Analysis of Long-Term and Health Care Costs Across Municipalities

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Introduction

- In Japan, Long-Term Care Insurance was launched formally in April 2000.

- Two purposes of LTCI;

  1) To relieve the burden of family caregivers;
  2) To relieve the Health Insurance programs the cost of social hospitalization.

Motivation for Our Research

- Did the introduction of long-term care insurance reduce medical cost?
- How do Public expenditures for elderly affect health care costs?

Medical and insurance system over 65 age

- ~2000/3 : Health insurance for the aged(HIA).
- 2000/4~2008/3: HIA & long-term care insurance(LTCA) .

Institutional Changes during 2000/4~2007/3

- 2000/10: Government started to collect Insurance Premiums of LTCI.

- 2001/1: Out of Pocket Payment of HIA was raised to 10% (with upper limit for high medical costs).

- 2002/10: Lowest age of HIA was changed from 70 years old to 75 years old (in five years).

Moreover HIA system has changed from 2008/4. So we need to access 'old' HIA to LTCA.

Insurers

- HIA: individual municipality.
- LTCI: individual municipality or alliance of municipalities. Ministry of Health, Labour and Wealth "advise" small municipalities to form administrative alliances for LTCI operations.
- So, it is natural to analyze across municipalities.

Data Set

- 2001~2004 panel data.
- About one third of all municipalities merged during the period of 2000 to 2002. To avoid attrition bias, we treat all municipalities that existed at 2005/3 as if they had existed in 2001. That is;

  if municipalities 'A' and 'B' merged to make 'C' in 2004, in our panel data, only 'C' had existed from 2001 to 2004.

Estimation: variable and method

- Endogenous variables:
1. per capita HIA cost (health care cost)
2. per capita LTCI cost (long term care cost)
- Two stage least squares estimation with municipalities dummy variable.

  Exogenous variables are : (Per 1000 caipita)
1. Capacity of healthcare facility for the elderly
2. Capacity of facility for social welfare for the aged
3. Capacity of nursing home

Disc. Stats. obs.=10080, Mean, Std. dev. Min. , Max

	Mean	Std. dev.	Min.	Max
Log of HIA per capita (1000yen)	6.550	0.160	5.761	7.302
Log of LTCI per capita (1000yen)	5.405	0.237	4.126	6.637
Log of Income per capita (1000yen)	8.034	0.138	7.671	10.590
(Age >=75)/(Age >=65)	0.465	0.047	0.274	0.717
Beds in hospitals per 1000 Capita	71.367	92.079	0	1072.2
Log of population (1000 people)	9.719	1.354	5.273	15.073
ln(Public expenditure for elderly per capita)	5.111	0.329	3.984	7.621
Capacity (per 1000 Capita):				
1. Healthcare facility for the elderly	29.207	28.919	0	509.066
2. Social welfare for the aged	16.777	24.044	0	279.221
3. Nursing home	40.261	38.070	0	566.038

Results: Dep var : log of HIA per capita

Obs.=10080, R^2 = 0.9476,
adj. R^2=0.9300, MSE = 0.04225

	Coef.	Std. Err.	1%,5%,10%
Log of LTCI per capita	−0.1683	0.0479	***
Log of Income per capita	0.0035	0.0163	
(Age >=75)/(Age >=65)	0.3665	0.0791	***
Log of Population. (one thousand)	0.1979	0.0504	***
Hospital Beds in per 1000 capita	0.0002	0.0000	***
Log of public expenditure for elderly. per capita	0.0130	0.0028	***
2001 year dummy	−0.0643	0.0085	***
2002 year dummy	−0.0733	0.0050	***
2003 year dummy	−0.0407	0.0028	***
_cons	5.3010	0.4290	***

(1) Elasticity= -0.1683. Evaluation at mean value of All Japan.

Year	per capita LTCA(1000yen)	If 1% up	
2001	198	1.98	
2002	217	2.17	
2003	232	2.32	
2004	247	2.47	
	per capita HIA(1000yen)	Then 0.168% down	cover ratio
2001	755	−1.27	0.64
2002	735	−1.24	0.57
2003	753	−1.27	0.55
2004	780	−1.31	0.53

Ans. For Motivation etc.(2)

- **Public expenditures have a <u>positive</u> effect on health care cost of the elderly.**

- **Municipality Population has a <u>positive</u> effect on the health care cost of the elderly.**

- **The signs of almost all the other coefficients are as expected.**

- **But log of Income per capita is insignificant**

What works we are doing now:

- Soon we will get the 2005 year municipalities data. So we will use these data.
- We need to use or search some kind of demand side data more.