

**Título:** ANALYSIS OF EFFICIENCY AND PRODUCTIVITY OF PUBLIC HOSPITALS IN SPAIN (2002-2009)

**Nombre:** ARVELO MARTIN, ALEJANDRO

**Universidad:** Universidad de La Laguna

**Departamento:** Economía de las instituciones, estadística económica y econometría

**Fecha de lectura:** 08/06/2015

**Programa de doctorado:** FORMACIÓN, EMPLEO Y DESARROLLO REGIONAL

**Dirección:**

> **Director:** IGNACIO JOSÉ ABASOLO ALESSÓN

> **Codirector:** JUAN JOSE DIAZ HERNÁNDEZ

**Tribunal:**

> **presidente:** BEATRIZ GONZÁLEZ LÓPEZ-VALCÁRCEL

> **secretario:** EDUARDO MARTÍNEZ BUDRIA

> **vocal:** Cristina Hernández Quevedo

**Descriptor:**

> SECTOR DE LA SALUD

> EMPRESAS PUBLICAS

> TEORIA MICROECONOMICA

> PRODUCCION

**El fichero de tesis** ya ha sido incorporado al sistema

**Localización:** ANALYSIS OF EFFICIENCY AND PRODUCTIVITY OF PUBLIC HOSPITALS IN SPAIN (2002-2009)

**Resumen:** Objectives: To characterise productive technology and explain existing differences in cost efficiency levels in the provision of Spanish public hospital care. To measure and decompose change in the total productivity factor (TFP) index into its main components of cost efficiency change, technical change and economies of scale effect.

Methodology: The structure of technology for a panel of 57 acute general public hospitals in Spain during the period 2002-2009 is approximated by means of a multi-product variable stochastic cost frontier under a normalised translog specification. Marginal costs, the degree of both economies of scale and scope are obtained. To control for the observed heterogeneity, a set of variables capturing differences in costs due to hospital characteristics and environmental factors are included. Within the latter, the influence of the activity of other health and social sectors agencies on costs and efficiency is explored. Analysis is undertaken following the Battese and Coelli (1995) approach. A measure of the TFP index change, as well as its decomposition into its components of cost efficiency change, technical change and economies of scale effect is obtained following the

approach proposed by Bauer (1990).

Results: Marginal cost estimates of a sample mean hospital indicated that an additional inpatient discharge had an impact on hospitals costs of 2,752 €. Concerning outpatient activity, this impact was equal to 124 € and 74 € for a first and a successive outpatient visit, respectively. A marginal cost of 743 € was obtained for ambulatory surgery. The impact on hospitals costs of additional day-hospital and emergency services were equal to 371 € and 181 €, respectively. A mean degree of economies of scale of 1.019 indicate that hospitals were operating at an optimal scale. High cost savings are derived from the joint production of hospital care for inpatient, outpatient and emergency activities, as indicated by the annual mean degree of economies of scope obtained (2.000). Mean average cost efficiency equal to 0.952 was obtained. Moreover, an annual average increase of 0.438% in productivity was observed. This was mainly due to an annual average technical progress, which offset the annual average regress observed in cost efficiency. Factors such as hospital complexity, teaching activities, insular location, activity of nursing homes and the externalisation of inpatient activity to private hospitals were found to increase hospital costs. On the other hand, higher concentration within the inpatient activity reduced hospital costs. Moreover, the variety in technology equipment, outsourcing non-medical services and outpatient care to private hospitals, nursing home activity and decentralization increased cost efficiency. Conversely, a negative relationship between quality and hospital cost efficiency was found.

Conclusions: Efforts to improve the cost efficiency of public hospitals should focus on the reinforcement of the social care sector at a regional level, the promotion of externalisation of outpatient and non-clinical services and investment in a wider range of health technology equipment. Improvements in hospital productivity during the period of study are mainly driven by technical progress.