

Presentation #2.A

AB 567 ACTUARIAL ANALYSIS

Key modeling approaches and simplifications

The information contained in this document is preliminary and intended for discussion with the AB 567 Actuarial Subcommittee only. The modeling approaches and simplifications referenced in this document are subject to change.

April 2023

QUALIFICATIONS, ASSUMPTIONS AND LIMITING CONDITIONS

Oliver Wyman was commissioned by the California Department of Insurance (CDI) to provide support associated with assessing the feasibility of developing and implementing a culturally competent statewide insurance program for long-term care services and supports. The primary audience for this report includes stakeholders from the California Department of Insurance, members of the Long-Term Care Insurance Task Force, and members of the general public within the state of California.

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ACTUARIAL SUBCOMMITTEE MEETING #1 ACTION ITEMS (1 OF 2)

Model element	Action item	Model update / next step
1 Projection period	<ul style="list-style-type: none"> Consider implications of assuming Program is implemented later than January 1, 2025 	<ul style="list-style-type: none"> Oliver Wyman will assess impact of assuming a later Program effective date
2 Model outputs	<ul style="list-style-type: none"> Provide a summary of anticipated model outputs 	<ul style="list-style-type: none"> Model outputs will include: <ul style="list-style-type: none"> – Expected Program tax rate – Projected cash flows (revenues, benefits, and expenses) – Projected number of individuals covered by the Program Actuarial Report will include an overview of individuals not covered by the Program Medi-Cal fiscal impact will also be estimated
3 Wage/income stratification	<ul style="list-style-type: none"> Consider expanding annual wage/income bands to align with tax brackets 	<ul style="list-style-type: none"> Annual wage/income bands expanded to be more granular
4 Wage/income distribution	<ul style="list-style-type: none"> Assess impact of using alternative approaches to develop an average wage/income distribution 	<ul style="list-style-type: none"> Oliver Wyman will assess implications of using COVID-19 years (2020-2022) to develop wage/income distributions
5 California Department of Finance data	<ul style="list-style-type: none"> Confirm whether new information or baseline projections are anticipated while the actuarial analysis is ongoing Revisit rationale for negative projected immigration growth rate 	<ul style="list-style-type: none"> Newer information and baseline projections will not be available, so 2017-2022 data will be used for the Actuarial Report Birth and migration counts will be held constant for projection years 2060+ (based on 2060 counts)

ACTUARIAL SUBCOMMITTEE MEETING #1 ACTION ITEMS (2 OF 2)

Model element	Action item	Model update / next step
6 Climate change	<ul style="list-style-type: none"> Consider implications of NAIC Climate and Resiliency Task Force's findings on Program and actuarial analysis 	<ul style="list-style-type: none"> Actuarial Report will include qualitative commentary on ESG-compliant (Environmental, Social, and Corporate Governance) investments <ul style="list-style-type: none"> We do not have adequate data to assess quantitative implications on bond/equity yields
7 Investment assumptions	<ul style="list-style-type: none"> Consider revising alternative baseline asset allocation to assume 100% corporate A bonds and 0% equity Consider feedback on preliminary investment assumptions Investigate whether investment in municipal bonds is allowable without a Constitutional amendment 	<ul style="list-style-type: none"> Baseline and alternative asset allocation scenarios were revisited A second alternative asset allocation was added (100% bonds, 0% equity) Investigation is underway regarding investment in municipal bonds
8 Labor market shifts	<ul style="list-style-type: none"> Consider impact of labor market shifts on Program and actuarial analysis 	<ul style="list-style-type: none"> Actuarial Report will include qualitative commentary on the implications of shifts in the labor market

METHODOLOGY: MODEL ARCHITECTURE

Refer to Section 2 of the [AB 567 Feasibility Report](#) for further information regarding the Task Force’s recommended program designs

Component	Approach (DRAFT)
1 Actuarial software	<ul style="list-style-type: none"> Moody’s Analytics AXIS™
2 Projection period	<ul style="list-style-type: none"> 75 years beginning on January 1, 2025 <ul style="list-style-type: none"> Oliver Wyman to assess impact of assuming later Program effective date A 75-year projection period is standard for determining actuarial balance of a public insurance program¹
3 Program contribution calculation methodology	<ul style="list-style-type: none"> Solve for level payroll tax rate for employed and level income tax rate for self-employed <ul style="list-style-type: none"> Calculation accounts for lower-income waivers and higher-income cap Calculation allows for employer/employee portion flexibility Tax rate set to achieve zero-ending surplus (on December 31, 2099) Illustrative tax progressivity constructs will be assessed <ul style="list-style-type: none"> Specific progressivity tiers not defined in Feasibility Report
4 Financial sensitivities (i.e., financial impact quantification of alternative program designs)	<ul style="list-style-type: none"> The following financial sensitivities will be performed: <ul style="list-style-type: none"> Program opt-out provision transition date set to the beginning of the year preceding Program effective date Benefit eligibility ages: no minimum age, 18+, 30+, 40+, 50+, and 65+ Vesting criteria: 10 years (Design 5) Portability: full or partial international portability (all Designs) Benefit maximum: \$1,000 per month (Design 1) Elimination period: 0 days and 30 days (Design 2) Care setting: home and community-based services only (Design 2) Employer contributions: range to be assessed; including small businesses exemption (methodology TBD) Contribution caps: range to be assessed, including no contribution cap Investment methodology: U.S. Treasuries only

1. As established by the Social Security Administration and the Centers for Medicare and Medicaid Services

METHODOLOGY: MODEL POINT FILE STRATIFICATION

Characteristic	Variability (DRAFT)
1 Gender	<ul style="list-style-type: none"> • Male • Female
2 Age band	<ul style="list-style-type: none"> • 5-year age bands (from age 0 to age “99+”)
3 Income type	<ul style="list-style-type: none"> • Wage-earned income • Self-employed Income
4 Wage/income bands (annual)	<ul style="list-style-type: none"> • \$0 to \$9,999 • \$10,000 to \$14,999 • \$15,000 to \$24,999 • \$25,000 to \$34,999 • \$35,000 to \$49,999 • \$50,000 to \$74,999 • \$75,000 to \$99,999 • \$100,000 to \$149,999 • \$150,000 to \$199,999 • \$200,000 to \$299,999 • \$300,000 to \$399,999 • \$400,000 to \$499,999 • \$500,000+
5 Entry year	<ul style="list-style-type: none"> • Yearly, from 2024 through 2099 <ul style="list-style-type: none"> – Reflects current population and new entrants (i.e., births, immigration) – Population exits are modeled via actuarial assumptions (i.e., deaths, benefit exhaustions, and emigration)

METHODOLOGY: ECONOMIC ASSUMPTIONS

Assumption	Approach (DRAFT)	Data source
1 Wage/income distribution	<ul style="list-style-type: none"> Based on California wage/income distributions (2017-2022 data) <ul style="list-style-type: none"> Distributions are stratified by gender, age band, and income band Separate distributions applied for wage-earned income and self-employed income Model point file reflects wage/income inflation to 2024 Oliver Wyman to assess implications of using COVID-19 era wage/income distributions Midpoint of income bands assumed for modeling purposes 	California's Department of Finance
2 Wage inflation: career progression	<ul style="list-style-type: none"> Based on California wage/income distributions (2017-2022 data) Career progression inflation determined based on change in wage/income by age band 	
3 Wage inflation: calendar year inflation	<ul style="list-style-type: none"> 2022: 7.5% per annum 2023: 4.75% per annum 2024: 3.25% per annum 2025: 2.9% per annum 2026+: 2.5% per annum 	
4 Labor force participation	<ul style="list-style-type: none"> Proportion of individuals in the California labor force will be applied to the total California population and combined with wage/income distribution (item 1 above) to determine Program contributions <ul style="list-style-type: none"> Based on 2021 Social Security Trustees Report 	Social Security
5 Vesting criteria	<ul style="list-style-type: none"> Probability that individuals satisfy partial or full vesting criteria by entry age and number of years since entry <ul style="list-style-type: none"> Based on 2006 Social Security Earnings Public-Use Microdata file We assume that Program participants must work at least 500 hours per year to satisfy the vesting criteria 	Social Security

METHODOLOGY: POPULATION GROWTH AND MIGRATION ASSUMPTIONS

Assumption	Approach (DRAFT)	Data source
1 Starting population	<ul style="list-style-type: none"> Projected 2024 California population sourced from Report P-1C (refer to data source) <ul style="list-style-type: none"> Population is stratified by gender and age band 	California's Department of Finance (including Reports P-1C and P-CC)
2 Birth rate	<ul style="list-style-type: none"> 2025 to 2059: projected births sourced from Report P-1C (refer to data source) 2060+: birth counts held constant at 2060 level 	
3 Domestic and international migration	<ul style="list-style-type: none"> Immigration <ul style="list-style-type: none"> 2025 to 2059: projected net migration sourced from Report P-CC (refer to data source) 2060+: net migration counts and trend held constant at 2060 levels Gender and age group proportions determined based on foreign immigration distributions (2010-2021 data) Domestic and foreign immigration/emigration ratio determined based on migration counts (2000-2022 data) 	

METHODOLOGY: INVESTMENT ASSUMPTIONS

Assumption	Baseline: California constitutional amendment required (DRAFT)	Financial sensitivity: U.S. Treasuries only (DRAFT)
1 Asset type	<ul style="list-style-type: none"> Corporate A bonds and equities 	<ul style="list-style-type: none"> U.S. Treasuries
2 Investment expense	<ul style="list-style-type: none"> 0.10% per annum (market value) <ul style="list-style-type: none"> – Based on industry benchmarks 	<ul style="list-style-type: none"> N/A
3 Credit spreads	<ul style="list-style-type: none"> 3-year bond: 94bps 5-year bond: 107bps 10-year bond: 129bps 20-year bond: 149bps 30-year bond: 147bps <ul style="list-style-type: none"> – Based on long-term Oliver Wyman study 	<ul style="list-style-type: none"> N/A
4 Asset default (bonds only)	<ul style="list-style-type: none"> 0.13% per annum <ul style="list-style-type: none"> – Based on long-term Oliver Wyman study 	<ul style="list-style-type: none"> N/A
5 Equity return	<ul style="list-style-type: none"> 10% per annum <ul style="list-style-type: none"> – Based on historical average S&P 500 returns 	<ul style="list-style-type: none"> N/A
6 Asset allocations (refinement anticipated based on liability duration)	<ul style="list-style-type: none"> Baseline allocation¹ <ul style="list-style-type: none"> – 3-year bond: 4.25% – 5-year bond: 4.25% – 10-year bond: 17% – 20-year bond: 34% – 30-year bond: 25.5% – Equity: 15% Alternative baseline allocation #1 <ul style="list-style-type: none"> – 3-year bond: 3.5% – 5-year bond: 3.5% – 10-year bond: 14% – 20-year bond: 28% – 30-year bond: 21% – Equity: 30% Alternative baseline allocation #2 <ul style="list-style-type: none"> – 3-year bond: 5% – 5-year bond: 5% – 10-year bond: 20% – 20-year bond: 40% – 30-year bond: 30% – Equity: 0% 	<ul style="list-style-type: none"> 3-year treasury: 5% 5-year treasury: 5% 10-year treasury: 20% 20-year treasury: 40% 30-year treasury: 30%
7 Additional financial sensitivities	<ul style="list-style-type: none"> +/- 100bps (risk free rate) 	<ul style="list-style-type: none"> +/- 100bps (risk free rate)

1. Reflects a more conservative asset allocation; allows for the estimation of a range of investment returns as a financial sensitivity

KEY MODELING APPROACHES AND SIMPLIFICATIONS (1 OF 2)

Program design element	Modeling requirements	Modeling approach/simplification
1 Vesting criteria	<ul style="list-style-type: none"> Individuals must contribute for 5 or 10 years to be eligible for full Program benefits <ul style="list-style-type: none"> Partial (pro-rated) benefits are available after 3 or 5 years, depending on the design Task Force did not define the minimum number of hours that must be worked annually to earn vesting credit 	<ul style="list-style-type: none"> Vesting assumption will leverage 2006 Social Security Earnings Public-Use Microdata file <ul style="list-style-type: none"> Data will be used to create an assumption for the proportion of individuals that have partially and fully vested by entry age and number of years since entry We assume an individual must work at least 500 hours annually to satisfy the vesting criteria¹ (“minimum hours requirement”) Voluntary benefit “top ups” for those unable to fully vest (Design 5 only) will not be modeled
2 Contribution caps	<ul style="list-style-type: none"> Amount of an individual’s wage/income that is subject to Program contribution rate will be capped (except under Design 4) <ul style="list-style-type: none"> Specific cap has yet to be determined but Task Force recommended that it exceed the Social Security limit (\$160,200 as of 2023)² Financial impact of a range of contribution caps will be assessed 	<ul style="list-style-type: none"> Four contribution rate cap scenarios will be modeled: <ul style="list-style-type: none"> No cap \$200,000 cap \$400,000 cap (assumed baseline for modeling purposes) \$500,000 cap Contribution rate cap is assumed to increase over time based on our wage inflation assumption (refer to page 6) <ul style="list-style-type: none"> Example: \$400,000 cap in 2025 would increase to \$411,600 in 2026
3 Contribution waivers and exclusions	<ul style="list-style-type: none"> Under Design 2, lower-income individuals will not contribute or receive vesting credits Under all other designs, contributions will be waived for individuals below a specified poverty level Specific poverty levels for waivers/exclusions have yet to be determined 	<ul style="list-style-type: none"> Program contribution rate will not be applied if an individual’s wage/income is below specified poverty level <ul style="list-style-type: none"> Under Design 2, these individuals will not receive vesting credits For all other designs, the minimum hours requirement will determine if vesting criteria is met in a given year A range of poverty levels will be assessed (\$20,000, \$30,000, \$35,000, \$50,000)³

1. This is consistent with the minimum hours requirement used in the vesting criteria for WA Cares Fund

2. The Social Security limit changes each year with changes in the national average wage index (<https://www.ssa.gov/oact/cola/cbb.html>)

3. Flat denominations are used to proxy a range of Federal Poverty Levels (“FPLs”); the 2023 FPL is \$14,580, \$19,720, \$24,860, and \$30,000 for 1-, 2-, 3-, and 4-person households, respectively (<https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>). Most adult Californians up to 138% FPL will be eligible for Medi-Cal

KEY MODELING APPROACHES AND SIMPLIFICATIONS (2 OF 2)

Program design element	Modeling requirements	Modeling approach/simplification
4 Portability	<ul style="list-style-type: none"> • Vested individuals can use Program benefits outside California • Degree of portability varies by design option and includes the following variations: <ul style="list-style-type: none"> – Partial benefits outside California but within U.S. (grade from 100% to 50% over 5 years) – Full benefits outside California but within U.S. – Full benefits internationally 	<ul style="list-style-type: none"> • Ported benefits modeled as a lump sum payment upon emigration <ul style="list-style-type: none"> – Lump sum equal to present value of future expected benefits (accounting for persistency, morbidity, and interest discounting)
5 Program exemption	<ul style="list-style-type: none"> • Under Designs 2-5, individuals who purchase eligible private insurance¹ on or before Program effective date can qualify for a full Program exemption 	<ul style="list-style-type: none"> • Model point file (i.e., starting population) will be adjusted to remove individuals expected to opt out of the Program
6 Reduced program contributions	<ul style="list-style-type: none"> • Under Designs 2-5, Individuals who purchase eligible private insurance¹ after Program effective date can qualify for reduced Program contributions 	<ul style="list-style-type: none"> • Reduced Program contributions will not be modeled as part of Actuarial Report due to compounding effect of modeling complexities and pending Program design decisions (particularly the definition of eligible private insurance) • Actuarial Report will discuss potential implications of this Program design element from a qualitative (vs. quantitative) perspective
7 Alternative Program financing mechanisms for current retirees	<ul style="list-style-type: none"> • Explore alternative revenue sources that could allow existing retirees (as of Program launch) to participate in the Program, including: <ul style="list-style-type: none"> – Personal income tax – Premium contributions – Lump sum buy-in – California’s General Fund revenue 	<ul style="list-style-type: none"> • We will estimate the number of current retirees as of the Program effective date and quantify their expected future Program benefits and expenses, assuming they participate in the Program • Actuarial Report will include qualitative considerations regarding feasibility of alternative revenue sources based on estimated additional Program cost

1. A definition of the insurance products that will be eligible for Program exemption and reduced contributions (e.g., type of insurance, minimum benefits, etc.) has yet to be determined



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