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AHEAD

AGEING, HEALTH STATUS AND DETERMINANTS OF HEALTH EXPENDITURE

Instrument - Specific Targeted Research Project.

Thematic Priority: POLICY-ORIENTED RESEARCH, 2.1, TASK 4

Publishable final activity report

Project co-ordinator: Jørgen Mortensen

Project co-ordinator organisation name: Centre for European Policy Studies

EXECUTIVE SUMMARY

Strategic Objectives:

Expenditure on medical treatment has tended to rise as a proportion of national income throughout the European Union. There has been an element of uplift to the mean as countries with low proportions of spending, such as the United Kingdom, have faced political pressure to approach the average EU proportion of their national income on the provision of health services, medical treatment and long-term care. A particular concern is that, with an ageing population and therefore the prospect of more old people around, the pressures for expenditure on health care will increase further. This issue is of concern both in its own terms and because of its fiscal implications. Rising health expenditures put pressure on the targets of the Stability and Growth Pact. They also raise the question whether budgetary targets should be tightened ahead of projected growth in public expenditures, so as to "save up" for future spending and keep expected future tax rates reasonably constant.

The AHEAD research team refined the existing estimates of the links between reported states of health and use of medical services, the link between health expenditure and fertility rates and the demands on health services made by non-native populations have been also taken into account. Specific attention has been paid to issues related to costs of care near death. Factors other than demand (such as methods of financial control) were explored as they influence the health spending. Scenarios have been developed including the standard deviations and confidence limits for predictions of key variables such as healthy life expectancy and demand-driven expenditure levels. This is to allow policy-makers to judge not only possible outcomes but also the risks surrounding them and to assess their implications.

The overriding goal of the project is to produce projections of health expenditure to inform the health policy debate and discussion of the fiscal situation in the EU, together with spreadsheet models for use by policy-makers. A detailed analysis of the factors leading to poor health/disability looking first at a snapshot of the population (WPI) and then in considerable detail at transitions between different states of health and the factors that influence them (WPIII) was developed. The micro-demographic picture was set in the context of macro-demographic population accounts. The micro-demographic analysis based on surveys was integrated into the macro-demographic picture provided by existing information on population and death by age (WPIV). This analysis served as a basis for projecting states of health by age and the demand for long-term care based on current rates of transition between good and poor health or vice versa. The methods used in the analysis allowed attachment of confidence limits to the projections and therefore more useful for policy-makers than would be simply point projections of unknown accuracy. The trends in the transitions into poor health and the implications of these trends for healthy life expectancy and for the demand for long-term care (WPV) were analysed. Specific emphasis was put on the issues related to the health costs near death (WPVII). Review of the supply and demand influences on health spending was carried out by means of regression analysis (WPVI). Scenarios for future trends of health spending (WPs VIII and IX) were prepared. Attention was paid to some of the new EU member states (Bulgaria, Estonia, Hungary, Poland and Slovakia) (WPs II and IX).

List of Participants		*Country*
1. Centre for European Policy Studies	CEPS	BE
2. National Institute for Economic and Social Research	NIESR	UK
3. Central Planning Bureau	CPB	NL
4. Deutsches Institut für Wirtschaftsforschung	DIW	DE
5. Economic and Social Research Institute	ESRI	IRL
6. Research Institute of the Finnish Economy	ETLA	FIN
7. Federal Planning Bureau	FPB	BE
8. Istituto di Studi e Analisi Economica	ISAE	IT
9. Institute for Advanced Studies	IHS	AT
10. Institute for Public Health	IPH	DK
11. Laboratoire d'Economie et de Gestion des Organisations de Santé	LEGOS	FR
12. Personal Social Services Research Unit	PSSRU	UK
13. Fundación de Estudios de Economía Aplicada	FEDEA	ES
14. Centre for Social and Economic Research	CASE	PL
15. Institute for economic research (former Institute of Slovak and World Economy, ISWE, SK)	ISWE	SK
16. Institute of Economics at the Bulgarian Academy of Sciences	IE-BAS	BG
17. TARKI Joint Research Centre (former TARKI Social Research Centre)	TARKI	HU
18. Department of Public Health, University of Tartu	UniTartu	EE

Project co-ordinator: Jørgen Mortensen

Project co-ordinator organisation name: Centre for European Policy Studies

Co-ordinator email: info@ceps.be, fax: ++32/2.229.39.11

Website: http://www.enepri.org/ahead

Major scientific findings of the project

The contemporary research acknowledges that improvement in health is the cornerstone of a successful demographic transformation as one consequence of improved health status is longevity phenomena (Sommestad, 2001)[1]. Strauss et.al. (1998)[2] differentiated prevalence of ill health among age groups showing that in developed societies health problems are felt primarily at older ages. A particular concern is that, with an ageing population and therefore the prospect of more old people around, the pressures for expenditure on health care will increase.

Aging and health costs

Christiansen et al (2006)[3] found out that ageing appears to be associated with increasing health care expenditure per capita. The authors have estimated semi-elasticities showing the percentage increase in health care spending associated with a 1% unit increase of the population in a given age group. For EU15[4] and EU11[5] countries, the elasticity of health care spending with respect to the age group 65-74 years is positive. A significant positive effect for the age group 75+ was found only for EU 11. These results were obtained after control for unconditional country differences and a time trend. They are robust towards controlling GDP and other population characteristics, but they lose significance and magnitude when adjustment for health system characteristics was made, indicating that the direct effect of ageing on total health care expenditure is mediated by institutional variables. In both groups of countries it seems that it is the presence of specific institutional structures and health care technology benefiting old people, rather than the proportion of older people, that governs health care expenditure. The direct effect of demand for health care due to ageing is very small and insignificant in EU15 countries, whereas there is a positive association in EU11 countries. An apparent association between ageing and expenditure may be explained by income: richer countries have a bigger share of the ageing population and can afford to invest in expensive technology.

Health status contributes to health expenditures

The review of the health status and health care utilisation in the EU is important piece of the overall mosaic to picture the trends. Using longitudinal micro-data from the European Community Household Panel (ECHP), Layte et al (2005)[6] estimated multivariate models of health status and health services utilisation for each of the EU15 member states. This research highlights that while there is a similar pattern of worsening health status and increasing health services utilisation as age increases, much of this variation is removed when one account for differences in socio-economic characteristics (and health status where applicable). This finding concurs with previous research that argues that it is time to mortality rather than ageing per se that plays a large part in determining health care expenditures. After controlling

[1] Sommestad, L. (2001), Health and wealth: The contribution of welfare state policies to economic growth, Speech prepared for the Expert conference “Best practices in progressive governance”. Institute for futures studies.

[2] Strauss, J., and Thomas D. (1998), Health, Nutrition and Economic Development. Journal of economic Literature 36:766-817.

[3] Christiansen, T., Bech, M., Lauridsen, J., Nielsen, P., (2006) Demographic Changes and Aggregate Health-Care Expenditure in Europe, ENEPRI research report 32, December, http://shop.ceps.eu/BookDetail.php?item_id=1423

[4] EU15 - Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom

[5] EU11 - Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Bulgaria, Romania and Turkey. Cyprus and Malta have been excluded from the final analyses due to missing information on health expenditure.

[6] Layte, R., Nolan, A., Nolan, B., and van Ourti T., (2005) Health and morbidity by age and socio-economic characteristics, ENEPRI research report 15, November; http://shop.ceps.eu/BookDetail.php?item_id=1279

for socio-economic characteristics, there seems to be a stronger and more significant relationship between age and health status than between age and health services utilisation (and in turn, a more significant relationship between age and GP visits than between age and hospital nights). For each age group, women tend to have worse health status and a higher number of GP visits and number of hospital nights than men.

While the panel results suggested that separating the ageing from the cohort effect is important, the extent to which a relatively short panel (in this case, seven years) can distinguish between age and cohort effects is limited. In addition, the comparison of the results may be sensitive to model specification in that i) the cross-sectional results use count data methods whereas the panel models use simple OLS and ii) the data are not corrected for potential bias due to attrition. This research highlights that while there is a similar pattern of worsening health status and increasing health services utilisation as age increases, much of this variation is removed when we account for differences in socio-economic characteristics (and health status where applicable). This concurs with previous research arguing that it is time to death rather than ageing per se that plays a large part in determining health care expenditures. A further lesson from this research is that the age-health and age-utilisation relationships may also be affected by the particular cultural and institutional factors of the country concerned, including the gate-keeping role of GPs, etc.

Based on the European Community Household Panel (ECHP) Bebbington and Shapiro[7] estimated the annual probabilities of transition between health states, including two states regarded as absorbing: permanent institutionalisation and death in Europe. The purpose of this work was to serve as a building-block for estimating healthy life expectancy and forecasting the future health expenditure needs of populations. The report breaks new ground in providing comparative information on rates of long-stay entry to health care institutions for people over 65. Full results are provided for Belgium, UK, Ireland, Italy and partial results for Germany, Denmark, Netherlands, Greece, Portugal, Finland. The authors discussed the practical problems associated with such estimates, in particular (i) sample attrition from the ECHP particularly as it relates to health status; (ii) post-stratification with adjustment for institutionalisation as a method of correcting for under-reporting of mortality in a community sample; (iii) the availability of data on institutionalisation across Europe, different types of data resource and problems of comparability.

Golinowska et al (2006)[8] compared health status and health care systems in selected Central and Eastern European Countries (CEEC)[9] which are going through a dynamic process of population ageing. The analysis depicts whether and to what extent aging process has an impact on health status of the population, medical services utilization and costs of the health care system. Results of the research are concentrated on several aspects: (i) changes in the demographic structure of the population, (ii) changes in the health status as reported in epidemiological data and compared to the survey results followed by time trends analysis (iii) factors behind good and poor health status and utilization of primary, secondary and tertiary care medical services.

Using the criterion of self-assessment it can be said that disability above the age of 45 is more frequent in CEECs than in the EU15. The incidence of diseases, especially chronic ones, substantially worsens the quality of life of the population. The HALE (health adjusted life

[7] Bebbington A., and Shapiro, J., (2006). Incidence of poor health and long-term care Health transitions in Europe – results from the European community household panel survey and Institutional data, ENEPRI research report no. 34, December; http://www.enepri.org/files/AHEAD/Reports/WP3.pdf

[8] Golinowska, S., Sowa A., and Topór-Madry, R., (2006) Health Status and Health Care Systems in Central and Eastern European Countries: Bulgaria, Estonia, Poland, Slovakia and Hungary, ENEPRI research report 31, December, http://shop.ceps.eu/BookDetail.php?item_id=1417

[9] Bulgaria, Estonia, Hungary, Poland and Slovakia

expectancy) rate, which measures the average healthy life span, is about eight years lower in the CEECs than in the EU15, whereas the LE gap has gone down to less than 5 years (WHO data for 2002). All analyzed countries are in the process of second demographic transformation, what means increasing share of elderly population in the coming decades. The process is rapid, with very low fertility rates and increasing life expectancy in most of the countries. In Poland and Slovakia health status of the population is improving. LE and infant mortality are significantly decreasing. Mortality in cardiovascular diseases, infectious diseases and external causes of deaths has been decreasing. It is still significantly below EU-15 level however. In Hungary the tendency is not yet marked. In Bulgaria and Estonia deterioration of health status is observable, also due to HIV/AIDS.

Due to accelerated aging process it is expected in the near future that health status will be determined by illnesses and disabilities related to old age, also chronic diseases will be more frequent among elderly. Health services utilization is strongly related to declared health status, later on to age, however these relations are not as strong as foreseen; Next to it services utilizations (holding other variables constant) is related to income, education, employment (all countries) and place of living (Poland), as access to medical services in not equal between urban and rural areas. These results indicate that health status is the most influential factor of services utilization and system expenditure. Thus, if ageing process will lead to decrease in health status of the elderly, increase in health expenditure is possible. However, if living longer is related to compression of time spent in disability or poor health status, the effect on expenditure will not be as significant.

The outcome of logit analysis shows that primary care use is related to low self-assessment of health status and that the elderly tend to visit PHC physicians more frequently. By the same token, people who are professionally inactive, such as the elderly and disabled pensioners, seek medical consultations more frequently. Women use the services of their physician more often than men. However, it seems that there is no correlation between greater frequency of PHC consultations with variables such as: education, income, marital status, number of individuals in the household and place of residence. Logit analysis demonstrated correlation between population-related variables and the use of specialist outpatient services, which yields similar results as in the case of PHC use. This is especially true of gender and age variables. With regard to age, the results of the analysis show that the probability of specialist consultation increases in middle age. Specialist care use is also correlated with education and income, which could not be observed with respect to PHC.[10] Higher use of hospital care is predominantly correlated with poorer health (sickness), identified by means of a subjective indicator of self-assessed health status. Yet, age is a significant determinant of medical service use only for primary care. Despite its correlation with health status, old age is not an important factor for hospital visits and specialist care. This indicates that the ageing process will not lead to a steep increase in medical costs since the use of more expensive services is not significantly driven by age itself, but is more affected by health status. If ageing is accompanied by a further improvement in health status, a lid can be kept on the increase in health care costs.

Nevertheless, the use of health care services is influenced by the number of inhabitants, but also by the age structure of the population. Health care expenditure for the elderly is two to four times higher than that for persons aged 0-64. The allocation of health care services is not costless and therefore supply factors are also drivers of health care expenditure.[11] Ageing

[10] This is also related to the high level of privatisation of the specialist care sector and therefore, affordable for richer cohorts.

[11] Such factors include the number of employees in the health care sector and the technological equipment in ambulatory and hospital care, but also the availability and accessibility of health care resources (number of hospitals and hospital beds, number of health care centres, number of medical practices and number of pharmacies).

could be an important factor on the demand side, but other factors may be more relevant for the development of health expenditure. The level of health expenditure is the result of demand and supply factors, political decisions (as well as those by health-care insurance schemes) and overall economic conditions.

Despite improvement in the health status – more visible in Slovakia and Poland, slower in Hungary – differences between EU-15 and the new member states are still significant. Simultaneously in Baltic countries, represented in this research by Estonia and in Balkan countries (Bulgaria) stagnation and – in some diseases even deterioration – of the health status is observable. In Estonia the threat is coming from increasing the risk of HIV/AIDS infections. These results implicates that activities in public health are needed in order to solve health problems of societies. In countries of Central Europe activities in promotion of health and healthy style of living (non-smoking, decreasing food consumption and decreasing alcohol consumption accompanied by changing habits of alcohol consumption) and prevention of civilization diseases should be broaden. In other countries resources should be directed towards infectious diseases prevention, including HIV/AIDS. The process of rapid ageing of the societies draws attention to expenditure for prevention of disabilities related to chronic diseases, solving problems of long-term and palliative care. This implies increasing expenditures for public health that are very low in these countries (generally the level of health care funding is low). Assistance on the EU site could include setting priorities for public health programmes, e.g. in the framework of the Open Method of Coordination, building better information services and analytic framework for the epidemiological research. Important factor in poorer countries that often face allocations problems is to increase spending to the most effective programmes. For the purpose of identifying efficiency and effectiveness of programmes, systematic evaluation of the programmes and benchmarking could be used.

Wealth and health expenditures

On the one hand health has a positive and statistically significant effect on economic growth - a one year improvement in a population's life expectancy contributes to a 4% increase in output. On the other hand, the economic situation is one of the famous determinants of health care expenditure. High economic growth rates facilitate the expansion of health care services, the reduction of waiting list for elective surgeries and the purchase of new technical equipment. As estimated by Schulz (2005)[12] the relationship between GDP and health care expenditure can be shown by comparing the parameter values[13] in EU countries, which in 2002 shows a high positive correlation. Yet, for time-series data, it is difficult to separate demand from supply related factors, since supply side factors are often not available, and those that are show little variance or are correlated with the income variable. As Khoman and Weale (2007)[14] suggest perhaps the most important message which emerges from this work is that a variety of variables seems to influence health spending- and the influence of factors such as the share of the public sector in the total could easily be omitted from more mechanical calculations. The study suggests that institutional variables are of great importance. Finland is an acknowledged success story in having limited its health spending over the last ten years or so by means of institutional change. However, the use of dummy variables to represent institutional differences is not completely satisfactory since a number of countries reported that they did not see institutional structures being as clear cut as the dummy variables themselves suggested. Thus, if institutional change is to be used as a means

[12] Schulz, E., (2005) The Influence of Supply and Demand Factors on Aggregate Health Care Expenditure with a Specific Focus on Age Composition, ENEPRI Research Report No16, November; http://shop.ceps.eu/BookDetail.php?item_id=1284

[13] In total, 63 variables have been included in a basic data set for 28 countries, mostly covering the period 1980-2003.

[14] Khoman, E., and Weale M., (2007) Development of scenarios for health and long-term care expenditure in the European Union member states, ENEPRI research report (forthcoming).

of limiting spending, careful case studies will be needed to identify more precisely the effects of different arrangements. Nevertheless, one institutional issue does stand out unambiguously. Total spending on health is significantly and positively related to the share of health spending paid for by the public sector. This result is extremely intuitive and is likely to be of considerable importance in any future discussion of budgetary pressures associated with population ageing.