

Scenarios for Health Expenditures in Poland

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Introduction

The question of ageing-related changes in health care system expenditure in Poland was raised in the context of EU policy debate rather than in response to the internal discussions on the volume and structure of public health care expenditures. Due to the low level of public health care funding and dynamic institutional changes in the sector, the national policy making process is focused on the sources of health care system funding, the size of funding and the efficiency of funding allocation. Issues related to the level and individual determinants of expenditure are not within the scope of mainstream policy debate, therefore, projecting scenarios of future health expenditure development and its determinants is an innovative project in Poland.

The main objective of CASE's report on the Scenarios for Health Expenditure in Poland was to present the model of future health care system revenues and expenditures and to discuss the results of projections of future public health care system budgets.

As with other health care studies conducted by CASE, the report on future health expenditure scenarios in Poland was based on the International Labour Organization's (ILO) social budget model, part of which includes the health budget model. Three scenarios were presented in the report: the baseline scenario, death related costs scenario, and the scenario with different longevity improvements.

Methodology

Over the last 16 years, several social expenditure projections have been applied in Poland. These projections varied with respect to their purpose, time frame, and scope. However, until recently there has been no projection exercise focused on health expenditures and the public health care system budget. Until 2004, health care expenditures in Poland on aggregate had neither been subject to analysis nor projection. It was then that CASE-Center for Social and Economic Research launched the AHEAD Project¹ and the first modeling attempts were initiated. Later on, in 2004 and 2005 the Ageing Working Group (AWG) prepared projections of health care system expenditures for Poland as well as other EU member states.

Projections of health care system financing and financial balance were made based on the actuarial model prepared by the Social Security Department (SECSOC) of the International Labour Organization (ILO). The baseline model of social budget was restricted to health care budget and further adjusted for country situation, health care system performance and country legal regulations.

The ILO health budget model covers not only health care system expenditures, but also revenues. Using this model is not only useful for international comparisons of health care system expenditures, as was demonstrated by the Ageing Working Group projection, but also for country based policy makers who are interested in a health care system's long-term financial sustainability. In addition, the model focuses on insurance revenues and expenditures, aptly reflecting the structure of the Polish health care system, which since 1999 has been a health insurance system, with only a minor role for government revenues and expenditures.

Demographic development data used for this report includes population size, fertility and life expectancy. Labour market factors analyzed include the size of the labour market active and employed populations, which contribute to health care system revenues and are entitled to utilize medical services. Economic factors are applied for the projection of the

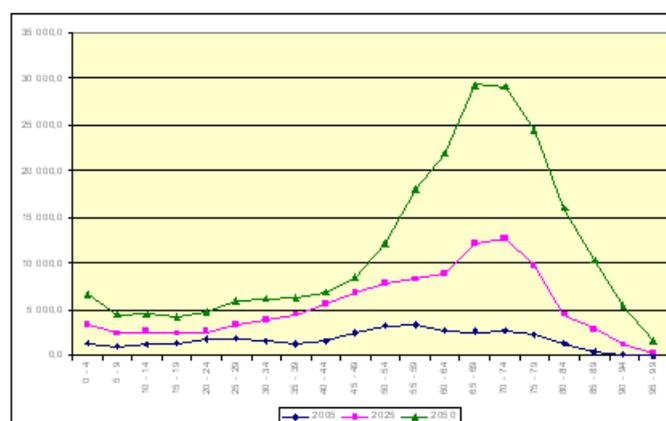
future increase in health care system expenditures, while governance factors can be applied to check system sensibility and to project future reforms. Additionally, information on the size of the population close to death and costs borne by this population was used in the report.

Results

Baseline Scenario

The expenditures pattern by age has a typical U-shape. A high level of expenditures at the earliest stage of life, gender notwithstanding, is related to intensive care for infants as well as big health needs for children in the first years of life (vaccinations, common hospitalization in case of any health problems). Later as children grow, the levels of expenditure decrease. When gender is added into the analysis it is found that for males, the level of expenditures is almost stable until about age 40, with even lower levels at the age of 20-35. Generally speaking this stage in life, on average, represents the best health status in the course of a lifetime. For females, the rapid increase in health expenditure is related to pregnancy and birth, which is most common between the ages of 20-40 years of age. Between the ages of 40 and 55 years of age, expenditures for both sexes increase with similar dynamics. It is not until age 55 to 75 that health expenditures for men are found to grow faster than for females. Expenditures for females grow much slower and reach their peak at later stages of life. These discrepancies were found to be attributed to differences in longevity and due to the fact that the highest expenditures are incurred during the one to two years directly preceding death. The described pattern of total health expenditures by age changes in the course of the projection period. Significant increase of expenditures for the cohorts of 50-85 years of age is observed in the next 50 years (Graph below).

Graph 1 . Projected total expenditures by single ages, 2003, 2025, 2050



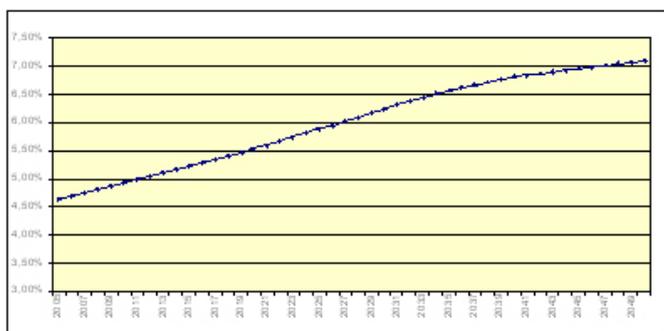
Source: own calculations

Within the baseline scenario there are two types of factors affecting the level of future expenditures. First, it was found that expenditure increase was directly related to income changes, which brings the total expenditure level upwards. Simultaneously, the pattern of total insurance expenditure changes to a great extent with age, which shifts the expenditure upwards for the cohort of 55-60 to 85 years of age. This increase is attributed to the fact that there are a growing number of elderly people in Poland.

Looking at the macro level, total public health expenditures increase sharply due to the ageing process and the increase of expenditures commensurate with the national income. The steepest increase can be observed in the period of 2003 – 2030. Overall, in looking at the baseline scenario it is expected that public health expenditures will increase by 57% (in GDP share category).

Insurance expenditures constitute the main part of public health expenditures. They are the expenditures on medical services driven by the health needs of a population and are strongly related to changes in the population structure. Results indicate that insurance expenditures increase constantly during the whole projection period, from 4% to over 6% of GDP. This is an important finding given that already in the base year (2003) Poland's health insurance system was deemed underfunded (with expenditures slightly exceeding insurance revenues). Overall, despite some small fluctuations, Poland's projected deficit in the health insurance system goes up during the whole projection period (2003-2050) by 1% of GDP.

Graph 2. Projected public expenditure on health care in Poland as share of GDP



Source: own calculations

Death-related costs scenario

In the death-related costs scenario, expenditures incurred in the last year of a patient's life are separated from the other years. Assuming increasing life expectancy and decreasing mortality rates, the moment of death and higher health expenditures is moved towards older age. The average expenditures by age change over the years so, that in every age cohort the share of persons generating higher costs (costs related to death) decreases².

In 2003, the average public per capita expenditure on health care in Poland equaled PLN 963 or 4.5% of GDP per capita. However, substantial discrepancies in health care expenditures are found between the survivors and the deceased. Expenditure level and structure vary to a great extent, depending on an individual's status (survivor or deceased) and age. Below the age of 65, expenditures for deceased men were much lower than expenditures for deceased women. This can be attributed to the high rates of fatal accidents among men aged 20-50, and relatively low cost of related hospital treatment. In subsequent years of life the level of expenditure was found to be nearly equal for both sexes, while after 70 years of age expenditures for deceased men were found to be slightly higher than those for deceased women.

At the outset of older age (after 60), average expenditure in the last year of life decreases radically. Between the age of 60 and 90, expenditure decrease is equivalent to 37 percentage points for women and 33 percentage points for men (in the GDP per capita category). Such a reduction in expenditures is related chiefly to a less intensive utilization of expensive medical treatment. Another important factor is the fact that treatment shifted outside of hospitals towards more palliative care or home care in the later stages of life.

In the first five years of life, death related costs per person were found to be higher than in subsequent years. This is explained by the higher probability of mortality than in the next years of life. Later on, up to age 30, the share of expenditures related to death is low and from 30-35 it actually begins to increase. After the age of 55 for men and 65 for women, expenditures on health care in the last year of life exceed 10%

- of total expenditures (and keep increasing). In the oldest cohorts, the rate of increase of the share of death-related costs is slower, but it is still increasing. In the case of individuals over 95, the share of expenditures in the last year of life is close to 50% for male, and slightly above 40% for female.

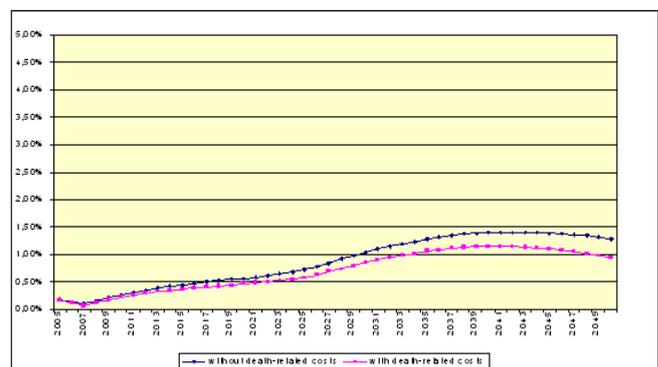
Table 1: Comparison of contribution rate needed in a baseline scenario and death-related costs scenario

	2003	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario	8.64	8.90	9.60	10.03	10.32	10.67	11.36	11.86	12.08	12.01	11.73
Death related costs scenario	8.64	8.87	9.51	9.87	10.01	10.37	10.97	11.39	11.55	11.42	11.09

Source: own estimations

- When death-related costs are taken into account, projected public health expenditures in Poland grow more slowly than in the case when costs are calculated for the population irrespective of individual status (survivor or deceased). The discrepancy accounts for up to 1% of GDP. Insurance expenditures in this scenario are lower as well, with similar differences in the level of expenditure in relation to GDP. As a result, the gap between health insurance revenues and expenditures is smaller than in the baseline scenario. The deficit amounts to 1.1% of GDP in the years 2040-2045, and after 2045 it slightly decreases to the level just below 1% of GDP. The health insurance contribution rate in the death-related costs scenario increases stepwise, but more slowly than in the baseline scenario, reaching 11.5% of insurable earnings in 2040, and slowly decreasing to the level of 11%.

Graph 3. Projected insurance deficit as share of GDP: baseline and death-related costs scenarios



Source: own calculations

Fast and slow longevity increase scenario

- The third scenario under analysis allows for a differentiation in the scale of life expectancy improvement in subsequent decades on the basis of different longevity trends. As a result two alternative situations of fast and slow life expectancy improvements were tested. The differences in life expectancy improvement do not imply that ageing will be healthier. In fact, with changes in longevity it was assumed that the health status for each single age-group remained unchanged. Consequently, the share of life years of each cohort assumed to be spent in good and bad health is the same as today, and as longevity improves, the time spent in poor health status for each cohort expands analogically, as these years do not translate into years of better health status.

- The report on health expenditures in Poland shows that slower longevity improvement has a cost-constraining effect, whereas a faster increase in longevity translates into growth in public health expenditures, although it does not entail cost explosion. All in all, the report concludes that the differences in public health expenditures and health expenditures between middle longevity growth and slow/fast longevity improvement account for GDP changes at the level of 0.2 percentage points in the year 2050. The results demonstrate that while longevity changes have an impact on the level of expenditures, the level of revenues is more affected by changes in employment and productivity.

Higher and lower employment rate scenario

The final scenario assumes both negative and positive changes in employment rate projection, as compared to the baseline scenario. The optimistic scenario assumes that by the year 2013 the employment rate will change in line with the National Employment Strategy and thus will be higher than in the baseline scenario. The pessimistic scenario assumes that in the period of 2005-2013 the employment rate will be lower than in the baseline scenario.

As might be expected by the previous projections, health insurance revenues are expected to be higher in the optimistic scenario, and lower when pessimistic development of employment rate is projected.

Conclusions and Policy Recommendations

The model applied in the CASE study belongs to a group of models which concentrate on external factors that affect growth in health expenditures. The structure of the ILO social budget model thus allowed researchers to identify the impact of demographic, economic, and labour market factors.

The scenarios presented by CASE on the future of health care system expenditures and revenues in Poland provide a framework for future policies and policymakers. For instance, researchers forecast possible development of factors responsible for future revenues in the health care system: GDP and employment accompanied by projected growth of labour productivity levels, leading to the convergence of the Polish economy to the average EU-15 level. On the other hand, it was concluded that demographic changes as well as health status may also determine future health care system expenditures. These factors include the age structure of a population (particularly share of the elderly), longevity improvement, and increasing costs during the latest stages of life as well as those related to death.

In each of the scenarios presented in the report, projections determined that Poland's health care sector will run at a deficit. This means that the needs of the sector, which to a large extent are determined by the demographic structure of the Polish population as well as future medical service utilization needs will generate higher health care expenditures than the revenues assured through insurance contributions (at their current level) and GDP and employment development.

This lack of financial balance is negatively affecting medical service providers. Specifically, they have been falling into debt in their attempts to provide services and fulfill their constitutional obligation to take care of each patient in need, irrespective of their financial resources. As the financial imbalances grows, so too will the incentives for future reform of the public sector (especially health care).

CASE researchers have proposed several policies that would stimulate reform and reduce the deficit. One is to constrain the basket of medical services available under public health insurance. Another would be to increase the amount of insurance contribution in order to meet the demand for medical services. Among other social contribution rates, health insurance contribution is relatively low, while the pension contribution rate is dominant. Although there is room for reform in the social welfare contribution rate system, it would be extremely difficult to reduce pension expenditures due to the political sensitivity of the issue (pensioners constitute a substantial part of the voting electorate).

The CASE report's projections of Poland's health care revenue and expenditures provide a solid argument for comprehensive health care system reform in Poland. First, it is necessary to increase the overall health insurance contribution rate. In addition, it is necessary to implement reforms targeted towards the improvement of system efficiency as well as the rationing of medical services. A proposal for complex health care system reform in Poland was prepared by CASE Advisors, Ltd, however, policy makers are neither ready nor able to undertake the necessary long-

term reforms due to the emergence of urgent short-term problems (strikes and emigration by medical personnel, unrest caused by management failures, etc). Finally, the lack of awareness among policy makers about the impending health care sector crisis in Poland is an important indicator for the need to improve the health care sector and system management.

For more information as well as access to the full report on health expenditures in Poland, please see CASE Network Report series No. 78.

References:

1 The Ageing, Health Status and Determinants of Health Expenditure (AHEAD) project has been started in 2004 by an ENEPRI consortium led by the Centre for European Policy Studies (CESPS). Information about the project is available at <http://www.enepri.org/Ahead>

2 Ahn N., Garcia J.R., Hecce J.A. (2005), Demographic Uncertainty and Health Care Expenditure in Spain, Paper prepared for the DEMWEL project, FEDEA; Batljan I., Lagergren M. (2004), Inpatient/outpatient health care costs and remaining years of life – effect of decreasing mortality on future acute health care demand, *Social Science and Medicine* 59; Seshamani M., Gray A. (2004), Time to death and health expenditure: an improved model for the impact of demographic change on health care costs, *Age and Ageing* 33 (6).

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