Public health expenditure in Spain: A disaggregated analysis

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1.-Motivation

Since the seminal paper of Newhouse (1977) a big amount of papers has studied the determinats of health care expenditure. However, there is relatively scarce literature that analyses differences in health expenditure between territories and its convergence as well as the main factors that explain it. Recen exceptions are:

- Panopoulou, E. and Pantelidis, T. (2012): "Convergence in per capita health expenditures and health outcomes in the OECD countries". *Applied Economics* 44(30): 3090-3920.
- Panopoulou, E. and Pantelidis, T. (2013): "Cross-state disparities in US health care expenditures". *Health Economics* 22: 451-465.

2.- Objective

To study the degree of convergence in public health expenditures among the Spanish regions from 1991 to 2010.

And if not, to analyse the existence of clubs of regions with similar paters of behavior or convergence clubs.

To answer if partisans' factors are among the variables that explain these clubs.

3.- Data

Data on public health expenditure of Spain Autonomous Communities during the period 1991-2013 (BBVA Foundation and Ivie, 2013). The data have been expressed in per capita real terms.

4.- Results

1

Following the recent paper of Phillips and Sul (2007), the **CONVERGENCE NULL HYPOTHESIS** is rejected for the total public health as well for most of this functional components.
The only exception is the Hospital Services Expenditure.

Testing for convergence.

Variable	$\hat{\beta}$	t-stat
Total Public Health Expenditure	-1.29	-13.55*
Hospital Services Expenditure	-0.28	-1.39
Pharmaceutical Expenditure	-1.40	-13.63*
Primary Expenditures	-1.02	-6.88*
Capital Expenditure	-0.79	-2.81*

This table reports the statistics proposed by Phillips and Sul (2007) to test for convergence. The term log t stands for a parameter which is twice the speed of convergence of this club towards the average. t-stat is the convergence test statistic, which is distributed as a simple one-sided t-test with a critical value of −1.65 (see Phillips and Sul, 2007 for further details).
* means the rejection of the convergence null hypothesis.

2

Estimated Clubs for Total Health Expenditure

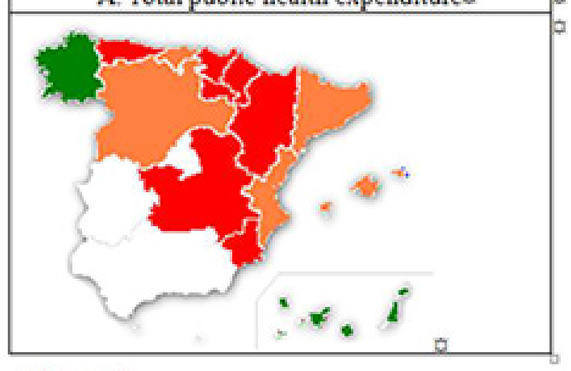
I. Original Clubs	
Regions	t-stat
Club 1: ARA, AST, CLM, MUR, NAV, PAV, LAR	0.69
Club 2: BAL-CAB----CYL----CAT---CVA	-1.50
Club 3: CAN----GAL	1.62
No convergence: AND, EXT, MAD	

The clubs reported have been obtained by applying the algorithm proposed by Phillips and Sul (2007), which aims to find groups of regions with similar convergence speeds to the average. t-stat is the convergence test statistic, which is distributed as a simple one-sided t-test with a critical value of −1.65 (see Phillips and Sul, 2007 for further details).

3

An ordered probit model has been used. to predict how regional characteristics affect the likelihood that any given city would be found to be a member of each convergence club. To explain the structure of the model, the dependent variable y_i has some possible outcomes, each of them related to each club we have obtained.

A. Total public health expenditure



Cluster 1
Cluster 2
Cluster 3

Ordered probit estimates of health expenditure convergence club.

	Total	Pharmaceutical	Primary	Capital
GDP pc	-0.0002			
	(-3.27)			
RWGOV	2.92		4.70	
	(3.14)		(2.57)	
DEN	0.01	0.004	0.01	0.004
	(2.96)	(3.15)	(1.87)	(2.29)
DISLAND	1.13	2.27		
	(2.16)	(3.71)		
DSINGLE		1.50	-3.06	
		(2.01)	(-2.10)	
L15				-0.64
				(-3.16)
NATIO				-9.00
				(-2.51)
Pseudo R^2	0.53	0.44	0.68	0.63
Percentage of cases correctly predicted	82%	77%	88.2%	88.2%

Total public health expenditure (per capita) and its components. The dependent variable is the ordinal value of the different clubs in which the health expenditures are clustered. In order to mitigate the lack of freedom degrees, we have included the divergent regions (AND and EXT) in club 1, whilst MAD has been joined to the regions of club 3.
The values into parenthesis represent the robust estimations of the standard deviations of the estimators.

4

The higher the GDPpc, the more probable to be assigned to those clubs that imply higher per capita health expenditure. By contrast, the higher the density, the higher is the probability to be assigned in clubs with low public health expenditure. Something similar occurs with the insularity condition.

The most important result: the larger the number of year governed by a right-wing party, RWGOV, the lower the **PUBLIC HEALTH EXPENDITURE** and, therefore, the greater the probability of being included in the group of the smallest spenders, clubs 2 and 3.

Result present in the **PRIMARY SERVICE** expenditure. Also for the **CAPITAL EXPENDITURE** associated with nationalist/regionalist (NATIO) regions with a higher regionalist vote are more likely to be included in the clubs that exhibit a higher level of expenditure.

Thus, we should conclude **THAT THERE IS A CLEAR AND SIGNIFICANT PARTISAN BEHAVIOR IN THE EVOLUTION OF THE SPANISH PUBLIC HEALTH EXPENDITURE**