Differences in Health Care Costs accross Swiss Cantons

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- Health costs amount to 52.7 billions Swiss Francs (10.8% of GDP) in Switzerland in 2006, increasing over time

- These are largely financed by social health insurance (42.9%)

- Social health insurance premia are visible for the population

- Health costs becomes a sensitive political problem

- The most expensive cantons are interested in understanding the explanations behind their high health care costs.

- Econometrically, Switzerland with its 26 differentiated cantons is an ideal laboratory
  - Identical institutional setting, currency...
  - Different income, urbanization, health providers... And health care costs

Literature

- Newhouse (1977) : 13 developped countries, investigates the relationship between health costs and GDP. His main results is that there is an income elasticity of health care costs bigger than one.

- More recent empirical studies mostly focused on countries of the OECD. They mostly confirm Newhouse findings (Leu (1987, 1987), Culyer (1988, 1989), Pfaff (1990))

- Studies on micro-level data imply a positive income elasticity of health care expenditures, but smaller than one (Newhouse and Phelps (1974), Manning et al. (1987)...)

Literature

- More recent studies are analysing the problem of non-stationarity of health care costs and cointegration with GDP, especially when analysing long time periods (Hansen and King (1996), Blomqvist and Carter (1997), Pita Barros (1998), Gerdtham and Jönsson (2000), Roberts (2000), Clemente et al. (2004)...) They could not reject the unit-root hypothesis, but there is no consensus on possible cointegration.

- Few work exist on health care costs inside a country. Some results exist for Canada (Di Matteo and Di Matteo (1998)...) and for Turkey (Bilgel (2003)). They found an income elasticity smaller than one.

Swiss Setting

- Health care is financed through 4 main channels : social insurance, out-of-pocket, public subsidies and private insurance

- Health insurance is compulsory, and imposes a deductible (that can be chosen among 6 possible levels). It is also possible to subscribe to some alternative form of insurance that includes gatekeeping

- Public subsidies are essentially targeted at providers (hospitals). It is difficult to separate what is used for health care from other purposes

- Private (supplementary) insurance and out-of-pocket expenses are not measurable by cantons

We set up a panel data model explaining social health insurance costs at the canton level, over the period 1998-2007.

- It represents the biggest share of health care costs.

- It is the most visible part to the population

Demand and supply for health care

$$q_{i,t} = F(p_{i,t}; X_{i,t}; \epsilon_{i,t})$$
$$p_{i,t} = G(q_{i,t}; X_{i,t}; \epsilon_{i,t})$$

In its reduced form.

$$C_{i,t} = q_{i,t} \cdot p_{i,t} = \alpha_0 + \lambda_i + \alpha_1 X_{i,t} + u_{i,t}$$

Model

Possible supply effects

- supply induced demand effects (number of physicians, hospitals, hospital beds...)
- the effects of medical practices
- inpatient share of costs
- outpatient hospital care market share

Possible demand effects

- average income available to households
- education (average number of years of education)
- average deductible chosen in the canton
- age structure of the population (the proportion of people above age 65)
- life expectation, as a proxy for (objective) health status
- gatekeeping (proportion of insurees chosing one of the alternative insurance system which includes gatekeeping)

Panel data results

	Base Equ. (1)	Specialists (2)	Outpatient (3)	Pharmacies (4)	Choice (5)
Physicians density	0.231*** (0.064)	0.219*** (0.068)	0.253*** (0.058)	0.24*** (0.063)	0.016 (0.049)
Proportion of medical specialists		0.046 (0.078)			
Hospital doctors density	0.002 (0.002)	0.002 (0.002)	-.0007 (0.001)	0.002 (0.002)	-.001 (0.002)
Pharmacies density				-.875*** (0.319)	
Medical practice (propharmacy)	0.047 (0.295)	0.045 (0.296)	0.247 (0.27)	0.076 (0.291)	-.256 (0.281)
Inpatient	-.014 (0.169)	-.002 (0.171)	-.049 (0.154)	-.015 (0.167)	1.170*** (0.154)
Hospital ambulatory market share			1.040*** (0.151)		
Life expect.	0.039*** (0.008)	0.039*** (0.008)	0.022*** (0.007)	0.035*** (0.008)	0.006 (0.007)
Income	0.426*** (0.09)	0.436*** (0.091)	0.445*** (0.082)	0.435*** (0.088)	0.025 (0.097)
Education	0.192*** (0.035)	0.191*** (0.035)	0.205*** (0.032)	0.19*** (0.035)	0.16*** (0.049)
Urban population	6.409*** (2.370)	6.358*** (2.375)	5.175** (2.164)	6.298*** (2.337)	2.992 (2.434)
Elderly share in the population	5.095*** (1.139)	5.181*** (1.150)	3.224*** (1.071)	5.381*** (1.127)	1.042 (1.079)
Average deductible					0.284*** (0.044)
Gatekeeper					-.003 (0.1)
Obs.	260	260	260	260	182

*Significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in parenthesis.

- Instrumental variable issues

- Study the stationarity problem

- Estimate simultaneously the substitution between ambulatory care and inpatient care , but also including the substitution with pharmacies and elderly homes

- Estimate a predictive model including some policy controlled variables

- Income elasticity significantly positive, but smaller than one
- Education, Proportion of elderly, Life expectancy, Urbanisation significantly positive
- Deductible chosen is an important determinant, but collinear to other factors

- The market share of consultations is an important determinant of costs (hospitals being more expensive)
- Supply induced demand is significantly positive for physicians, but not for hospitals