Health Studies: Economics, Management and Policy

Edited by
Douglas Angus
Zoe Boutsioli

Athens Institute for Education and Research
2011

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Health Studies: Economics, Management and Policy: An Introduction

Douglas Angus and Zoe Boutsioli

This edition consists of 21 papers presented at the International Conference on Health Economics, Management and Policy, organized by the Athens Institute for Education and Research (ATINER), in June of 2009 and 2010. All papers represent original works in the fields of health economics, health management and health policy. They come from various health care settings and different countries around the world, including the USA, Germany, Italy, Spain, Latvia, Turkey, Canada, and China.

Excluding this introductory session (Chapter 1), the book is almost equally separated into three parts – parts A and B consist of seven studies, while part C has six papers. Part A contains papers on health economics in various topics. Part B consists of studies on a range of health management themes. Part C includes works on health policy.

Part A: Health Economics

The first study in the Health Economics Part of this edition (Chapter 2) discusses the issue of health care utilization and the demand for private health insurance in the health care sector in Spain. Since 1986, in Spanish National Health System (NHS) the General Practitioner (GP) acts as gatekeeper to the health system and plays the role of the patient's agent when determining the need for visits to specialists. Amongst other reasons, the waiting lists which some patients must endure in order to receive specialist attention or to be admitted to hospital have produced a demand for supplementary private health coverage, which permits free access to specialists. In Spain, this double health coverage is also related to a comfortable economic situation. Professors Mª Luz González-Álvarez & Antonio Clavero-Barranquero analyse the number of times that an individual has consulted a GP and a medical specialist during the past twelve months using a count data model with endogenous switching. Similar to previous research on the Spanish NHS (Rodriguez and Stoyanova,

2004) the authors concluded that the majority of differences in the number of visits to a general practitioner are explained by the individual characteristics of the publicly insured, while the divergences in the number of consultations with specialists are the result of the overuse of this care by the population with double health insurance coverage.

In the second paper of this book (Chapter 3), Professors Hogg, Zhao, Angus, Fortier, O'Sullivan, Segal and Blanchard try to assess the direct costs of integrating a physical activity counselor (PAC) into the primary health care team to improve physical activity levels of inactive patients aged 18 – 69 years old. A cost analysis**,** based on the perspective of the Ontario provincial government**,** was conducted using data from 120 inactive patients aged 18 – 69, recruited from a community-based family medicine practice in Ottawa. Following randomization into two groups, subjects in the brief counseling group were provided with 4-minutes of brief counseling at the beginning of the project by their usual primary care provider. In addition to this brief counseling, intervention subjects were provided with six sessions of physical activity (PA) counseling from a physical activity counselor over a three month period. The relevant cost items for the intensive counseling group were classified under five headings: 1) office expenses; 2) costs of training the physical activity counselor; 3) equipment purchases; 4) labor costs; and 5) operating costs. Physical and human capital was amortized over a five-year horizon. The one-time cost of integrating a PAC into the primary health care team was estimated at CAD $91.43 per participant per month for the three-month period of the study. Results were sensitive to the number of patients counseled. The incremental costs associated with the intervention are less expensive than many other intervention studies attempting to improve population PA levels. Demonstrating this competitive cost base should encourage additional research focused on integrating a PAC into the primary health care team to promote active living among patients who do not meet recommended PA levels. The next paper discusses another possible reason for people's inactivity in Italy, that is the role of food prices in relation to being overweight.

More specifically, in the third paper of this edition (Chapter 4) Professors Pieroni, Lanari and Salmasi examine the role of relative food prices in determining overweight people. As healthy foods become more expensive relative to unhealthy foods, theory predicts that healthy foods are substituted by a less healthful diet. With respect to the current literature, they use a cohort dataset constructed from a series of cross-sections of the ISTAT Italian Household Budget Survey (1997-2004) to account for heterogeneous behaviours of households. Their estimations do not reject their hypothesis, that is, healthy foods are substituted by a less healthful diet. These substitution effects appear to be relevant for the younger cohorts aged among 30-45. Studies in the USA have found that an effective way of changing BMI or obesity prevalence is to apply pricing interventions: taxes against unhealthy food or subsidies in favour of healthy foods. These taxes/subsidies are expected

to have some measurable effects o Americans' weight outcomes, particularly for children and adolescents (Powell and Chaloupka, 2009).

Professor Kluge in the fourth empirical work of Part I (Chapter 5) examines the issue of ethics in health economics. Particularly, it presented a way for using statistically derived health care needs indicators, public preferences and outcome considerations to provide an ethically appropriate model of health care allocation at the macro or policy level. Current methods of resource allocation for publicly funded health care systems suffer from several ethical flaws. The most serious of these are that they confuse cost-effectiveness and cost-benefit quotients with ethical justification, that they do not contain limiting parameters on macro-allocation rubrics once the latter have passed the initial funding hurdle, and that they do not take the strength and direction of social values into account. Even the Oregon Experiment suffers from some of these shortcomings. At the same time, it is important to note that the model as it has been developed so far is incomplete. It does not deal with the need for research to advance the state of health care, which is itself ethically mandated under Equality and Justice because the effectiveness coefficients (and indeed the very existence) of health care modalities themselves, are functionally related to research expenditures. Nor does it deal specifically with the question of how the overall size of a health care budget should be determined in the first instance. These constitute areas for further development of the model and are currently under investigation.

Given that immigrants represent a large proportion of Canadian population growth, the health status of immigrants is of particular interest to researchers, policy makers and program officials. Due to data limitations, there is limited Canadian research on the disparities of health status among immigration sub-groups. The paper by Professors Zhao, Xue and Gilkinson (Chapter 6) addresses this gap through econometric analyses. Using data from the Longitudinal Survey of Immigrants to Canada, they look at the dynamic changes in the health status of recent immigrants in the initial four years in Canada, focusing on the impact of social capital on the health status of immigrants. They have developed a set of indicators through a network-based approach to measure social capital. GEE (generalized estimating equations) population-averaged models and dynamic panel logit regression models have been applied to examine the relationships between the social capital and health status of recent immigrants. Their results provide strong support for the 'Healthy Immigrant Effect'; however, this effect diminishes over time. The findings suggest that there are health status disparities between recent immigrant sub-groups. Other studies from Canada (McDonald and Kennedy, 2004) found that 'Healthy Immigrant Effect' is present for the incidence of chronic conditions for both men and women, and results in relatively slow convergence to native-born levels. Professors Zhao, Xue and Gilkinson have found that friendship networks play a very important role in promoting the health of recent immigrants. Another negative consequence of immigration on health is higher risk for asthma among children, in the USA (Froles et al.,

2002). The next paper discusses how an asthmatic child in U.S. affects labor market decisions of parents.

Many studies have shown an association between air pollution and asthma exacerbation. Economists have often valued the economic benefits of a reduction in asthma attacks in children by applying the Cost-of-Illness approach without taking into account the impact of children's health on the labor market decisions of parents. This empirical study by Professor Veronesi (Chapter 7) explores how the presence of an asthmatic child affects (i) mothers' labor force participation; (ii) mothers' and fathers' number of work hours, and (iii) mothers' and fathers' earnings and hourly wages. In addition, it addresses the question: are there age-specific differences on the effects of child health on parents' labor market outcomes? They also considered single mothers, and mothers and fathers with partners. The analysis is based on data from the Medical Expenditure Panel Survey for U.S. households with children 0-17 years old from 1996 to 2002. The author compares these effects to those of a set of health conditions that include deformities, congenital anomalies, heart problems, epilepsy and cancer. The results show that in quantifying the benefits of reducing pollution economists should also consider the labor market impacts of children's health. In particular, the results suggest that single mothers are the most affected group, and that there are significant children age-specific differences.

In the last paper in Health Economics session (Chapter 8) Professors Song and Bian try to assess the inter-regional equity of the distribution of doctors based on actual quantity in the last twenty years, to re-assess distributional equity based on the human resource heterogeneity hypothesis, to determine whether the quality of doctors can affect distributional equity and to predict its evolving trend in the next five years. Information collected was from the National Health Statistics Yearbook and the Chinese Statistics Yearbook. The Gini coefficient and the Lorenz curve were used to analyze the inter-regional distribution of doctors. The Cubic curve model was constructed to predict the number of population, GDP and doctors. Workload per capita as a quality standard was adopted to adjust the quantity of doctors. It was found that during the past twenty years, the Gini coefficient based on population size (G^{pop}) declined from 0.18 to 0.12 while the Gini coefficient based on economic level (G^{e}) varied from 0.38 to 0.42. The value of G^{pop} is increasing, while G^{e} is decreasing (after quality adjustment). In the next five years, the value of G^{pop} is forecast to range from 0.25 to 0.37, and G^{e} would exceed the international equity cordon (0.4). The authors concluded that while inter-regional distributional equity has improved in the last twenty years, the inequity of distribution was seen from the difference of economic level more than from population size in the past, the quality of doctors can affect the distribution equity of doctors, and the equity could worsen in the next few years, if there are no new policy interventions.

Part B: Health Management

The first paper from the Health Management session focuses on e-health from a patient-based perspective. Professor Seçkin (Chapter 9) combines a theoretical focus on patients' use of electronic health information resources with an empirical study of cancer patients for whom the Internet-based health knowledge is significant. Assessment of how computer-connected individuals use the Internet is a first step in determining whether they are helped by access to these technologies. Thus, this paper provides an initial assessment of the validity of a newly developed measure of electronic informational and decisional health management support, which was developed as a part of a larger project about use of information and communication technologies by cancer patients. Preliminary evidence indicated this new measure is adequate for capturing self-reported benefits of electronic info-decisional health management support. Results of studies such as this could help in understanding whether e-health technology is associated with successful health care management.

From Germany, Professors Sörensen and Weisenfeld (Chapter 10) try to measure the patients' and physicians' satisfaction of health care services provided after the 2007 health care reform. The huge demographic changes, the rising demand for health care services and the technological progress with increased medical-technological possibilities lead to questions about organizing and financing health care. With the German health care system being a mixture of a public insurance system and private insurance, the extent, quality and equality of access are constantly under debate. Over 90 percent of German people are compulsory members of the public health insurance system. Basic differences between public and private systems are the assessment base for contribution rates (public system: income-based, private insurance: risk-based insurance premiums), the accounting procedures (public system: benefits-in-kind principle, private insurance: cost reimbursement), and the extent of choice (public system: limited to the catalogue of services, private system: regulated via contract). In 2007, the German health care system was once again subjected to reform. Their goal was to assess key stakeholders' attitudes towards the recent health care reform. Thus, they focussed on patients and physicians: they analysed patients' perceptions of medical service quality and physicians' satisfaction regarding their individual job situation. In an empirical study, 1604 patients were asked about their satisfaction with medical services and their insurance as well as their views on the recent reform. They were, irrespective of their type of insurance, on average very satisfied with physicians' services. Privately insured patients on average were more satisfied with their insurance than publicly insured patients. Patients were not well informed about the reform. In addition, 90 physicians were questioned about their job satisfaction and their views on the health care system and the recent reform. Physicians' job satisfaction was markedly lower, they anticipate problems with health care provision and they judge the health care reform as inappropriate. Thus, patients on average are very satisfied with medical

services, physicians on average are not satisfied with their situation, and the health care reform is not perceived as a great success.

Public services should 'live' in public facilities allocations. According to this philosophy, one must fit into the other; in the same way that citizens should find an answer in the residential park offer or production activities seek their location in the industrial areas. This high level of engagement needed is not produced. Services and facilities coexist in an historical isolation. In addition to this, while services are provided by administration, facilities are proposed by the town plans. In this context, how can they maintain a good relationship? How does planning guarantee enough land to allocate public services? Of the great range and variety of public services, some of them are recognized in the country's constitutional texts as essential or universal citizen's rights. All State Main Texts of different European Nations protect the right of their citizens to enjoy, at least, a good public education, quality in the provision of health services and enough offers of assistance to persons. These services, which could be labeled as 'public basics', are widespread respected and unquestioned, thus an acceptable level must be provided by administrations. Basic public services & facilities are strictly connected to people because of their essential and universal nature. The aim of the research by Professor Maria-Lluïsa Marsal-Llacuna (Chapter 11) is to develop indicators for basic public facilities & services (health, education and assistance to persons) in the Service Science framework, enabling both subjects to be viewed in an integrated way for better planning & programming.

In Chapter 12, Professors Fox, Steinberg and Waters discuss the issue of hospital emergency visits management in the United States (US). Over the last decade the annual number of emergency department (ED) visits in the United States increased 18%, while the number of hospitals maintaining a 24-hour ED fell by 12%. As a result, average ED visit volume has risen dramatically; many hospitals report ED overcrowding and an inability to meet urgent care needs. Many hospitals are expanding ED capacity, but the high expenditures associated with ED care make capacity expansion potentially undesirable. Several studies suggest that 33 to 50 percent of ED visits involve nonurgent conditions that could be more appropriately and efficiently treated in a primary care setting. Moving nonurgent patients out of the ED and into community primary care settings has the potential to ease ED overcrowding, reduce overall health care costs and improve the quality of primary care that patients receive. Community leaders in the Memphis area recognized the potential benefits of shifting care from EDs to community clinics. As part of their planning efforts, they commissioned a survey of local nonurgent ED patients to ask questions about: (1) conditions being treated, (2) frequency of ED use, (3) demographics, and (4) care preferences that might influence ED use. Over 2,000 surveys were fielded in ten area EDs. Nonurgent ED users tended to be low income, not working, but most were insured. Although many reported a physician office as their usual source of care, convenience strongly influenced their choice of care location. Their findings suggest several barriers that must be overcome to shift nonurgent patients to community settings. According to a similar study in

Canada (Quebec) nonurgent ED patients have multiple reasons for not seeking primary care before going to the ED and this may help explain why various diversion strategies have been unsuccessful, indicating that a multifaceted approach may be better suited to this group of patients (Afilalo et al., 2004).

Involvement in community activities helps to achieve one of the five 'essential elements' of older people's wellbeing – that of 'having a role' - a sense of purpose, belonging and value within society. The engagement of older people in remote and rural community activities, including informal helping and formal volunteering appears intuitively sensible from several perspectives. The paper by Professors Fielding, Bradley, Munoz, Farmer and Steinerowski (Chapter 13) uses information from the European Union-funded O4O: Older People for Older People initiative (2007-2010), which aimed to enhance older people's participation in remote and rural communities and to study that empirically. O4O tested government policy for maintaining older people, with good quality of life and minimal impact on services, living in their own homes and communities. They presented quantitative information from a survey of people aged 55 and over in four remote or rural Scottish communities regarding the relationship between socio-economic characteristics and participation. Insights are added from interview data involving local people from the same communities. Considering the four Scottish Highland communities, they comment on associations between participation and rural older people's health and wellbeing. The paper concludes with the implications for further investigation of older people's participation in remote and rural communities.

The paper by Professors Ada, Oflac, Yumurtaci, Eliiyi and Aktan (Chapter 14) classifies healthcare service suppliers and develops an inbound logistics model based on the network approach. The authors developed a network approach and supported it with a conceptual model. This study provides a more detailed look of the IUE_SSC model by taking into consideration suppliers and service providers in the healthcare industry. Their work proposes an inbound logistics approach to the service supply chain model. The proposed model depends on numerous observations of real life cases and verifications of practitioners. The obstacles and inadequacies encountered whilst providing healthcare services by a private hospital gave them the inspiration for developing this network perspective. Recently, a part of their proposed theoretical network model was implemented by a private hospital. Developing a conceptually well-structured supply chain model will be a contribution to the theoretical background in the field as well as being helpful for hospital management.

The perception of employees about job satisfaction carries great importance for administration. The people who are not satisfied with their jobs and independent from their organisation may not be productive, efficient and may not have a high level of performance. These people may infuence negatively not only their organisation, but also their colleagues with whom they work in the organisation. Because of health services being directly about humans, the employees working in the healthcare field, especially in professions like

nursing and midwifery which require much sacrifice within one's professional life, job satisfaction takes on much more importance. Professors Aksungur, Aslan, Goktas, Erdogan, Cankul and Ulgu (Chpater 15) present a descriptive study to determine job satisfaction levels and the factors affecting these levels for nurses and midwives working at Dr. Zekai Tahir Burak Women's Healthcare Training and Research Hospital, which serves as a women's healthcare training and research hospital in Ankara city. As of May 2009, a survey was given to over 286 midwives and nurses. In order to specify participants' sociodemographic information and job satisfaction, the 'Minnesota Job Satisfaction Scale' was used. The reliability value for job satisfaction scale was 0.93. According to the evaluation of the job satisfaction of midwives and nurses who participated in the research, midwives' and nurses' score in terms of intrinsic satisfaction was the highest (best health status) and in terms of extrinsic satisfaction was the lowest (worst health status). In conclusion, it was found that the job satisfaction of midwives and nurses are related to age, working hours, and total period of service. It is suggested that administrators provide inservice training, rearrange working hours, and develop improvement opportunities within the organisation for midwifes and nurses who have great importance for the delivery of health services.

Part C: Health Policy

The first paper in the Health Policy section by Professor Snelling (Chapter 16) investigates the impact of district-wide nutrient standards for competitive food offerings implemented during the 2006-2007 school year. Schools provide a viable setting for fighting childhood obesity by creating healthy environments in the cafeteria. Competitive food offerings were identified for nutrient content; total nutrient content of competitive food purchases was calculated and compared pre-and post-implementation of district-wide nutrient standards. Total student populations of 3,728 students in 2004-2005 and 3,651 students in 2007-2008. Total kilocalories and grams of fat, saturated fat, and carbohydrate in competitive food offerings pre- and post-implementation of nutrient standards; total kilocalories and grams of fat, saturated fat, and carbohydrate in student purchases of competitive foods pre- and post-implementation of nutrient standards were the nutrient standards used. A paired t-test was used to evaluate differences in total daily kilocalories and grams of fat and saturated fat in student purchases of competitive foods pre- and post- implementation of nutrient standards. Competitive food purchases by students in all three schools had a significantly smaller number of kilocalories and grams of fat and saturated fat after nutrient standard implementation in 2007-2008 as compared to before nutrient standard implementation in 2004-2005. The impact of nutrient standards on student purchases of competitive foods is evident from this study and supports policy currently requiring all schools receiving federal funds to implement nutrient-based standards for all foods sold in the school

cafeteria. This might be an effective way in preventing childhood obesity, and reduce, in the longer term, comorbid conditions and health care spending (Veugelers and Fitzgerald, 2005).

The article by Professor Eglitis (Chapter 17) looks at the usage efficiency of state investment, including EU support, in the health care system in Latvia. During 1997-2008, the invested amount of money in absolute figures in health care has increased more than five times from 140 million to 802 million. The cost per 1,000 inhabitants for health care from 1998-2008 increased by more than 6.2 times. Health care administrative costs increased by more than 3.4 times from 10.8 to 37.88 million LVL. However, when calculating per 1,000 inhabitants, then it was 3.7 times greater. The number of hospital beds decreased from 37,485 in 1990 to 17,001 in 2008, but without offsetting growth in the number of family doctors, the ratio of which was 5.8 per 10 000 inhabitants. Ambulatory doctors' visits per inhabitant dropped from 8 to 6 per year. Average bed days decreased from 16 (1994) to 9 (2008). Accessibility to health care services by inhabitants, however, has decreased. Doctors in Latvia have significant work loads: 26% are employed in two work places, 17% are employed in 3-4 work places, and 4% are employed in five work places. The reason for this situation is the inability to employ and adequately remunerate the underlying work in the hospital setting. The workload situation is similar for nurses, with 84% of them working in one place, 14% of them in two work places, and 2% in 3-5 work places. The invested money has had mixed impact on health achievements, for example, life expectancy has increased from 64.9 (2002) to 66.97 (2008), infant mortality has decreased from 15.3 (1997) to 8.7 (2007), and some other important health indicators have changed as well. However, apart from increased medical accessibility intended by the government, patients are still required to cover themselves much of the costs for health care, as the state covered payments are either low-grade or inaccessible in a reasonable period of time. However, when looking at parameters as CT scanners, Latvia is in first place in the EU with 51.11 scanners per one million inhabitants, ahead of such countries as Belgium (39.8), and Germany (16.7). Nevertheless, the queue for state-financed CT services is 19.83 days. The research question is whether the state investments have been purposeful and whether they have provided the expected results. The state expenses were compared and correlated with the selected health indicators which were defined by the EC. These indicators included only those that relate directly to health care directly and for which data exist for several years. It was found that the development of the Latvian medical system during the last 10 years has been inefficient. Much money has been invested in expensive technologies, buildings, etc., with only limited improvements in health care quality.

The paper by Professors Lanari and Bussini (Chapter 18) examines the impact of the immigration status on self-perceived and mental health to the extent to which social, structural and behavioural contexts explain any disparities. The authors concentrated on health differences between immigrants and native-born populations aged 50 and older in eleven European countries,

using data from the Survey on Health, Ageing and Retirement in Europe (SHARE). Their hypothesis is that, according to the 'multiple jeopardy' theory, health inequalities among elders of immigrant groups may be explained by nativity ('being an immigrant' as opposed to being a native) in addition to ageing itself and socioeconomic factors. They also considered the role of duration of residence and country-fixed effects play in accounting for observed health disparities. As in Chapter 6, earlier, Professors Lanari and Bussini found that foreign-born individuals are more likely to have worse health status in terms of self-perceived and mental health than their native-born counterparts, even when demographic and socioeconomic variables are taken into account. Nativity is a strong independent risk factor, especially for self-perceived health. This study also highlights the importance of age at arrival in examining health status among immigrants. Estimations show decreasing health satisfaction among foreign-born people who have migrated in the host country during mature and young adulthood, while those who migrated during childhood showed similar health status to the native-born population.

Regionalization reforms started in the 1990s have significantly changed both the organization of the Italian NHS and the relationship between the central government and the Regions. In the last decade, political and administrative decentralization gave birth to different models of Regional Health Services, inspired by the principles of managed competition or managed cooperation. After describing these models, the paper by Professor Stafano Neri (Chapter 19) analyses their recent evolution, focusing on dimensions such as the extension of the purchaser-provider split, freedom of choice, methods of payment of providers, accreditation systems and the kind of devices used to coordinate and control health care organisations. In this way, it is possible to show how divergence processes among Regions, prevailing in the 1990s, are now matched with convergence trends in the institutional arrangements. In order to achieve cost-control and to create integrated networks of services, market mechanisms are minimized in their impact in favour of variable mix between top-down and negotiated planning. In this context, national policy making is increasingly negotiated between the central government and the Regions. Although policy-making has been considerably developed in the last years, it still looks unsteady and inadequate to provide satisfactory governance of a devolved NHS. So far, most of the efforts have been dedicated to the problem of regional deficits, with not much attention to quality or equity issues as well as to relevant problems like the promotion of long-term care services. However, the governance of the NHS is deemed to change again, given the recent approval of the fiscal decentralization reform. The next paper continuous the discussion on Italian health care system and compares the basic characteristics of it with those of the Spanish health care system.

Professors Caballer-Tarazona, Vivas-Consuelo, Barrachina-Martinez and Reyes-Santias (Chapter 20) present the similarities and differences between the Spanish and Italian health care systems. By studying European health systems it is possible to find many similarities between the countries of the so-called 'Mediterranean paradigm', in other words, Southern countries such as Portugal,

Greece, Spain and Italy. These similarities are particularly remarkable between Spain and Italy. Over recent years, Italian Health policy has made efforts to decentralize health care competencies among the different regions. Recent reforms have regionalized the system to provide an improvement in response time and to increase participation of the target community in the development and management of the national health care system at regional and local levels. However, a debate about the health care federal finance system is still open today. Spain started the process of decentralizing health care competencies in the late 70s, a major reason it now represents a very well-established model. The authors pay attention to the introduction of a new management model in Spanish public hospitals: the 'Administrative Allowance'. This model is based on the introduction of private management in some health care districts: in this way, public financing is maintained but private insurance companies manage the health care district (Department). The management concession (Administrative Allowance) is allocated by public tender. In conclusion, the similarities between Italy and Spain allow us to compare both health care systems in order to identify strengths and weaknesses and turn them into a useful guide to design improvements in health policy.

The last paper of this edition also examines the Italian health care setting, in particular it is focused on transplantation. Transplantation activity concerns many important economic issues, among which are a) scarcity of resources, due to the limited availability of organs and b) improvements in patients' health conditions. In this paper, Professors Donia Sofio and Gitto (Chapter 21) conducted a descriptive statistical analysis on demand and supply of transplantations in Italian Regions. Different flows of patients can be distinguished: outflow patients are those who decide to migrate to another Region; inflow patients per Region are, instead, those patients who arrive in a given Region to obtain a transplantation; resident patients are those who choose to remain in their Region to undergo the required surgery. By knowing the extent of inflow-outflow decisions and the factors that may affect them, it might be possible to organize the activity of transplantation in a more effective way. Results of an OLS analysis show that both the number of donors and the number of transplantation centers have a positive impact in determining an increase in outflow decisions. A positive effect, even if not significant, is associated with patients' survival after complex interventions. However, in order to increase donations, more detailed information related to risks and benefits of transplantations should be provided and, in order to facilitate patients' choice for transplantation center, the Information Transplantation System should be improved, especially in assessing the activity of each transplantation center. The 'Spanish Model of Organ Donation' could be a 'good practice' approach for extended application in other European countries (Matesanz, 2003).

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