

Long-Term Services & Supports Feasibility Policy Note

Funding a Public Long-Term Care Program

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In the actuarial model¹ used to determine the amount of taxes used to fund the proposed long-term care program and the amount of benefits distributed by the long-term care program, economic and policy assumptions are made about the future. With regards to economic assumptions, assumptions on the real rate of return on trust fund investments, the increase in average annual wage in covered employment, the Consumer Price Index (CPI), the average annual interest rate, and the unemployment rate are made. For policy assumptions, assumptions are made about how much the cap on the benefits received increases each year.

The fourth policy note² of this series evaluated the cost and benefits to the proposed long-term care program using as conservative an approach as possible when using the regional input-output model (e.x., assuming an elasticity of 1 for local consumers) to determine a lower-bound for the net benefits of the program. The estimated tax and benefits used for that cost-benefit analysis came from economic and policy assumptions that one might consider optimistic, in an effort to ensure a high fund ratio – pushing the fund ratio too low might invite concerns over the sustainability of such a program. In fact, the economic assumptions allow for this high fund ratio (the fund ratio never dips below 400%, and in fact averages 850%, with a fund ratio of 1230% in the last year of projections (2088)) even though the projections are based on a 0.4% GET surcharge, not the 0.5% surcharge. This high fund ratio can be primarily attributed to two main assumptions: the assumption on the real rate of return on trust fund investments and the assumption on average annual interest rate. For this projection, the real rate of return on trust fund investments averages around 2% until 2023, before increasing to 2.82% from 2024 onwards; the average annual interest rate averages 5% until 2023, before increasing to 5.6% from 2024 onwards. Of course, the fund ratio could be pushed lower by increasing the cap on

¹ Developed by John Wilkin (F.S.A., M.A.A.A.) and Edward Armentrout, Actuarial Research Corporation, 6928 Little River Turnpike, Suite E, Annandale, VA 22003. Some sample models are available on the Hawai'i ADRC website:

https://www.hawaiiadrc.org/site/439/reports_publications.aspx

² https://www.hawaiiadrc.org/Portals/_AgencySite/LTSS/Note4.pdf

benefits, but this forecast assumes a cap increase of 3.1% a year, a value similar to estimates of both the nation’s and state’s five-year annual growth of costs³.

The projections of a 2.82% real rate of return on trust fund investments and 5.6% average annual interest rate are probably overly optimistic; given the efforts by the Fed to use monetary policy to stimulate the economy out of the Great Recession, interest rates have been pushing the zero-lower bound for over five years. While recent statements from the Fed announced an increase in the target interest rate, it will likely take time for the rate to reach pre-Great Recession levels (between 1992 and 2007, the annual effective federal funds rate⁴ averaged just over 4%). The interest rate on the Social Security Trust Fund⁵ have been rather low recently, as well, with annual averages between 1.5% and 3% since 2008; taking into account the inflation rate, the real rate of return on trust fund investments⁶ sits around 1%.

An appropriate question, then, is how sustainable is the program if more conservative assumptions on these interest rates are in place. To answer this question, economic assumptions are changed in the actuarial model to account for more pessimistic projections, and the GET surcharge is changed to 0.5% to reflect the current proposal. Then, the increase to the cap on benefits is adjusted to get a fund ratio of around 300% for the later years of the projection. Though the main source of contention for the optimistic projections are the real rate of return on trust fund investments and the average annual interest rate, additional variables are changed to be either more pessimistic or to be closer to historical averages (closer to historical averages results in more pessimistic assumptions, in a couple of cases).

Previously, the projections on tax and benefits utilized the following (major) assumptions:

Year	Real Rate of Return on Trust Fund Investments	Increase in Average Annual Wage in Covered Employment	CPI	Average Annual Interest Rate	Unemployment Rate
2014	0.30%	3.78%	1.61	2.9%	6.90%
2015	0.90%	4.92%	1.95	3.6%	6.70%
2016	1.40%	5.01%	2.18	4.2%	6.50%
2017	1.80%	5.95%	2.38	4.7%	6.20%
2018	2.10%	4.70%	2.58	5.1%	5.90%
2019	2.40%	4.28%	2.69	5.4%	5.80%
2020	2.70%	4.12%	2.70	5.5%	5.60%
2021	2.80%	4.11%	2.70	5.5%	5.60%
2022	2.80%	4.02%	2.70	5.5%	5.60%
2023	2.80%	3.85%	2.70	5.6%	5.60%
2024-	2.82%	3.85%	2.70	5.6%	5.50%

³ Refer to the Genworth 2015 Cost of Care Survey, https://www.genworth.com/dam/Americas/US/PDFs/Consumer/corporate/130568_040115_gnw.pdf

⁴ See <https://research.stlouisfed.org/fred2/> for the time series for the effective federal funds rate.

⁵ <https://www.ssa.gov/oact/progdata/newIssueRates.html>

⁶ A rough estimate of the real rate of return can be found by subtracting the inflation rate from the interest rate.

The increase in average annual wage in covered employment and CPI are perhaps a little high. The Great Recession resulted in very low wage and CPI increases; since 2009, the average monthly wage increased an average of 2.3% a year⁷ while Honolulu CPI⁸ grew at an average of 2% a year. Using these values for much of the projection is probably too pessimistic; looking at the averages for the past 15 years, the average monthly wage increased an average of 3.4% a year while Honolulu CPI grew at an average of 2.6% a year. The past year has seen an average monthly increase of around 3%, so the increase in average annual wage in covered employment is projected to be closer to 3.4%, while Honolulu's CPI has been less well of late, pushing the estimate closer to the lower end 2% estimate.

Hawaii's unemployment rate assumption is probably overly pessimistic. Even during the Great Recession, the state only saw a few instances of the unemployment rate going above 6% in any given month⁹. In fact, estimates of the unemployment rate in Hawaii have been below 5.5% since mid-2012. The unemployment rate assumptions can be revised downwards, but to remain cautiously pessimistic, the projections will use the average unemployment rate during the Great Recession and the first few months of recover (January 2008-December 2009): 5%.

As mentioned previously, the real rate of return on trust fund investments and the average annual interest rate are revised downwards quite heavily. This results in the following economic assumptions:

Year	Real Rate of Return on Trust Fund Investments	Increase in Average Annual Wage in Covered Employment	CPI	Average Annual Interest Rate	Unemployment Rate
2014	0.30%	3.25%	1.40	0.1%	5.00%
2015	0.90%	3.25%	1.20	0.1%	5.00%
2016	0.99%	3.25%	2.00	0.5%	5.00%
2017	0.99%	3.25%	2.20	0.5%	5.00%
2018	0.99%	3.25%	2.20	1.0%	5.00%
2019	0.99%	3.25%	2.20	1.5%	5.00%
2020-	0.99%	3.25%	2.20	2.0%	5.00%

With these parameters in place, the program can still afford a 3.1% annual increase to the benefit cap. Given these economic parameters and a 3.1% annual increase to the benefit cap, the fund ratio still does not dip below 400%, but no longer grows as quickly towards the end of the projections. Instead of a fund ratio of 1230% in 2088, the fund ratio is 566% with the updated assumptions. Some of this difference is due to the smaller amount of taxes taken in. A lower CPI and average annual wage increase leads to less spending, and since the tax income is effectively based on sales, leads to smaller income from tax. A major source of a lower

⁷ <https://www.frbatlanta.org/chcs/wage-growth-tracker.aspx?panel=1>

⁸ http://data.bls.gov/pdq/SurveyOutputServlet?data_tool=dropmap&series_id=CUURA426SA0,CUUSA426SA0 and authors' calculations.

⁹ <https://research.stlouisfed.org/fred2/series/HHHONO7URN>

income for the program is the dramatic decrease to the income from interest (the real rate of return on trust fund investments and the average annual interest rate). To examine how the change in each economic variable affects the fund ratio, the model is run by changing the values of one economic variable from the original projections to the more pessimistic values. This is done for the real rate of return on trust fund investments, the increase in average annual wage in covered employment, CPI, and average annual interest rate, and unemployment rate.

The following table provides the fund ratio for select years. Notice that even with a lower unemployment rate, thus a larger number of workers, the fund ratio is lower than the original projections. This is due to a lower GET base. The other thing to notice is that the real rate of return on trust fund investments and the CPI have significant negative impacts on the trust fund balance. Decreasing CPI by even 0.5%, and the trust fund has a negative balance by 2056. Decreasing the real rate of return on trust fund investments by almost 2%, and there is barely enough money in the trust fund in the 2050s and 2060s. Increasing the GET surcharge to 0.5%, and the all five economic variables can be set to the pessimistic conditions while still maintaining a sustainable trust fund.

	0.4% GET Surcharge - variable changed:						0.5% GET Surcharge
	No variables changed	Real Rate of Return on Trust Fund Investments	Increase in Average Annual Wage in Covered Employment	CPI	Average Annual Interest Rate	Unemployment Rate	
2018	1873%	1856%	1873%	1875%	1873%	1874%	1860%
2019	3771%	3703%	3771%	3778%	3771%	3780%	3718%
2020	5709%	5556%	5709%	5720%	5709%	5718%	5575%
2025	750%	680%	750%	712%	750%	747%	884%
2030	617%	521%	617%	554%	617%	614%	727%
2035	573%	436%	573%	468%	573%	568%	669%
2040	510%	336%	509%	356%	509%	503%	588%
2045	454%	242%	454%	236%	454%	446%	514%
2050	421%	165%	421%	117%	421%	411%	461%
2055	423%	117%	422%	2%	422%	409%	436%
2060	461%	100%	460%	-106%	460%	444%	435%
2065	532%	113%	531%	-208%	531%	511%	449%
2070	624%	145%	622%	-307%	622%	597%	464%
2075	733%	191%	732%	-409%	732%	703%	476%
2080	878%	257%	876%	-518%	876%	842%	496%
2085	1078%	352%	1075%	-635%	1075%	1035%	534%
2086	1126%	375%	1123%	-659%	1123%	1082%	544%
2087	1176%	400%	1173%	-683%	1173%	1131%	555%
2088	1230%	427%	1227%	-707%	1227%	1183%	566%

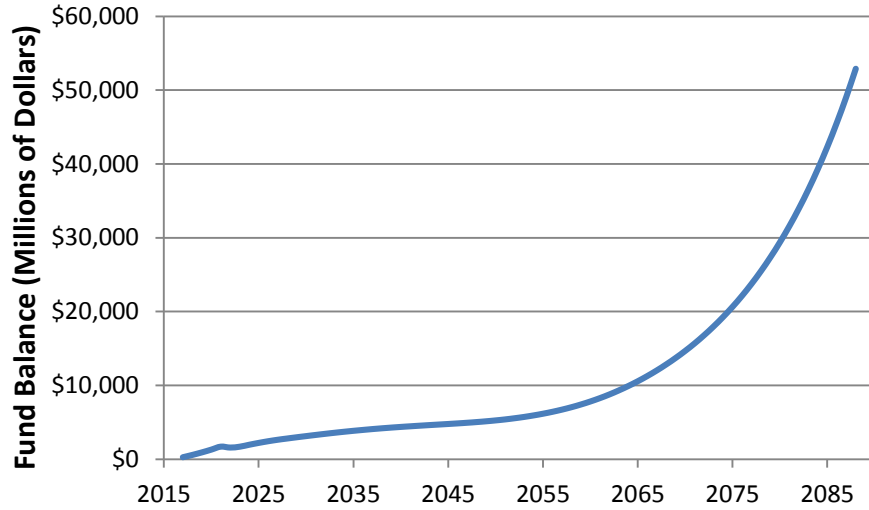
Since the fund ratio still remains above 400% throughout the projection with the updated assumptions and the previous policy assumption of a 3.1% annual increase to the benefit cap, we can examine how much higher the benefit cap can increase each year while still being sustainable (fund ratio of 300%). Unfortunately, due to how close the fund ratio is to sustainable levels and the power of exponentiation, the cap cannot actually be increased by much. Raising the annual increase by a mere 0.1% to 3.2%, and the fund ratio already dips just below 300% for a few years.

Price inflation tends to happen in spurts, rather than continuously. For example, movie prices don't increase by some percent each year; instead, prices change every couple of years, and usually quite dramatically (\$10 movies five years ago, to \$11 for movies a couple of years ago, to \$12 now, about a 10% increase each time). What happens when the cap to the benefit changes incrementally, every few years? This might be somewhat useful in building up more income for the program from accumulating more interest, and allow the average yearly increase to the benefit cap to be higher than 3.2%. Alas, the interest accumulated from a slow increase to the benefit cap only allows for an average yearly increase of 3.3%.

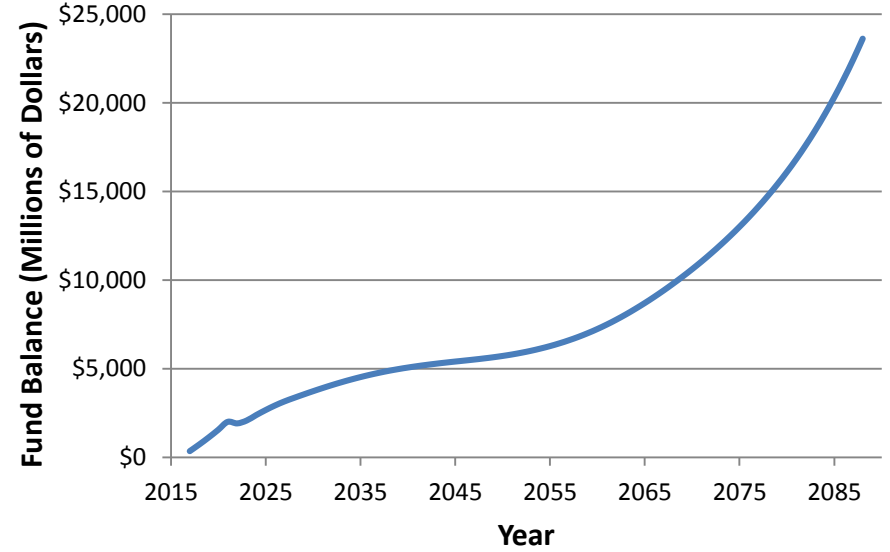
The average five-year annual growth of costs in Hawaii are, for the most part, lower than 3%. Moreover, inflation rates for the past 15 years also rarely exceed this value. Increasing the benefit cap by even 3% a year should not result in a serious diminishing of assistance for those in need of long-term care.

Even with a pessimistic long-term view on the economy, a publicly funded long-term care insurance program is sustainable. Projecting the average annual interest rate to never exceed 2% and the real rate of return on trust fund investments to never exceed 1%, and the benefit cap will increase by just over 3% a year while maintaining a fund ratio of over 300%.

0.4% GET, Solvent



0.5% GET, Pessimistic Economic Assumptions



**0.5% GET, Pessimistic Economic Assumptions,
3.2% Increase to Benefit Cap**

