A multilevel analysis on the determinants of regional health care expenditure.

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Introduction

- The interest for understanding the impelling factors for rising health care expenditure has created up to a third generation industry for exploring data and econometric issues (Gerdtham and Jönsson, 2000).

- However, a common missing point is that of taking into account the regional composition of the national health expenditure figures.

- It may be not just the national average income that may influence health care expenditure but also its regional distribution.

Introduction

The way in which regional differences are taken into account by health authorities may depend

- on whether finance is still under the state control.
- on whether health care finance is fully decentralised.
- on the nature of constitutional powers in managing health care on a regional basis.

Introduction

In compounding the former factors causes of heterogeneity get more complex:

- Dispersion is larger whenever the political powers of the regions are weak and no fiscal room for revenue raising exists amongst the regions.
- Dispersion is smaller when political power of the regions are strong but no fiscal rooms exist for the regions.
- Dispersion is larger with fiscal autonomy for the regions and strong political power.

Hypotheses:

- Income elasticity of health care expenditure grows together the relative variation on health care expenditure.

- Relative variation depends not only on the relative variation of income but, moreover, on the degree of regional decentralisation.

Methods

- A multilevel hierarchical model for 110 regions of 8 OECD countries in 1997:
  - Australia (8 'states)
  - Canada (12 'provinces')
  - France (22 'provinces' or quasi-regions)
  - Germany (16 Länders)
  - Italy (19 regions)
  - Spain (8 'nationalities')
  - Sweeden (8 'counties')
  - United Kingdom (17 'regional health authorities').

Methods

- We try to identify two sources of random variation: the within and the between-country level,

- We allow that not only the autonomous health care expenditure but also the different relationships between health care spending and the explanatory variables, could be country-specific.

Methods

$$\log(HE)_{ij} = \beta_{0i} + \beta_{1i}\log(Y)_{ij} + \beta_2 POP65_{ij} + \beta_3 PUB_{ij} + u_{ij}$$
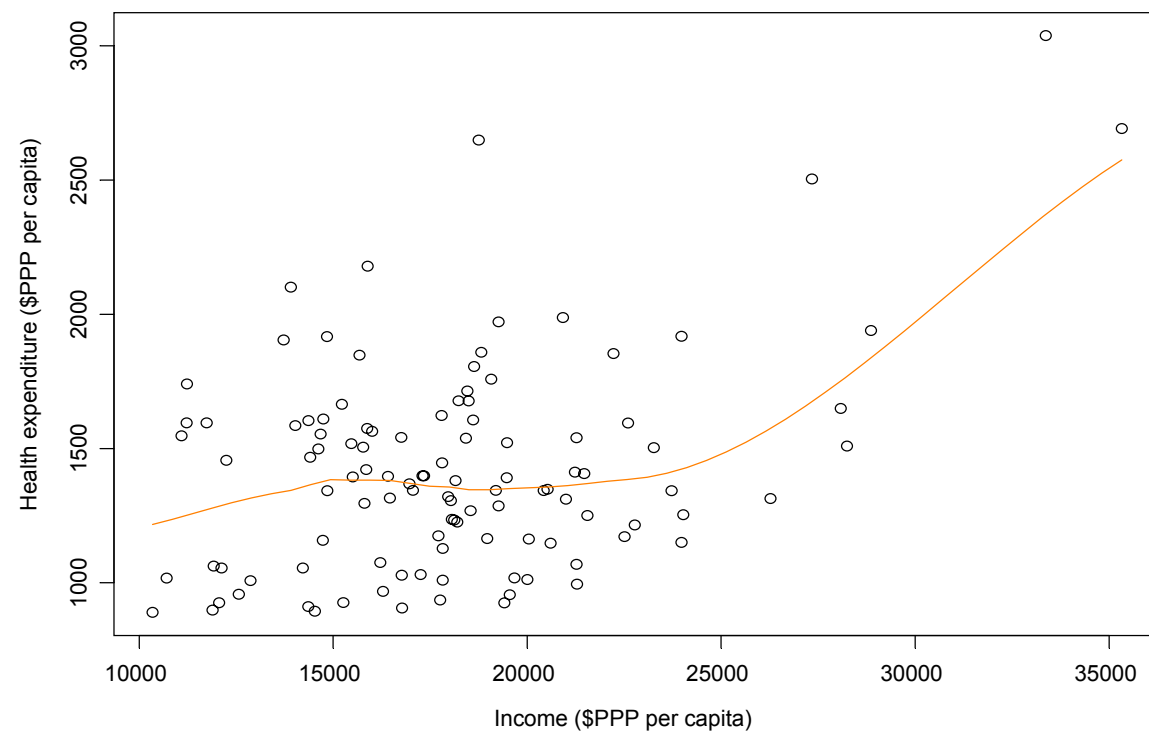
$$\beta_{0i} = b_0 + \nu_{0i}$$
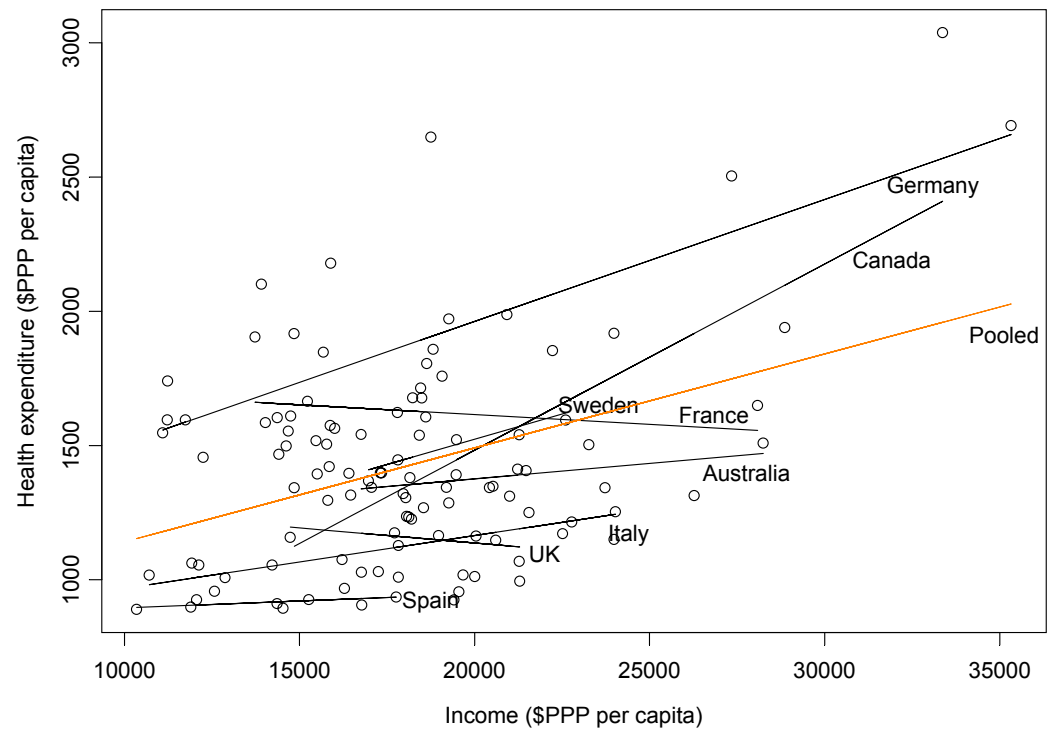
$$\beta_{1i} = b_1 + \nu_{1i}$$

$$Var(\nu) = \begin{pmatrix} \sigma_0^{\ 2} & \sigma_{12} \\ \sigma_{12} & \sigma_1^{\ 2} \end{pmatrix}$$

$$Var(u_{ij}) = \sigma^2 \left(\delta_1 + \left| H\hat{E}_{ij} \right|^{\delta_2} \right)^2$$

Results

Results

Results

Estimation of the fixed effects

|	$\hat{\beta}$ (s.e)
Income elasticity	0.3003 (0.0258)
Population over 65 years and over	0.0075 (0.0001)
Public health care expenditure	0.0108 (0.0001)
Intercept	3.3071 (0.1663)

Results

Country-specific income elasticity and within-country variation

Country	Income[1]	Rank	Income elasticity[2]	Rank	Within-country coefficient of variation		
					Observed		Residual
					Health care	Income	
Australia	1380.7	5	0.3301	4	0.0775	0.1707	0.1976
Canada	1588.0	3	0.3436	3	0.3530	0.2736	0.3784
France	1643.9	2	0.3739	2	0.1562	0.1459	0.3580
Germany	1903.3	1	0.3850	1	0.2792	0.3240	0.3276
Italy	1123.5	7	0.2591	6	0.0845	0.2363	0.1582
Spain	919.4	8	0.1956	8	0.0183	0.1207	0.1107
Sweden	1459.9	4	0.2921	5	0.1086	0.0879	0.2499
United Kingdom	1154.6	6	0.2230	7	0.1494	0.0843	0.4491
Pooled	1425.1		0.3003		0.2779	0.2471	0.2834

Results

Observed coefficients of variation
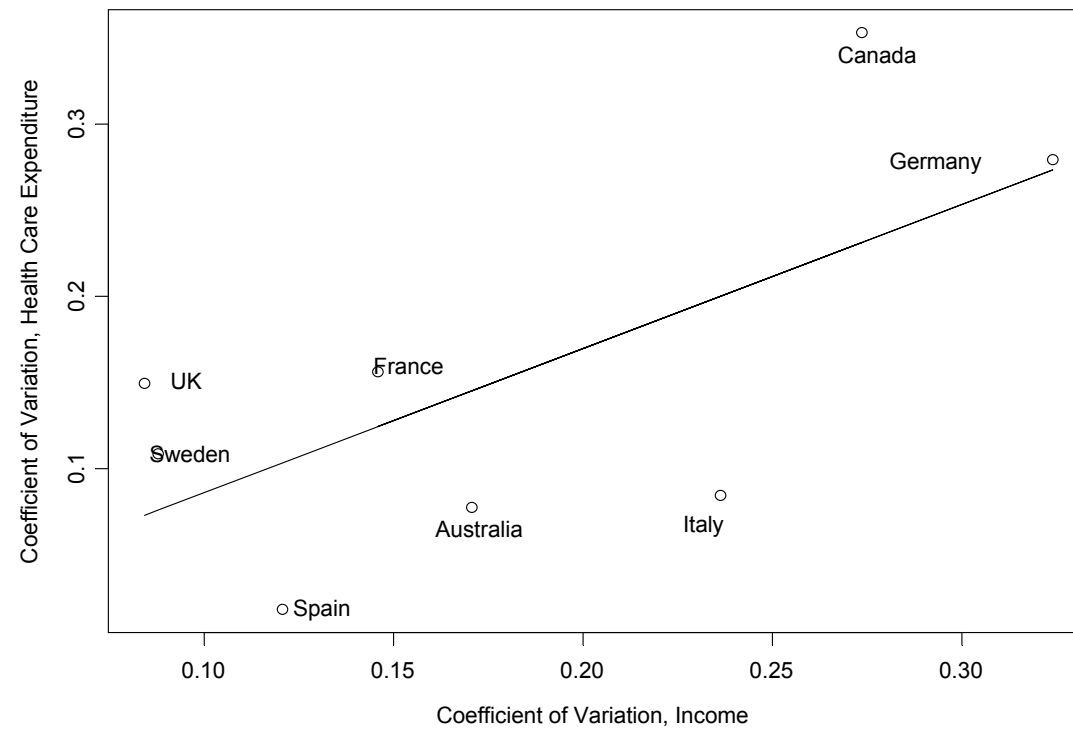
Results

Observed coefficient of variation and estimated income elasticity