

# Long-Term Services & Supports Feasibility Policy Note

## On Regressivity of Flat Tax Social Programs

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### 1. Introduction

The Human Services and Commerce and Consumer Affairs Committees of the 2015 Hawai'i State Legislature passed out SB 727SD1. This bill proposes a social insurance program to provide a limited long-term care benefit for Hawai'i citizens. The benefit would cover 365 days of services at a starting value of \$70 per day. The program would be financed by a 0.5% addition to the Hawai'i General Excise Tax. Benefit payments would be adjusted for inflation.

It is commonly argued that flat taxes, such as sales taxes and general excise taxes, are regressive because they tax spending. Lower income people spend much more of their income than higher income people and therefore pay a greater proportion of their income in taxes. As the statement stands, this is correct. The results are tempered in a state like Hawaii, where the General Excise Tax reaches virtually all retail products and all services and goods used in business. The tempering comes because the cost of living is particularly high compared to other American cities; most families spend the bulk of their income until they reach the upper 1/5 or 1/10th of the income distribution. The true comparison of the regressivity of a social program, however, is based on a comparison of the net benefits, the benefits less the costs in taxes. This note explores the distribution of net benefits across age and income groups in Hawaii arising from the proposed Long Term Care social insurance program.

### 2. Background

The observation that poorer people spend more of their income than wealthier people is easy to understand. Consumption taxes, such as sales or general excise taxes, follow the pattern of expenditures. Purchasing necessities (food, clothing, housing, etc.) can consume a greater share of a small income, but a smaller share of a large income. Similarly, the taxes added to the purchase of necessities take up a greater proportion of the income that is left in the small income than in the larger income. For example, consider households with an income of \$1,000 and \$2,000. If both purchase \$500 of groceries at a 10% tax rate each household spends the same \$550. The difference, however, is

that, proportionally, the lower income household spends 55% of its total income while the higher income household only spends 27.5%. A flat consumption tax may impose differential burdens on those with varying levels of resources

For a social program targeting aging issues, calculating net benefits and net costs requires consideration of an individual across the life span. This is necessary because the program tax affects people at all ages, but the benefits are likely drawn only at higher ages. Computing lifetime tax contributions then scales the values to their net present value, taking into account the effect of the interest rate on future money values<sup>1</sup>.

### 3. Simulating the Life Course: Costs and Benefits

For this analysis we use the Hawai'i version of the Urban Institute's Dynasim3 micro simulation model<sup>2</sup>. This model follows a large population as it ages, earns income over the life span, and is subject to random initiation of disabilities. The simulation model builds a population over time, which can then be analyzed. It is then possible to tabulate the events in the population to determine the distribution of outcomes across a wide variety of population profiles. For this analysis we need to look at people for whom we can trace a complete life course, over the run of the simulation. Thus, we restrict the sample to those born after 1986 and who did not die before 2016<sup>3</sup>. This will be the population that comes of age, matures, and passes during the simulation time window from 2017 to 2088.

The analysis tallies the GET addition paid by every member of the population, every year. It also tallies the benefits a person would draw in any given year, if he or she meets the benefit trigger: the HIPAA level of failing two Activities of Daily Living (ADLs)<sup>4</sup>. Obviously, not everyone becomes disabled, so the disability event is assigned randomly. Some persons have higher risk, some lower, depending on their characteristics and risk factors. The final rates of disability are matched initially to observed levels in the current population<sup>5</sup>. The tax contribution is determined by the household income as it grows over

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<sup>1</sup> An interest rate of 2.9% was used to discount the cash flows to produce net present values. (These are the values of amounts of money that would be received or spent in the future, adjusting for the fact that future money is worth less than current money because of the time effect of interest.)

<sup>2</sup> The Dynasim3 Micro Simulation Model has been extended for analyses of Hawaii by Melissa Favreault, Ph.D. The Urban Institute's Dynamic Simulation of Income Model (DYNASIM3) projects the size and characteristics—such as financial, health, and disability status—of the US population for the next 75 years. Using the best and most recent data available, it helps sort out how the profound social, economic, and demographic shifts that are transforming retirement will likely affect older adults, taxpayers, business, and government. The model can also show how outcomes would likely evolve under changes to public policies, business practices, or individual behaviors. <http://www.urban.org/research/publication/dynasim-projecting-older-americans-future-well-being>.

<sup>3</sup> The procedure for blocking out only those cases for which the simulation will have a full set of data is given in the Appendix to Favreault MM, Gleckman H, and Johnson RW. Financing long-term services and supports: options reflect tradeoffs for older Americans and federal spending. *Health Aff (Millwood)*. 2015;34(12). Published online November 16, 2015.

<sup>4</sup> The Long Term Supports and Services Program social insurance package uses the standard established by federal law for long-term care insurance that would qualify for special tax treatment. It has been comply adopted for many long-term care benefit “triggers.” (the point at which a patient's severity qualifies for program benefits).

<sup>5</sup> The methodology is sketched in Favreault, Melissa M., Karen E. Smith, and Richard W. Johnson. 2015. The Dynamic Simulation of Income Model (DYNASIM): An Overview. September 28.

time<sup>6</sup>. The services used are priced at the value of the initial year service package of \$70 per day, inflated at 2.9% per year, so that benefit levels in future years are higher than those of the initial year. These streams of tax payments and benefits are then deflated to create the lifetime values<sup>7</sup>.

Table 1 illustrates the share of lifetime income taken from income deciles by a 0.5% addition to the General Excise Tax (GET). The income deciles from lowest to highest are given in the rows along the vertical margin of the table. The columns indicate the age-cohort of people in the society. For this table, it is important to capture the full lifetime of the persons in the simulation: persons born later might not experience the whole life course. Initially from this table, we might conclude that the proposed 0.5% tax is detrimental to low income deciles and to older cohorts in particular.

**Table 1. Net Lifetime Premiums for LTSS Social Insurance Program by Income Deciles as Proportion of Lifetime Earnings**

Income Decile at Age 65	Birth Cohort					
	<1950 Mean	1950-59 Mean	1960-69 Mean	1970-79 Mean	1980-85 Mean	All Mean
1	0.029	0.030	0.028	0.018	0.019	0.026
2	0.026	0.006	0.037	0.054	0.012	0.029
3	0.009	0.006	0.035	0.007	0.008	0.013
4	0.007	0.014	0.013	0.056	0.011	0.020
5	0.008	0.005	0.007	0.013	0.011	0.009
6	0.003	0.004	0.007	0.011	0.009	0.007
7	0.003	0.004	0.009	0.007	0.009	0.006
8	0.005	0.004	0.035	0.009	0.009	0.013
9	0.007	0.004	0.006	0.011	0.012	0.008
10	0.007	0.010	0.014	0.012	0.014	0.011

Discount Rate=2.9%

But, we have to take into account the distribution of benefits. Table 2 gives average benefits for the same income and age cohort groupings. On average, the oldest cohort receives slightly lower lifetime benefits than the younger cohorts—partly because of limited participation in the program. Table 2b illustrates the same breakdown over birth cohorts, but tabulated by age of death. In this instance, we see that older cohorts with less participation, and those who died earlier received lower benefits. The driving force here is that those who died earlier have had less exposure to the risk of needing care. It is

<http://www.urban.org/sites/default/files/alfresco/publication---pdfs/2000391---The---Dynamic---Simulation---of---Income---Model---DYNASIM---%20An---Overview.pdf>

<sup>6</sup> Household income captures the wage and capital incomes of heads of households and spouses as reflected in the underlying Health and Retirement Survey which provides the individual cases for the simulation.

<sup>7</sup> The reason we use a lifetime benefit is to capture the people who use a benefit early and those who use the benefit only later. In the population there will be a distribution of early users and later users. The lifetime value adjusts for the time of use and renders all values in constant dollars. In effect benefits that are received far in the future will be worth less than those received earlier.

important to note that both Table 2 and Table 2b illustrate average benefits for the income groups across the entire population including both those who receive benefits, and those who do not. Table 3 shows the same data, distributed across age groups. For everyone, including those who do not become disabled, the program provides on average a positive benefit, as we should expect from an insurance program. Notably, Table 3 illustrates low benefits drawn by the citizens who die between 65 and 75, notably in the oldest age cohort. To some extent, these groups will not have lived long enough to experience serious disability. Some may have drawn benefits in the early years of the program before full benefits had been vested<sup>8</sup>.

**Table 2. Present Value of Lifetime Social Insurance Benefits at Age 65**

Income Decile at Age 65	Birth Year Cohort					
	<1950 Mean	1950-59 Mean	1960-69 Mean	1970-79 Mean	1980-85 Mean	All Mean
1	\$ 3,696	\$ 6,427	\$ 7,203	\$ 7,613	\$ 8,660	\$ 6,407
2	\$ 4,719	\$ 6,753	\$ 7,835	\$ 8,260	\$ 9,758	\$ 7,132
3	\$ 5,082	\$ 6,339	\$ 7,116	\$ 9,160	\$ 10,058	\$ 7,265
4	\$ 4,980	\$ 7,010	\$ 7,201	\$ 8,323	\$ 8,535	\$ 7,031
5	\$ 4,784	\$ 7,057	\$ 7,342	\$ 8,251	\$ 9,253	\$ 7,116
6	\$ 4,946	\$ 6,579	\$ 7,556	\$ 7,996	\$ 8,413	\$ 6,977
7	\$ 4,730	\$ 6,350	\$ 7,155	\$ 8,110	\$ 8,755	\$ 6,870
8	\$ 5,129	\$ 6,008	\$ 6,872	\$ 7,416	\$ 8,048	\$ 6,587
9	\$ 4,963	\$ 6,392	\$ 6,979	\$ 7,911	\$ 8,223	\$ 6,795
10	\$ 4,907	\$ 6,246	\$ 6,699	\$ 6,767	\$ 7,562	\$ 6,361

Discount Rate = 2.9%

**Table 3. Distribution of Lifetime Benefit by Age Cohort and Age of Death**

Age of Death	Birth Year Cohort					
	<1950 Mean	1950-59 Mean	1960-69 Mean	1970-79 Mean	1980-85 Mean	All Mean
65-74	\$181	\$1,511	\$1,792	\$2,048	\$1,998	\$1,646
75-79	\$1,326	\$3,105	\$3,709	\$4,340	\$4,329	\$3,319
80-84	\$2,925	\$5,121	\$5,589	\$6,492	\$6,355	\$5,110
85-89	\$4,154	\$6,775	\$7,653	\$8,132	\$9,236	\$6,897
90-94	\$6,078	\$9,246	\$9,563	\$10,119	\$10,926	\$8,885
95+	\$7,882	\$10,799	\$11,256	\$11,776	\$12,576	\$10,595
Total Lifetime Benefits	\$3,449	\$4,598	\$5,207	\$5,745	\$6,277	\$4,940

Discount Rate =2.9%

<sup>8</sup> The program design is given in Nitz, Lawrence H. **The Feasibility of a Long-Term Services and Supports Social Insurance Program for Hawaii.** [http://hawaiiadrc.org/site/439/reports\\_publications.aspx](http://hawaiiadrc.org/site/439/reports_publications.aspx).

The image changes when we tabulate lifetime benefits as a percentage of income. Table 4 presents the same breakdown of the population, but illustrates benefits received as a proportion of lifetime income. There is some variance because cell sizes for the oldest cohorts are sometimes small, but it is clear that the lower income deciles receive much greater benefits in terms of percentage of lifetime income (8.9% for the lowest income, oldest group) than the higher income deciles. In this oldest group many older women were not in the labor force and thus have low pension incomes.

**Table 4. Gross Lifetime Social Insurance Benefits as Proportion of Lifetime Income**

Income Decile at Age 65	Birth Cohort					
	<1950 Mean	1950-59 Mean	1960-69 Mean	1970-79 Mean	1980-85 Mean	All Mean
1	0.873	0.723	0.180	0.038	0.259	0.432
2	0.438	0.028	0.048	0.022	0.272	0.162
3	0.237	0.061	0.036	0.014	0.012	0.080
4	0.071	0.022	0.019	0.023	0.011	0.031
5	0.037	0.031	0.011	0.033	0.010	0.025
6	0.021	0.010	0.010	0.010	0.008	0.012
7	0.016	0.008	0.012	0.005	0.006	0.010
8	0.015	0.004	0.082	0.004	0.004	0.024
9	0.020	0.004	0.005	0.004	0.004	0.007
10	0.006	0.005	0.004	0.002	0.003	0.004

Discount Rate = 2.9%

The true test, of course, is to bring both money paid out and money received into the same time frame. For this we can subtract the present value of lifetime taxes paid from the lifetime present value of benefits received to produce a lifetime net benefit. Table 5 illustrates this effect. Note that the lowest income (upper row) and oldest (leftmost columns) citizens the lifetime benefits reach up to 2.7 times the lifetime income<sup>9</sup>. Presenting the data as a table of medians in Table 6 still shows the largest benefits being paid to those in the lower income deciles. The magnitude of the median net lifetime premium as a proportion of income, however, is at its maximum 3% of lifetime income. Upper income deciles have benefits as a proportion of income in the .05-1% range. In all, the median citizen in all but the highest two income brackets receives a positive benefit. Again, note that this is insurance value—it is tabulated over all persons, not just those who draw benefits, as everyone has some chance of needing the benefit.

<sup>9</sup> In this table, we have subtracted the tax as a proportion of lifetime income from the benefits as a proportion of lifetime income—producing the net benefit, again as a proportion of lifetime income.

**Table 5. Net Lifetime Social Insurance Benefit as Proportion of Lifetime Income: Means**

Income Decile at Age 65	Birth Cohort					
	<1950 Mean	1950-59 Mean	1960-69 Mean	1970-79 Mean	1980-85 Mean	All Mean
1	2.759	1.714	0.425	0.083	0.562	1.070
2	1.156	0.061	0.099	0.044	0.573	0.367
3	0.593	0.143	0.076	0.024	0.016	0.178
4	0.170	0.044	0.036	-0.062	0.016	0.042
5	0.093	0.061	0.021	0.054	0.013	0.050
6	0.051	0.019	0.015	0.006	0.010	0.020
7	0.040	0.013	0.020	0.005	0.003	0.016
8	0.031	0.006	0.114	0.002	0.001	0.034
9	0.038	0.004	0.003	-0.001	-0.002	0.008
10	0.004	-0.004	-0.004	-0.007	-0.009	-0.004
All	0.383	0.156	0.069	0.011	0.083	0.137

Discount Rate = 2.9%

**Table 6. Net Lifetime Social Insurance Benefit as Proportion of Lifetime Earnings: Median**

Income Decile Age 65	Birth Cohort					
	<1950 P50	1950-59 P50	1960-69 P50	1970-79 P50	1980-85 P50	All P50
1	0.029	0.029	0.029	0.025	0.023	0.027
2	0.014	0.013	0.013	0.012	0.011	0.013
3	0.011	0.009	0.009	0.008	0.007	0.009
4	0.010	0.008	0.007	0.006	0.005	0.007
5	0.008	0.007	0.005	0.005	0.003	0.006
6	0.006	0.005	0.004	0.003	0.002	0.004
7	0.005	0.004	0.003	0.002	0.001	0.003
8	0.004	0.003	0.002	0.000	-0.001	0.002
9	0.003	0.002	0.001	-0.001	-0.002	0.001
10	0.002	0.000	-0.001	-0.003	-0.004	-0.001
All	0.006	0.005	0.004	0.002	0.001	0.004

Discount Rate = 2.9%

#### **4. Alternate Models of the GET—Value Added Tax v. Flat Final Tax**

There are several ways of estimating the size and impact of a general excise tax into the future. One is to use a simple multiplier—in this case, multiply the household income by 0.5% for each year to derive the stream of tax payments. Another is to use a more complex model of the way in which initially flat taxes cascade in the economy. This kind of model is based on external information about how much of a household's income is spent. In this more conservative model, poor families are allocated expenditures greater than their earned income. This is the model used in these estimates.

#### **5. Conclusion**

In conclusion, when lifetime benefits are taken together with lifetime tax payments, the program is income-progressive. Lower income people derive relatively larger benefits with respect to income than upper income residents. Thus the proposed program provides positive net benefits to the lower income and middle-class. This is the group that can, only with difficulty, purchase and maintain private long-term care insurance.