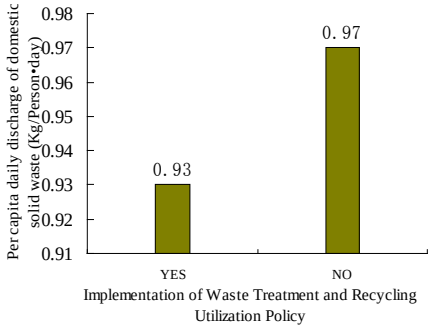
Discharge Volume and Structure

- In 2010, Rural domestic solid wastes discharge volume was 0.96 kg/person• day, overall discharge volume reached 236 million tons in China.
- Discharge Structure

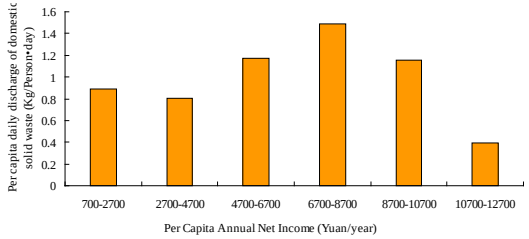


Determinants of Discharge Volume

- Solid Waste Recycling and Disposal Policies and the Per Capita Waste Output.



- Per Capita Net Income and Per Capita Waste Output



Econometric Analysis

- Econometric model (OLS):

$$W_i = \alpha + \beta P_i + \delta I_i + \rho D_i + \varepsilon$$

Wi: Per capita domestic solid waste discharge volume (kg/person• day); *Pi*: whether implementation of Solid waste recycling and disposal policies; *Ii*: socio-economic conditions; *Di*: control variable.

Estimation results of key variables:

	Coefficient	T Value
Solid waste recycling and disposal policies （1=yes；0=no）	-0.600	（1.78） *
Per capita net income of farmers (RMB 10000/year)	2.494	（1.81） *
Square of per capita net income of farmers (RMB 10000/year)	-2.184	（2.42）**
Number of enterprises	0.046	（2.19）**
Proportion of non-agricultural labor force (%)	-1.366	（1.83） *
Observed value	-0.05	(1.12)
Adjusted R^2	*0.28*	

Note: "*", "**" and "***" respectively means P<0.1, P<0.05 and P<0.01.

Conclusions and Political Implication

- Daily discharge per capita of rural domestic solid wastes in China in 2010 was 0.96 kg.
- Recyclable wastes occupy the largest proportion in the discharge structure of rural domestic solid wastes, say, 39.5%, while organic or compostable wastes and inert wastes respectively occupy 36.9% and 23.5%.
- Solid waste recycling and disposal policies can significantly reduce the discharge per capita of rural domestic solid waste.
- the relationship between daily discharge per capita of rural domestic solid wastes and per capita annual net income of farmers is of an obvious inverted U-shaped curve.