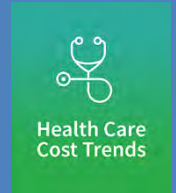


Getzen Model of Long-Run Medical Cost Trends: *Update for 2023 - 2033+*: Recession, Inflation, Aftershocks



Thomas Getzen, PhD

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The aftershocks of the COVID pandemic will pass --- eventually. Government subsidies and spending soared in 2020 to meet the challenges of the pandemic. Health expenditures leapt from 17.6% of GDP to 19.7%, and then dropped to 18.8% in 2021, and will fall again to 18.2% (projected) in 2022, but are expected to return to the long-run trend by 2024 and gradually rise thereafter. However, during the next few years most attention will be paid to dealing with complex aftershocks from the flood of Covid funding in 2020 and 2021, a surge of inflation in 2022, and a looming recession in 2023. Changes in the rate of inflation take 18 to 36 months to be fully expressed in nominal health care spending, while changes in real wages and per capita incomes take three to six years.¹ Current macroeconomic disruptions will not stabilize until after 2025, and perhaps not until 2030. The Getzen Long Run Trend Model is designed to forecast spending 10+ years in the future. It provides a credible forecast for the 2030s, but is of limited use in the short run. For year-to-year changes, the volatility of inflation will overwhelm any subtle difference in the underlying trend.

As in last year's model, years 2023 and 2024 are given placemark "???" signs due to extreme volatility and uncertainty. Even the numbers for 2025 and 2026 should be considered as reasonable placeholders rather than forecasts for specific years. Aftershocks and recession are likely to disrupt year-to-year changes so much that they will be of little use in estimating a long-run trend. Since reversion to trend is expected within ten years, the baseline model parameters are mostly similar to those published last year.

Two factors determine health expenditures: *i*) the amount available to spend (GDP) and *ii*) the fraction of the total allocated to medical care rather than other types of

consumption (Share).² The first is expressed in the model as inflation plus real growth per capita, the second as the technology factor, “excess medical cost growth.” The sudden rise in inflation during the second half of 2022 has been dramatic. It is expected to moderate sometime within the next few years, but likely to outpace the low rates experienced over the last twenty years, probably settling closer to 3% in the long run.³ The inflation parameter in the model has been raised from 2.5% to 2.7% to reflect this change. Note that inertia in the health financing system means that this spike will be smeared out over several years so the real expenditures for 2023 and 2024 are likely to be understated. Wage growth will rise in nominal dollar terms, but is apt to be weak after adjustment for inflation. Rising costs, Covid and a growing public perception that medicine in the USA is overpriced without adequate value for money is likely to reduce the rate of increase in share. Hence the long-run technology trend parameter has been reduced from 1.0% to 0.8%, and the share resistance point has been placed at .190 rather than last year’s .200.

Volatility and sustainability of existing health care cost trends have become major concerns for patients, providers, and payers. The project oversight group (POG) will meet in early 2023 to consider multiple scenarios and factors responsible for trend shifts, providing a framework for considering the timing and direction of future changes in health system payments.

The Getzen Model is a long-run model designed to project medical cost levels and trends 10 or more years into the future on a national basis. All short-run or local employee group trends will eventually converge toward that long-run national trend, but in the interim may deviate widely. It is up to actuaries to use their expertise to bring in local and group factors such as age-gender demographics, group experience, plan type, benefit changes, disease prevalence, specialty drug expenses, etc. The general national trend is just one factor to be considered, and may be of relatively minor importance on actuarial projections in the short or medium term for many specific groups or localities. The 2023 version of the Getzen projects the level of spending for 2032 and growth trends for the following years. A simple linear extrapolation is used estimate growth back to the current situation, not to make year-to-year forecasts for the next nine years—nor for trends in a specific locality or employee or retiree group.

Notes on LR Model Input Parameters

The “Getzen Model” is a set of linked formulas to facilitate projections of average medical care cost increases over the long run.⁴ The formulas are embedded in a spreadsheet available on the SOA website. A “baseline” is presented on the “output” page of the spreadsheet that provides the consensus estimate of an expert project oversight group convened by the SOA. Actuaries should be aware that rates of increases for specific plans may often be above or below, or more variable than, the long-run average national rate of increase in medical costs which is the primary forecast target of the Getzen Model and should be prepared to document and justify conditions or assumptions that deviate from the baseline trend projections. The model has three major sections:

Years 1 - 4: short-term annual % increases (user modifiable)

Years 5 - 9: linear transition.

Years 10+: long-run forecasts (per capita income+ inflation + X%)

A formula is used to reduce the estimated rate of cost increase once the health share of GDP exceeds a **resistance point**. A **year limit** specifies when further growth in medical costs is limited to the rate of increase in per capita income. This stabilizes the model and keeps unbounded growth from creating contradictions. Further explanation of model details, development, historical trends, sensitivity analysis and uncertainty are provided in the **Technical Manual** on the SOA website for actuaries and other users to consult.

Inflation / CPI: **2.7%** (range 1.5 – 4.5). 30-year average 1991-2021 of 2.0% with standard deviation of $\pm 0.8\%$ for deflator and $2.5\% \pm 1.2\%$ for CPI; five-year moving average ranges from 1.5% to 3.5%. However, the prior 30 years 1961-1990 averaged more than twice as much, 4.6%, and the August 2022 Fed survey of professional forecasters had a median of 2.8% for the next ten years with an interquartile range of 2.6% - 3.2%.³ Expected inflation for the coming decades is clearly moving higher. How much higher is unclear and subject to considerable dispute. CBO projected 2.4% for GDP deflator and 2.8% for CPI 2022-2032 in their July 2022 *Long-Term Budget Outlook* (Table B-1, page 40).⁵ The 2022 Medicare Trustees Report projects CPI of 2.4% (range of 1.8% to 3.0%) for 2046-2096 (Table II.C1 page 15, which is the same as their 2021 assumptions).⁶ September 6 30-year TBond (3.49%) - TIPS (1.11%) implied inflation rate is 2.38%. Inflation is volatile and can change rapidly, confounding expectations. However, inflation is neutral over the long run and thus has no effect on the health share of GDP or annual percentage increases in real spending in this model.

Real Wages / per capita GDP: **1.4%** (range 0.5 - 2.5). 30-year average 1991-2021 of 1.6% with standard deviation of ± 2.1 ; smoothed moving average range -0.3% to 3.7%. Extreme values in 2020 and 2021 mean that recent historical data must be used with caution or considered as “outliers” relative to the long-run trend. CBO July 2022 *Long Term Outlook* projection is 1.5% for 2022-2032 declining to 1.3% for 2043-2052). 2022 Medicare Trustees Report projects scenarios from 0.5% to 1.8% with an average long run 2045-2095 estimate of 1.15% (Table II.C.1, page 15). There is considerable controversy as to how

much economic growth has or has not slowed since 2000 and whether or not it will be lower for the next two decades, with experts expressing a variety of opinions.

Technology/excess cost growth: **+0.8%** (range 0.3 – 2.0). 30-year smoothed average 1989-2019 of +1.5% with standard deviation of $\pm 1.2\%$ and range of -0.4% to 4.2%, trending downward and averaging 0.5% over the last ten years. 2020 and 2021 values are so extreme that they have to be treated as outliers relative to the long-run trend. CMS OACT April 2022 excess growth projection was 0.9% for 2022-2030 (Table 1).⁷ Medicare 2022 Trustee Report projects -1.4% for 2022, +0.7% for 2023, rising +1.7% for 2027, then trending down to +0.6% over the 2047-2071 span and +0.5% for 2072-2096 (Page 165 and Table V.B5, page 185, see also CMS memorandum “Long Term Projection Assumptions for Medicare and Aggregate National Health Expenditures, April 22 2020, page 24).⁸ 2022 CBO Long-Term Budget Outlook projects excess cost growth of +0.9% trending downward to +0.6% by 2052. (pp.19-20). Excess growth, not the level or nominal rate of spending growth, is the factor creating fiscal pressure on employers and government making projected growth due to technology and related factors the most important element of the model. Health employment since 2020 has not shown the excess growth experienced over the prior thirty years and public perceptions of the value of new drugs and technology have weakened, supporting a reduction downward to +0.8% from last year’s +1.0%.

Health Share of GDP in 2030: **.19** (range .175 to .235). The expected 2032 share has been increased relative to last year’s estimate, and it is slightly above the CMS 2030 projection of .196.⁷ The main impact of this parameter comes from its interaction with the share resistance limit. When the Share Resistance Point is lower than the expected health share of GDP then the impact of the technology factor (excess growth rate) is reduced and the projected trend is lower than the baseline long-run annual growth rate of 5.0% (cell H28)

Share Resistance Point: **.190** (range .150 to .300). This is the share of GDP above which additional health spending is projected to meet increasing resistance. Actuaries expecting greater budgetary resistance to medical cost increases can set this parameter as low as .150, which has the effect of bending the cost curve immediately and more strongly, so that even in the long run medical costs after 50 years are reduced from the baseline of .238 relative to GDP and wages down to .221, or raised above .270 so there is little or no resistance and share rises to .266. The share resistance factor has been reduced from .200 to .190 because opinion surveys and critical media reports regarding hospital and pharmaceutical prices make it appear that public concerns regarding the cost of medical care are already affecting expenditures and legislative proposals. The POG is considering studying the possible impact of share resistance on short-term trend, the excess medical cost growth rate (technology factor) and the resistance point in future releases. The POG provides more detail on how alternative assumptions would affect projected growth rates in the *Technical Manual*.

Year Limit: **2075** (range 2040 to 2098). This parameter sets the year in which spending is projected to match the rate of increase in wages so that the health share of GDP stays constant.

Annual Premium Increases *have often exceeded the growth in medical costs per capita by +1% or more for extended periods, although in the long run the ratio of costs/premiums will stabilize so that these growth rates converge with the rate of increase in total National Health Expenditures. Conversely, Medicare and Medicaid per enrollee costs are likely to rise less rapidly than NHE.*

Short-term rates for 2023 – 2026 \approx ?? to 5.2% (range 4% – 8%*). The 2022 CBO projections for GDP and inflation were based on data from early in that year and have already been upended by rapidly moving trends. For these and other reasons mentioned above, a series of question-marks “???” are shown for 2023 and 2024 medical cost growth rates. The 6.2% for 2025 and 5.6% for 2026 are placeholders consistent with current expectations rather than a forecast of a specific annual rate. Note that in our model the short-term growth rate inputs do not affect the rates projected for 2032 and beyond. Long-run growth projections are determined solely by the inputs of long-run inflation, wage and technology factors, 2032 health share of GDP, resistance level and ultimate year limit.

**Short-term rates for specific groups may deviate substantially from the average national medical cost increases projected in this model due to plan designs (such as Rx only or Medicare Advantage), known rate increases at the time the valuation is performed, changes in state or federal premium taxes and fees or other factors. Significant changes to provider payment methods due to legislative or regulatory actions are apt to create perturbations. Actuaries should make use of such information and could justify expected short-term rates outside of the suggested ranges in some cases.*

1. Getzen, Thomas E. (2019). The Growth of Health Spending in the USA from 1776 to 2026. *Oxford Research Encyclopedia: Economics and Finance*. <https://oxfordre.com/economics/>.
2. Getzen, Thomas E. (2022). *Money and Medicine: The Evolution of National Health Expenditures*. Oxford University Press, forthcoming.
3. Federal Reserve Bank of Philadelphia (August 2022), *Survey of Professional Forecasters*. www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters
4. The revised Model with an updated *Technical Manual and Documentation* is available on the SOA website under “Research Projects – Health.”
5. CBO. *The 2022 Long-Term Budget Outlook*. (July 2022). USGPO, Washington, DC.
6. Medicare Trustees, (June 2022). *2022 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds*. Washington, D.C.
7. CMS Office of the Actuary. *National Health Expenditure Projections 2021-2030*. (April 2022). Health Affairs, 41(4): (see Table 1: Selected Economic Indicators, Levels and Annual Percent Change: Calendar Years 2013-2030). Online at [cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected](https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected)
8. CMS Office of the Actuary. (April 22 2020). “Long Term Projection Assumptions for Medicare and Aggregate National Health Expenditures.” <https://www.cms.gov/files/document/long-term-projection-assumptions-medicare-and-aggregate-national-health-expenditures.pdf>.