



Budget Model

Projecting Medicaid's Long Term Care Expenditures

Summary: PWBM estimates that Medicaid's inflation adjusted expenditures on Long Term Care services will increase from \$130 billion in 2020 (0.62 percent of GDP) to \$179 billion in 2030 (0.71 percent of GDP). We project that Medicaid expenditures on Nursing Home and Home Health will increase 4.7 percent and 6.9 percent per year above inflation through 2030, respectively.

Key Points

- Medicaid's Long Term Care (LTC) services' inflation-adjusted growth slowed during the early 2010s but accelerated again after 2015. We project that total Medicaid expenditures on LTC will increase 3 percent per year above inflation through 2030.
- The type of Medicaid spending is also changing, with large shifts from traditional Nursing Home services toward home and community settings. Medicaid expenditures on Home Health services grew by over 6.5 percent per year above inflation since 2011. However, Medicaid expenditures on Nursing Home services increased at just 3.0 percent per year above inflation.
- Medicaid expenditures on Other LTC services, which comprise about 30 percent of total Medicaid LTC expenditures, declined by about 0.5 percent per year since 2011.

Introduction

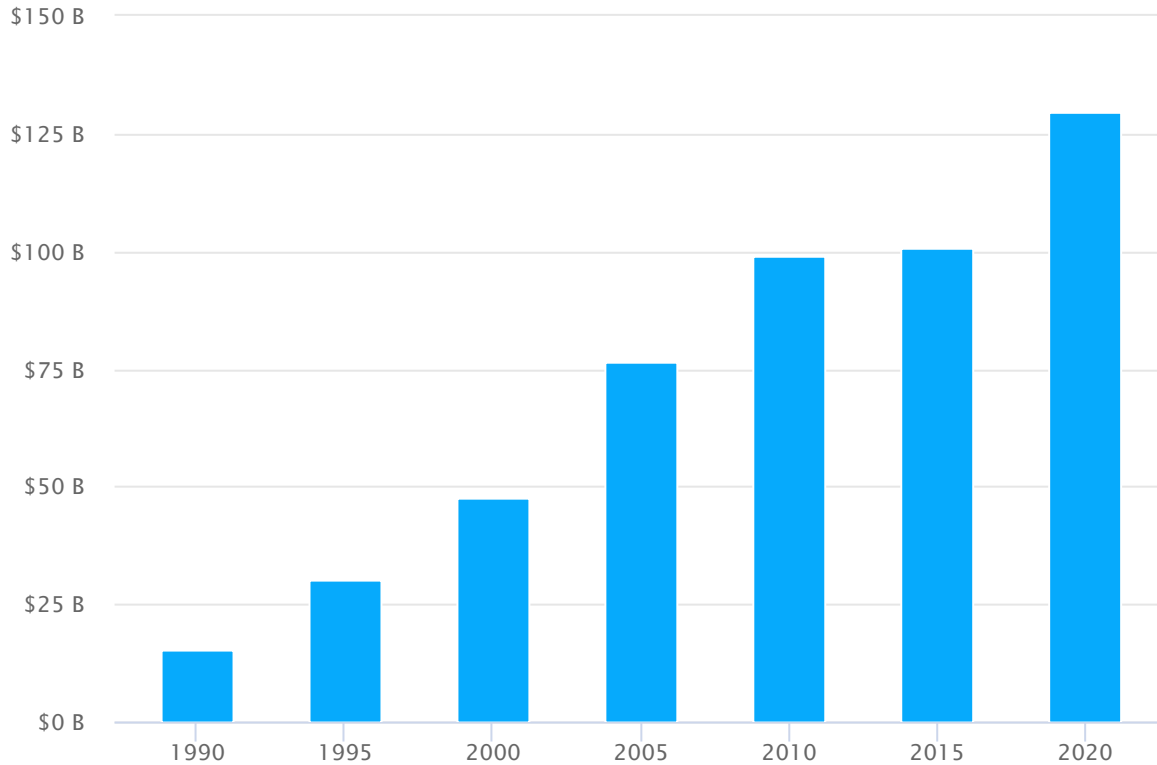
About 7 in 10 adults aged 65 and older will require long-term care services in the future.¹ However, only 13 percent of adults over age 65 have *private* long-term care coverage.² That means many adults will eventually require Medicaid's long-term care services, after spending down their assets.

Long term care (LTC) comprises of several types of services: Nursing Home, Home Health, Hospice, Residential Community, and Adult Day care services. Medicaid pays for the cost of these services for those who qualify based on age, disability, income and assets tests, and need for LTC supports and services. Total Medicaid expenditures

on long-term care services grew rapidly during the 1990s and early 2000s but moderated after the 2008-09 recession. However, cost growth has accelerated again since 2015 (See Figure 1).

Figure 1: Inflation Adjusted Medicaid LTC Expenditures 1990-2020

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Source: Statista.com

An aging population and significant exposure of the majority of adults to the risk of needing long-term care services when old implies growing Medicaid long-term care expenditures. Historically, Nursing Home services have been much more expensive than other types of long-term care services.³ The higher costs of institutionalized care, and the desire of most aged individuals and those with disabling conditions to age at home has induced a shift from Nursing Homes toward receiving care services in home and community settings.⁴

As substitution across alternative types of LTC service reduces growth in Nursing Home enrollments and increases the demand for home-care workers, the cost wedge between alternative long-term-care-service types may be expected to narrow. Continued substitution of cheaper home-and-community-based services for Nursing Home care may, for a time, also moderate the overall growth of Medicaid long-term care expenditures.

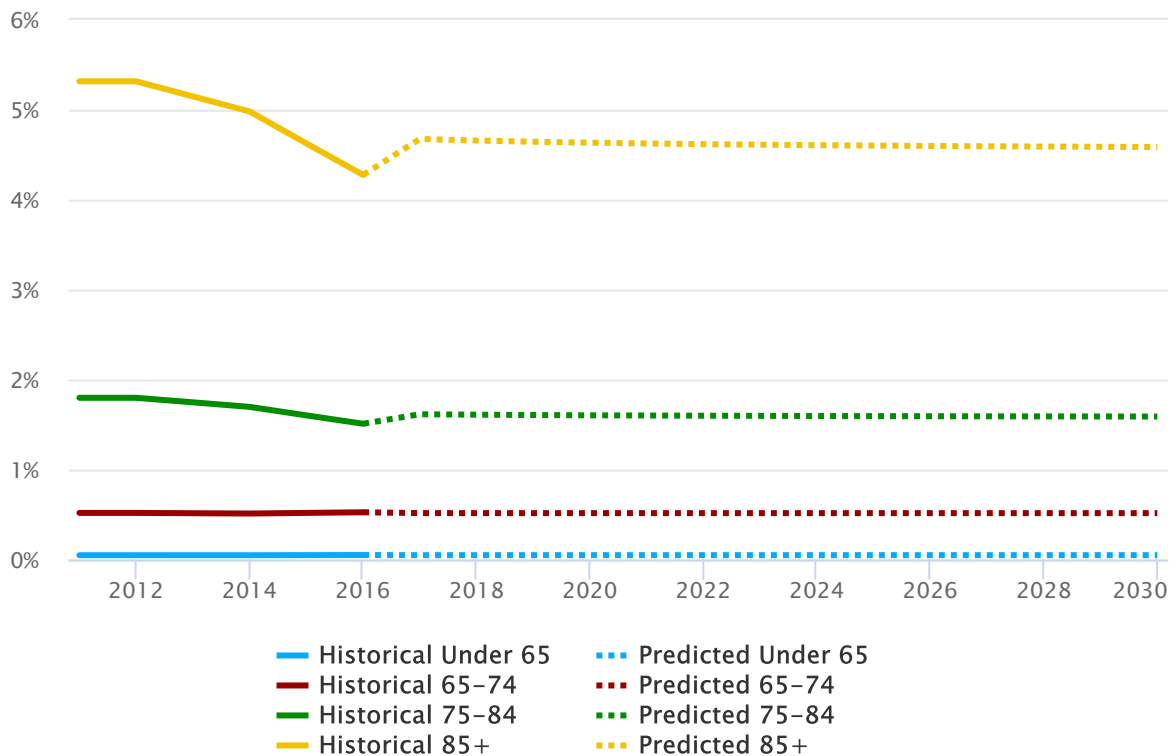
What are the implications of higher expected demand for LTC services and changing preferences across LTC service types on Medicaid’s LTC expenditure growth? This study combines U.S. demographic projections from PWBM’s microsimulation with publicly available data on total LTC users, Medicaid’s share of LTC users, and total Medicaid LTC costs to project future growth in Medicaid LTC expenditures.⁵ The results suggest that Medicaid LTC costs will increase from 0.62 percent of GDP today to 0.71 percent by 2030 and to 1.25 percent by 2050.

Historical Data and Future Projections

Figures 2, 3 and 4 show historical and projected LTC-Medicaid-user shares by age groups for Nursing Home, Home Health and Other LTC Services. Projected Nursing Home and Home Health Medicaid user shares in Figures 2 and 3 show recent low user shares reverting back toward their historical averages. The Medicaid user shares of Other LTC services have increased during recent years. As described below, the method used to project user population shares stabilizes the shares in the long term.

Figure 2: Nursing Home User-to-population Shares, Historical and Projected

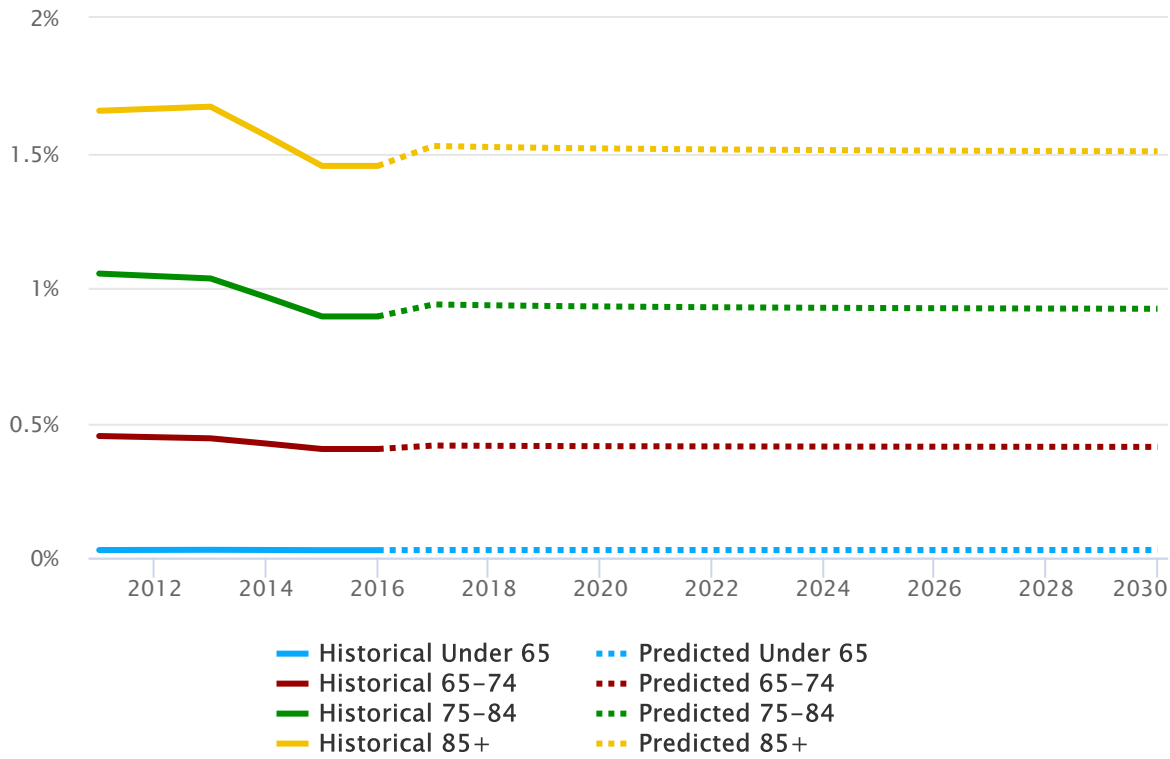
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Source: Authors' calculations using data from the Centers for Medicare and Medicaid, the Center for Disease Control, and Statista.

Figure 3: Home Health Care User-to-population Shares, Historical and Projected

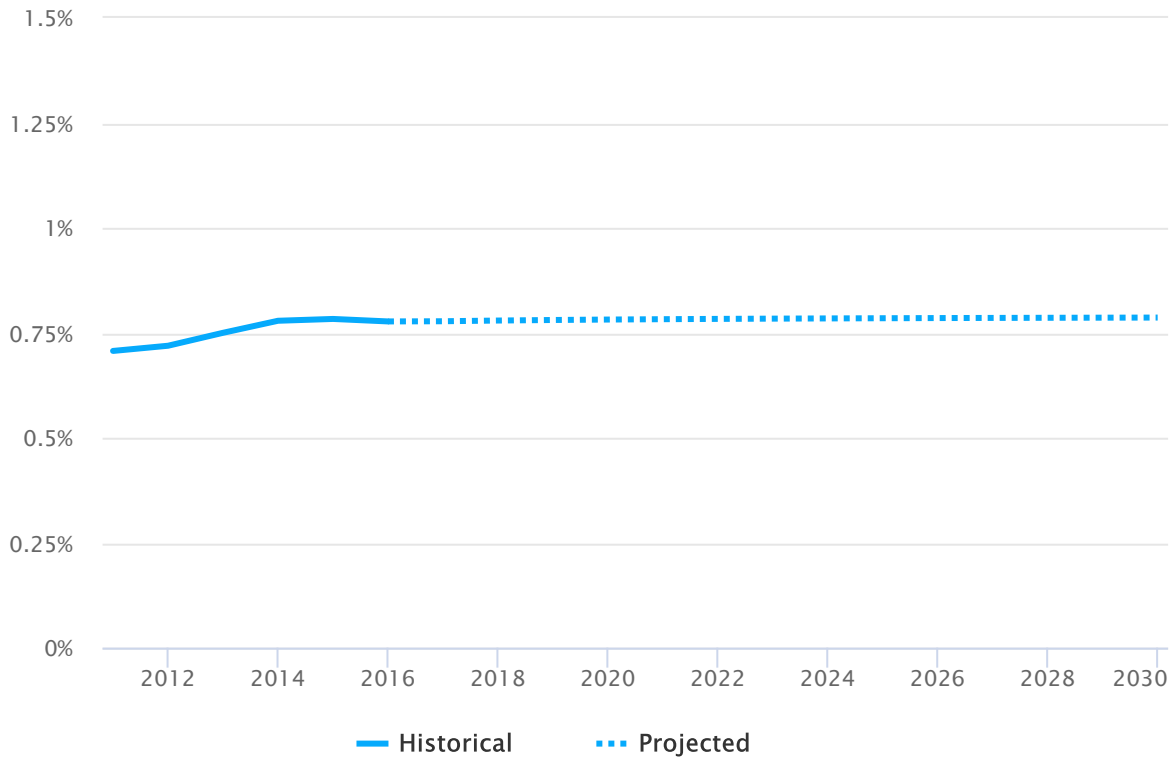
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Source: Authors' calculations using data from the Centers for Medicare and Medicaid, the Center for Disease Control, and Statista.

Figure 4: Other LTC User-to-population Share (All Ages), Historical and Projected

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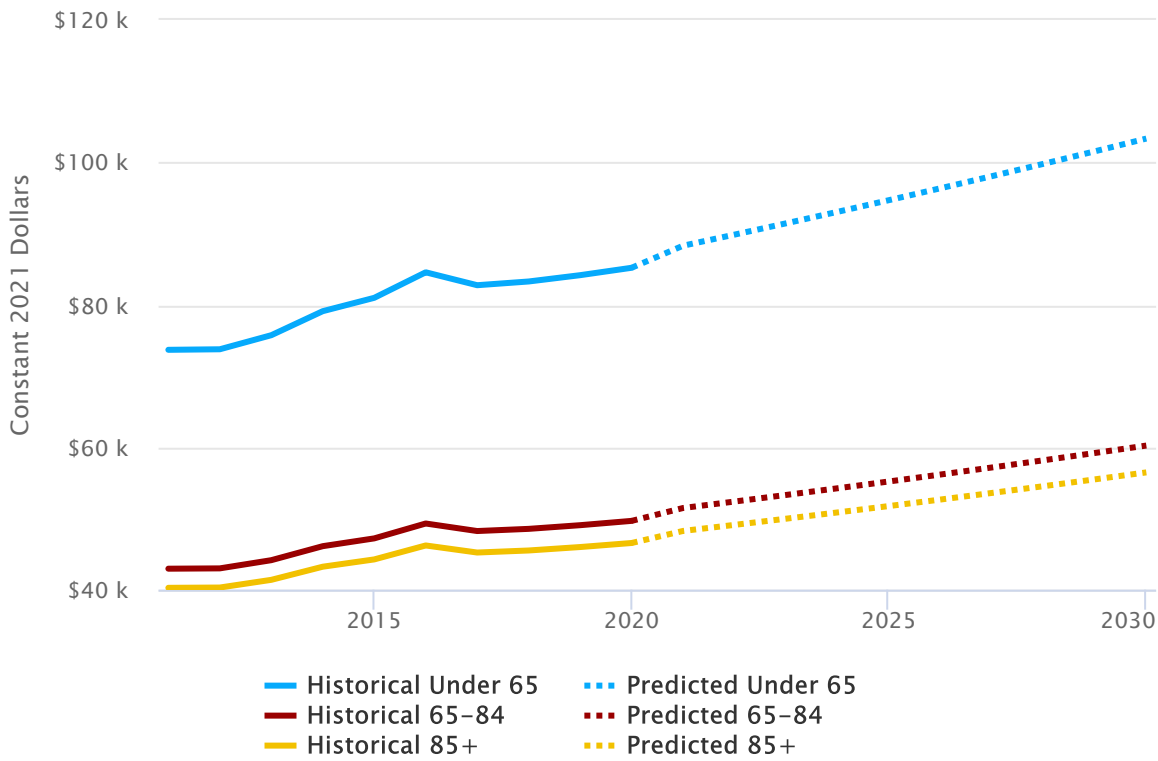


Source: Authors' calculations using data from the Centers for Medicare and Medicaid, the Center for Disease Control, and Statista.

Figures 5, 6, and 7 show per-Medicaid-user annual costs for Nursing Home, Home Health and Other LTC services. Figures 5 and 6 show that both Nursing Home and Home Health costs per Medicaid user are projected to increase in future years for all age groups consistent with historical trends. It should be noted that per Medicaid user costs of Home Health services for the under-65 category are much larger than per Medicaid user costs for older individuals. The former includes severely disabled individuals that require specialized care services but users under age 65 are not as numerous as older age groups (see Figure 2).

Figure 5: Annual Nursing Home Cost Per User, Historical and Projected

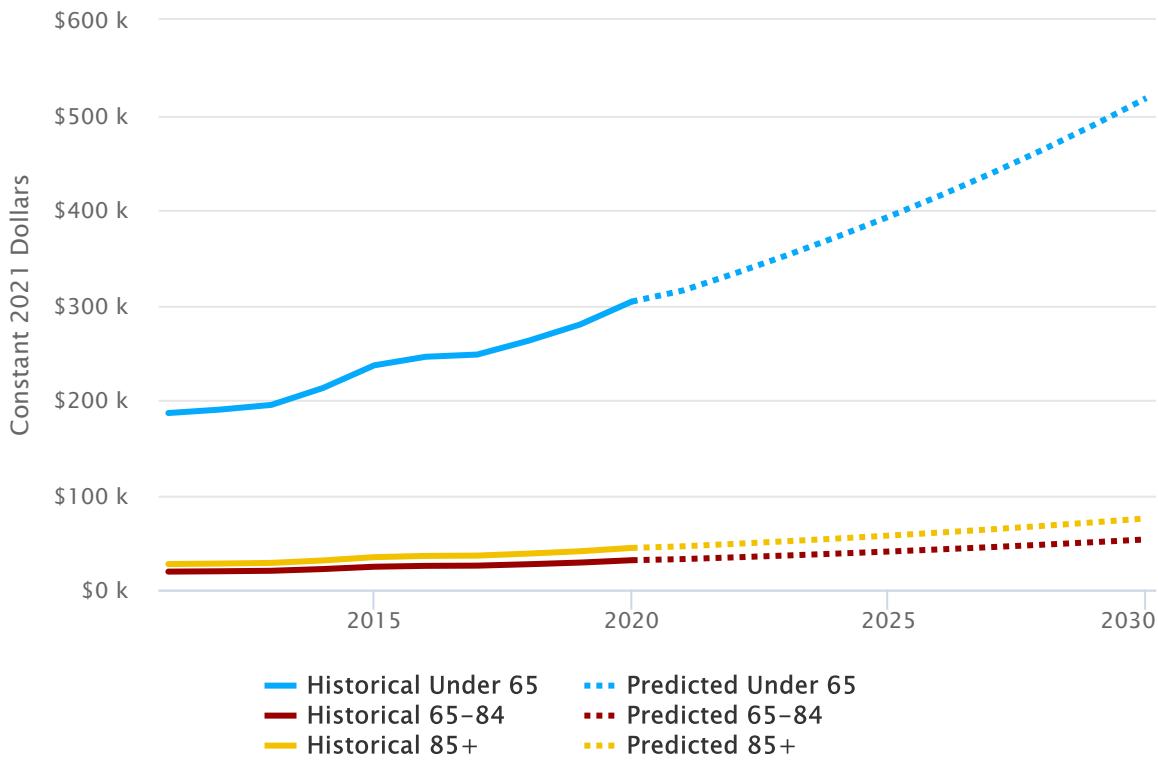
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Source: Authors' calculations using data from the Centers for Medicare and Medicaid, the Center for Disease Control, and Statista.

Figure 6: Annual Home Health Cost Per User, Historical and Projected

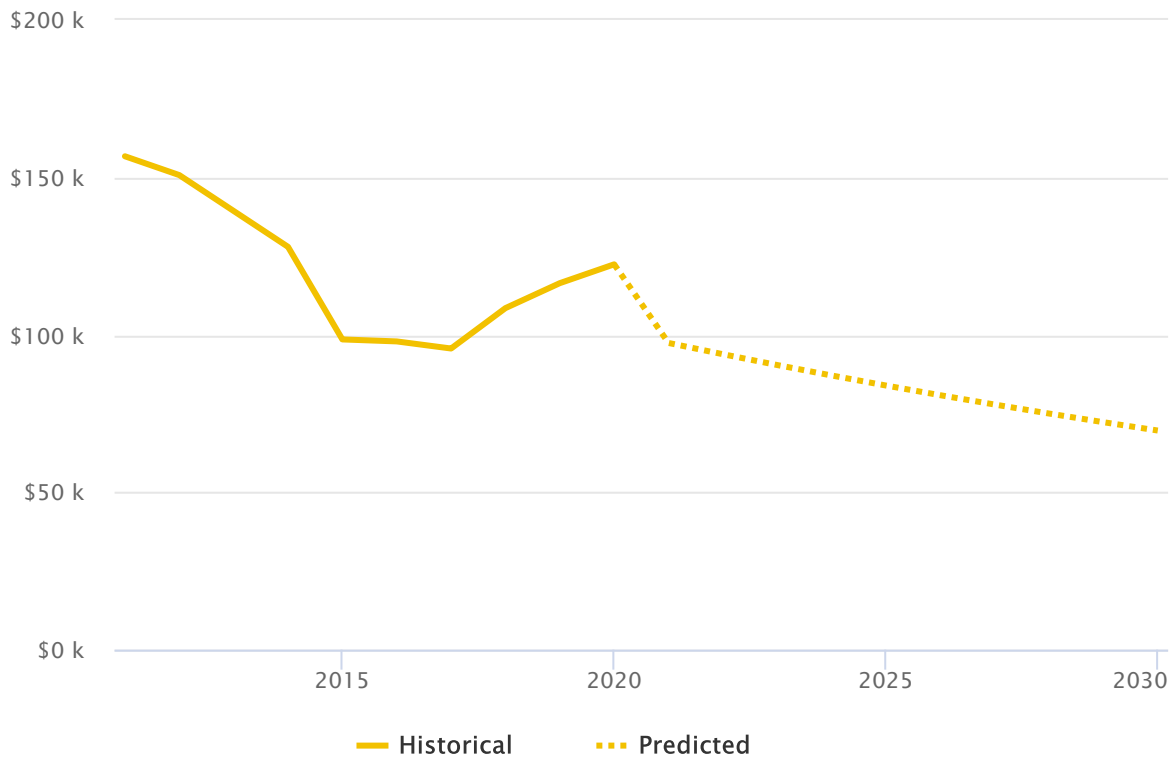
[DOWNLOAD DATA](#)



Source: Authors' calculations using data from the Centers for Medicare and Medicaid, the Center for Disease Control, and Statista.

Figure 7: Annual Other LTC Cost Per User (All Ages), Historical and Projected

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Source: Authors' calculations using data from the Centers for Medicare and Medicaid, the Center for Disease Control, and Statista.

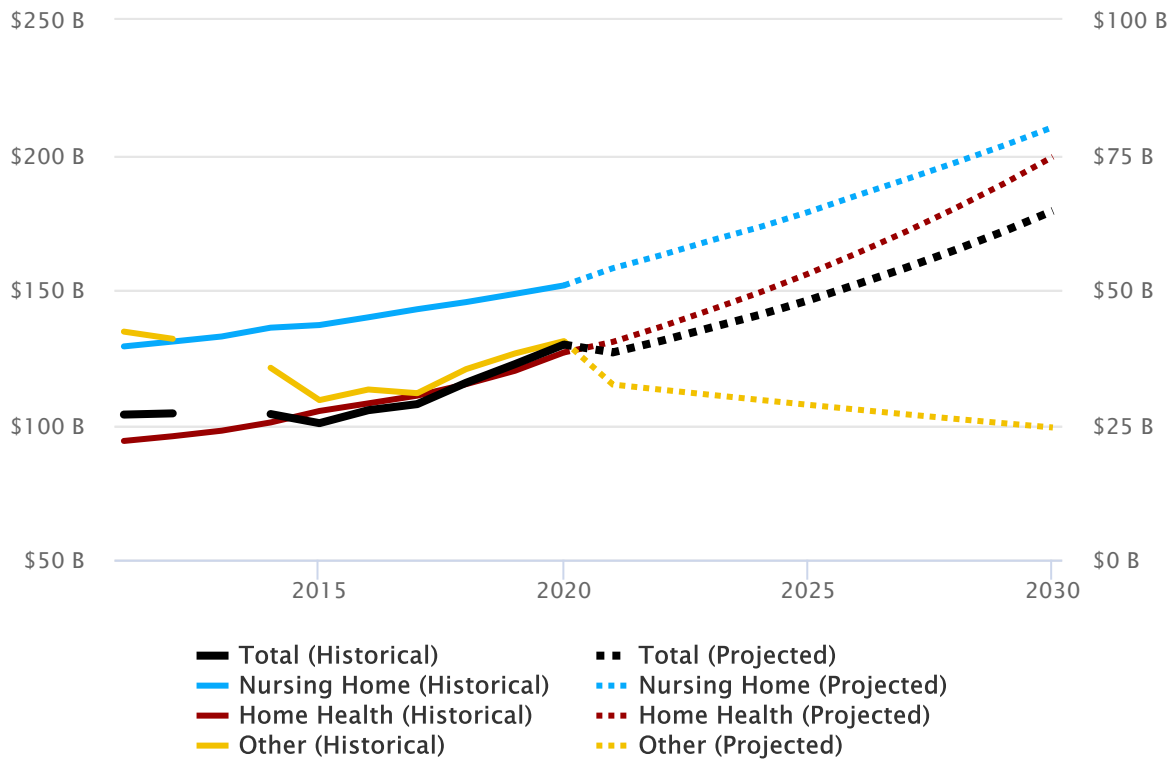
Figure 7 shows a decline in projected per-Medicaid-user costs for the Other service category, again consistent with recent history. A comparison of historical per-Medicaid-user-cost growth rates show faster increases (inflation adjusted) in per-Medicaid-user Home Health costs, which averaged 5.5 percent per year, compared to Nursing Home cost, which grew at about 2 percent per year. Per-Medicaid-user cost projections extrapolate historical trends of differential cost increases, which likely results from increasing demand for Home Health services and moderating demand for Nursing Home care services.

Combining User and Cost Projections across Age Group and LTC Service Types

Total LTC costs are projected as the sum of projected total costs across all age groups and service types: Figure 8 shows projected total Medicaid LTC costs (in constant 2021 dollars). It shows Home Health and Nursing Home expenditures increasing, the former at a slightly faster pace than the latter, and expenditures on the Other LTC service category declining over time. Medicaid expenditures on Nursing Home and Home Health will increase 4.7 percent and 6.9 percent per year above inflation through 2030, respectively – the combined effects of per user cost growth and beneficiary population growth.

Figure 8: Medicaid's Inflation Adjusted Expenditures, Historical and Projected

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Source: Authors' calculations using data from the Centers for Medicare and Medicaid, the Center for Disease Control, and Statista.

Medicare LTC service expenditures were 0.62 percent of U.S. GDP. The PWBM microsimulation of U.S. demographics projects the U.S. population's aged-dependency ratio to increase from 17 percent to 21 percent by 2030 and to 24 percent by 2050. The number of individuals aged over 65 years is projected to increase from 56 million to 71 million by 2030 and to 86 million by 2050. And PWBM's simulation of U.S. GDP has it increasing from \$20.9 trillion today to \$31.1 trillion by 2030 and to \$68.7 trillion by 2050 (inflation adjusted).⁶

Medicaid's inflation-adjusted LTC expenditure projections reported above increase at an average annual rate of just under 3 percent per year from \$130 billion in 2020 (0.62 percent of GDP) to \$179 billion by 2030 (0.71 percent of GDP). As population aging progresses after 2030, Medicaid's inflation-adjusted LTC expenditures are projected to grow even faster – at about 5 percent per year – reaching \$466 billion by 2050 (1.25 percent of GDP).⁷

Discussion

Publicly available information on users and costs of long-term care services is very limited. Projections of future LTC usage rates and per-user costs are implemented separately by age groups and service types – incorporating as much detail as available data permits. Data limitations compelled making assumptions to impute usage rates and costs across service types for years where information was missing; user and cost values were combined across smaller LTC service components and some service types were not included in the analysis because

Medicaid paid for them relatively infrequently – such as Hospice care. These projections could be overstating per Medicaid-LTC-user Home Health cost for the under 65 age group because lack of data on age-specific shares of Medicaid-LTC users among total users forced application of a uniform user rate across all age groups. This may result in underestimation of Medicaid-LTC users among those aged 65 or less and overestimation of cost per user.

Overall, expenditure projections suggest that Medicaid’s LTC expenditures are likely to increase in the future. Over the next 10 years, Medicaid LTC expenditure growth will be moderate, increasing its share in GDP by about 10 basis points. Thereafter, with growth in the size of the older population exposed to the risk of needing LTC services, Medicaid LTC expenditures are likely to grow even faster, taking up more than one percent of GDP by 2050.

Appendix: Methodology

Data Sources

The Medicaid LTC expenditure projections reported here use historical information on total and Medicaid LTC users and total and Medicaid LTC per user costs from several public sources: Estimates of long term care (LTC) user-shares by type of service are taken from Centers for Disease Control (CDC);⁸ Medicaid spending on Nursing Home and Home Health are from the Centers for Medicare and Medicaid Services (CMS);⁹ and total Medicaid spending on LTC are from Statista.¹⁰ These data are combined with population projections from PWBM’s Microsimulation of U.S. demographics¹¹ to project future LTC costs and cost growth.

CDC data on LTC users for four age groups (under 65, 65-74, 75-84, and over 85) are available separately for users of Nursing Home, Residential Care and Adult Day services in 2012, 2014, and 2016. Similar data for users of Home Health and Hospice services are available for 2011, 2013, and 2015. Data on total Medicaid spending on Nursing Home and Home Health care, and total Medicaid spending on all LTC services are available through year 2020; Medicaid spending on Nursing Home and Home Health services are available for three age groups (under 65, 65-84, and over 85), but only for even-numbered years between 2002 and 2014.

Furthermore, percentages of Home Health users with Medicaid as a payer source are available for 2013 and 2015; percentages of Nursing Home users with Medicaid as a payer source are available for 2014 and 2016; and percentages of Adult Day service and Residential Care users with Medicaid are available for 2012, 2014, 2016 and 2018.

Estimation Method

Using available historical information on users and costs per user, total Medicaid long term care expenditures are estimated for three LTC service types: Home Health, Nursing Home, and Other.¹² Expenditures on Home Health and Nursing Home services are estimated by four age groups and total expenditures on Other LTC services for all ages are estimated by using information on aggregate Medicaid LTC expenditures.

To construct expenditure projections, historical total user shares for Home Health, Nursing Home and Other LTC service types are derived from data on total users divided by the total population (from PWBM historical population) for corresponding years.¹³ Total LTC user shares between 2011 and 2016 are used to estimate post-2017-time paths of total LTC user shares by age group where possible.¹⁴ The projection employs asymptotic (total LTC) user-share time-trends separately for each of the four age groups for Home Health and Nursing Home services. Asymptotic total LTC user-share time trends are estimated for all ages for the Other LTC category.¹⁵

Next, published percentages of users with Medicaid as a payer source between 2011 and 2018 are used to estimate Medicaid LTC user shares out of total LTC users after 2019.¹⁶ As before, asymptotic time trends are estimated separately for each LTC service category by age groups as described above.¹⁷ Having projected total-LTC user shares and the share of Medicaid-LTC users out of total-LTC users, share of Medicaid-LTC users in the total population is simply the product of those two shares. The projected Medicaid-LTC user shares by age-group and service types are combined with PWBM microsimulation's population projections for corresponding age groups to project Medicaid-LTC users by age-group¹⁸ and service type through the year 2030 and beyond.

Next, an exponential time trend is fitted to per-Medicaid-LTC-user expenditures using data for years 2011-20 for Home Health and Nursing Home services separately by age group. Per-Medicaid-LTC-user expenditures are projected by extrapolating the time trend. Per-Medicaid-LTC-user Home Health and Nursing Home expenditures are projected for the different age groups in three steps:

1. Relative per user expenditures by age group are calculated for 2014 from total Medicaid expenditures separately for Nursing Home, Home-Health care and Other service types.¹⁹
2. Per user spending for each service type in each year (2011-2013 and 2015-2020) is estimated by scaling the product of 2014 relative per-user spending and total users to match aggregate spending (available from CMS) for those years. This step assumes that relative per user expenditures by age group remain unchanged during those years.
3. Finally, an exponential time trend is estimated on imputed historical (2011-2020) per user expenditures by service type and projected through year 2030 and beyond by extrapolating the time trends.

Having projected total Medicaid-LTC users and per user cost for each service type, total Medicaid-LTC spending is projected as the sum of expenditures across all age-groups and service types.

This analysis was prepared by [Yan He](#) under the direction of [Jagadeesh Gokhale](#). Prepared for the website by [Mariko Paulson](#).

1. Kemper, Peter, Harriet L. Komisar, and Lisa Alecxih. 2005/2006. "Long-Term Care Over an Uncertain Future: What Can Current Retirees Expect?" *Inquiry*, 42: 335-50. [↩](#)

2. "Long Term Care: How Big a Risk?" by Leora Friedberg, Wenliang Hou, Wei Sun, and Anthony Webb, Boston College, Center for Retirement Research, November 2014. [↩](#)
3. The median cost of a full time (40 hours per week) Home Health care aide was \$47,000 per year; that for a semiprivate room in a Nursing Home was \$90,000 per year. [See Genworth Cost of Care Survey, 2019.](#) [↩](#)
4. Trends In Home Care Versus Nursing Home Workforce Sizes: Are States Converging Or Diverging Over Time?: by Esther M. Friedman, Madhumita Ghosh-Dastidar, Teague Ruder, Daniel Siconolfi and Regina A. Shih; Health Affairs, Vol. 40, No. 12. [↩](#)
5. To be clear, the substitution across long term care service types is not explicitly modeled and projected. [↩](#)
6. GDP projections are constructed using PWBM's microsimulation-based estimates of the future capital stock and future work-efficiency adjusted labor inputs. For details see the Microsimulation's documentation available at: <https://budgetmodel.wharton.upenn.edu/microsim/documentation>. [↩](#)
7. Larger uncertainty attaches to longer-term projections given opposite influences on costs from technological changes and supply constraints. [↩](#)
8. <https://www.cdc.gov/nchs/npals/reports.htm>. [↩](#)
9. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData>. [↩](#)
10. <https://www.statista.com/statistics/245415/medicaid-spending-on-long-term-care-services-in-the-us-since-1990/>. [↩](#)
11. <https://budgetmodel.wharton.upenn.edu/microsim>. [↩](#)
12. Because historical enrollment and cost data are not available separately by age for Residential Care, Adult Day, and Hospice care services, also the research shows that Medicare covers the cost of care for more than 85 percent of all individuals receiving Hospice care from Medicare-certified providers. Hence, Hospice is not included in the analysis and Adult Day service and Residential Care are combined into the "Other" category. [↩](#)
13. PWBM's historical populations are benchmarked to information on population counts from the U.S. Census Bureau. [↩](#)
14. User share information is estimated separately by age groups only for Home Health and Nursing Home LTC services. Missing data between 2011 and 2016 was imputed with extrapolation and interpolation. [↩](#)
15. Age-group-specific user shares are not used for the other category because per-user costs are not available by age group. [↩](#)
16. Missing data between 2011 and 2018 was imputed with extrapolation and interpolation. [↩](#)
17. The same percentage of users with Medicaid as payer source is assumed for all ages in each LTC service category. [↩](#)

18. Medicaid users by age are available for Nursing Home and Home Health, Medicaid users for other LTC service are not by age. ↩
19. Estimation for other-LTC services category is based on combined data for all age groups. ↩