

Value of Life and Cost of Pre-mature Deaths with the Perspective of Productivity as Net Tax Revenue for Turkey

Kockaya G¹, Tuna E², Yenilmez FB², Atikeler K², Tatar M²

¹Health Economics and Policy Association, Ankara, Turkey

²Hacettepe University, Social Sciences, Hacettepe Beytepe Campus, Ankara, Turkey

Objectives

The Human Capital Theory emphasizes investments to the healthcare sector as an important element in achieving and sustaining economic development. Investments to healthcare sector not only reduce morbidity or mortality for individuals, but also improve macro and micro economic outcomes for the whole society. It is widely acknowledged that reducing mortality, especially pre-mature deaths, may lead to improving economic outcomes. As premature deaths before the average life expectancy means a loss in production and taxes paid, this may also lead to a loss in the productivity and the value for the wealth of the country. The aim of this study is to calculate the possible produced value for a life-time term(VLT) and cost of pre-mature deaths(CPD) from the productivity for Turkey where the life expectancies was noted 75 years.

Methodology

A fixed income tax burden to the earnings over the lifetime was applied for reflecting the government tax revenue. Net present value (NPV) of the taxes and spending for each year were calculated. For calculating NPV in the government perspectives, two modelling approaches were combined, human capital modelling based on lives saved and lost productivity, and generational accounting, which accounts for a range of other government fiscal transfers to citizens such as education health costs and pension costs. The possible produced value for a life-time term for each country were assumed as calculating the total NPV for each country depending on the countries life expectancy. Cost of pre-mature deaths for each countries were assumed as the difference between NPV on the year of life expectancy and each decades as life years 60, 50, 40, 30, 20, 10. The economic values for the model of each country derived from World Bank, OECD, UNESCO or WHO. Discount rate was taken as 3% per year.

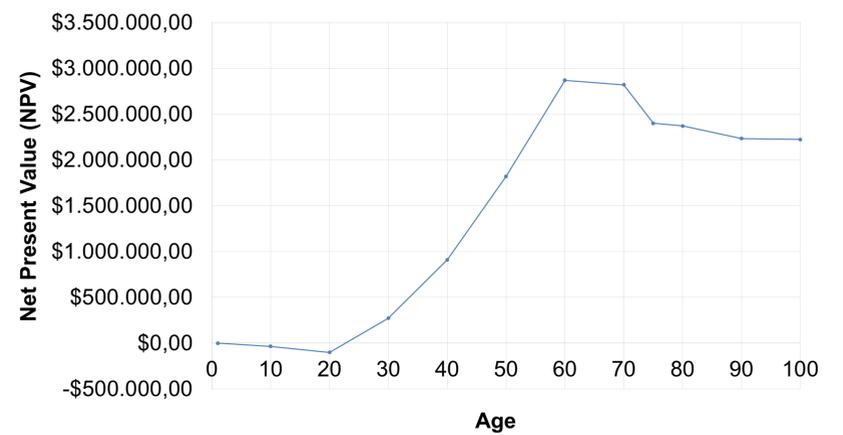
Table 1: Statistics used in model

Description	Value
Cohort size	1
Average age of school enrollment	6,00
School enrollment	0,0860
Average schooling years	0,0000250
Average year of entering workforce	0,9600
Average year of retirement	14,40
Unemployment rate	15,00
Entry annual wage	63,20
Marginal exponential effect of age on income	0,09
Marginal exponential effect of age squared on income	\$15.400
Rate of labour force receiving pensions	0,0676
Average pension	-0,0008
Health care spending per capita	0,63
Health care cost age adjusted growth	\$10.886
Education spending per capita	\$696,0
Tax proportion of earnings	0,03
Tax compliance	\$9.980
Average taxation adjusted for compliance	40%
Discounting rate	84%
Average daily wage	33,768%
Inflation for wages	3,00%

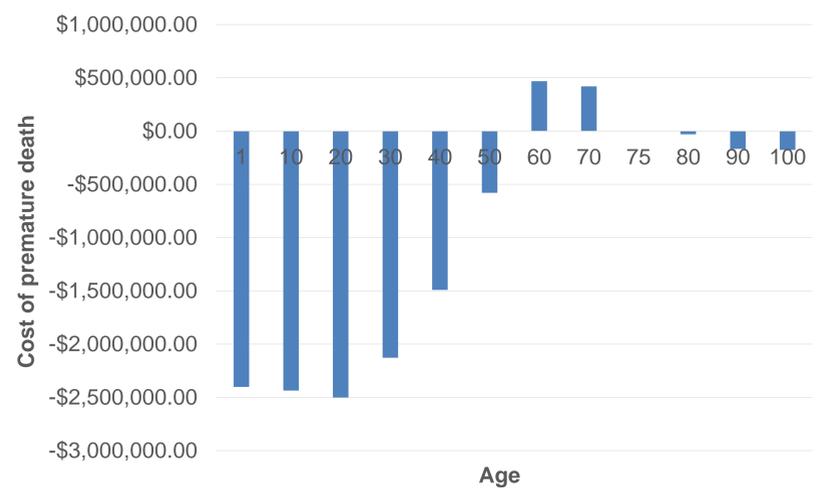
Results

Possible produced value for a life-time term for Turkey was calculated as US\$ 483.298. Cost of pre-mature death per person was calculated as US\$ - 102.064, US\$ - 271.716, US\$ -\$441.679, US\$ -583.726, US\$ - 518.753,14 and US\$ - 483.986 for the life years new born, 10, 20, 30, 40 and 50 respectively.

Net Present Value in Turkey



Cost of Premature Death in Turkey



Conclusion

However the study was based on a hypothetical model that calculated the NPV with the taxes and spending in a life-time term, cost of premature death was calculated as the highest in early ages and was decreasing up to the retirement age. The results may be reference for the decision makers. Health policy makers may improve the access to the treatments in the early life years for the possible increased cost of premature deaths in Turkey.

References: The Impact of Rotavirus Vaccination on Discounted Net Tax Revenue in Egypt, A Government Perspective Analysis, Mark P. Connolly, Oleksandr Topachevskyi, Baudouin Standaert, Omayra Ortega and Maarten Postma, *Pharmacoeconomics* **2012**; **30** (8)
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