Modeling Medical Cost Trends for Advancing Age in the Long Run

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Abstract/Executive Summary
Medical costs are among the most significant factors in determining long-run fiscal requirements for the federal budget of the United States and for the individual household budgets of retirees. Rapid growth and high individual variance make projections of future expenditures in the 20- to 50-year range difficult and uncertain. This paper builds upon prior work to demonstrate that the apparent patter process changes systematically as the span and unit of observation changes— linear in the short run of months, morphing into a smoothed reflection of gross domestic project (GDP) growth over multiple years, and ultimately fitting a logistic growth curve over decades in the long run. A structural model of the health system as a function of decisions made at different levels of organization (individual, employer, group, city, nation, world) with effects that endure for differing amounts of time is constructed. The nature of medical transactions and the importance of budgetary boundaries are considered. Data from U.S. Health Expenditures 1929–2013 are used to makes estimates. Results show lags of three to six years, and suggest lower-frequency effects that last for decades. It appears the excess growth rates of medical costs during the 1970s and 1980s has moderated considerably, and is likely to continue to bend the medical cost curve downward. However, the budgetary impact of increasing longevity is apt to continue to increase over the next 50 years, by which time it is not implausible that the elderly could account for more than 50 percent of medical expenditures and require 13 percent of GDP funded through taxes or premiums. An extension of the model uses the current ratio of cost per person over/under age 65 to project that total expenditures on medical care for the elderly will approach $13 trillion by 2050. Questions are raised as to whether aging, medical costs, retirement and technological advances are best modeled as quasi-independent elements with causal effects, or as integral aspects of a joint-process characteristic of modern economies.