UCLA CENTER FOR HEALTH POLICY RESEARCH

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CalSIM
California Simulation of Insurance Markets

The California Simulation of Insurance Markets (CalSIM) model is designed to estimate the impacts of various elements of the Affordable Care Act on employer decisions to offer insurance coverage and individual decisions to obtain coverage in California. It was developed by the UC Berkeley Center for Labor Research and Education and the UCLA Center for Health Policy Research, with generous funding provided by The California Endowment.

California Simulation of Insurance Markets (CalSIM) Version 1.7

Health Insurance Coverage in California under the Affordable Care Act

Revision of the March 22, 2012 Presentation to the California Health Benefit Exchange Board

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Major Factors Affecting Individual and Firm Decision as Applied in CalSIM

FIRM BEHAVIOR

Employer response determined by change in relative cost of job-based coverage and the cost of coverage in the Exchange, taking into account:

- Tax benefit of job-based coverage
- Employer penalty to not offer insurance
- Value of Exchange subsidies available to employees
- Differences in plan value
- Employee insurance take up decision
- Age and health status of workforce

INDIVIDUAL BEHAVIOR

Factors affecting individual coverage decisions:

- Starting source of coverage (without the ACA)
- Change in cost to purchase insurance, accounting for the individual responsibility penalty and subsidies
- Household income
- English proficiency
- Health status as indicated by the presence of chronic conditions
- Factors for those eligible for Medi-Cal/Healthy Families:
    - Age
    - Health status
    - Race and ethnicity/ethnicity
    - Employment status
    - Family size
- Change in employer offering status
- Documentation status as a factor of eligibility determination
- Age as a predictor of premium

Comparison of the Base Scenario and Enhanced Scenario as Applied in CalSIM

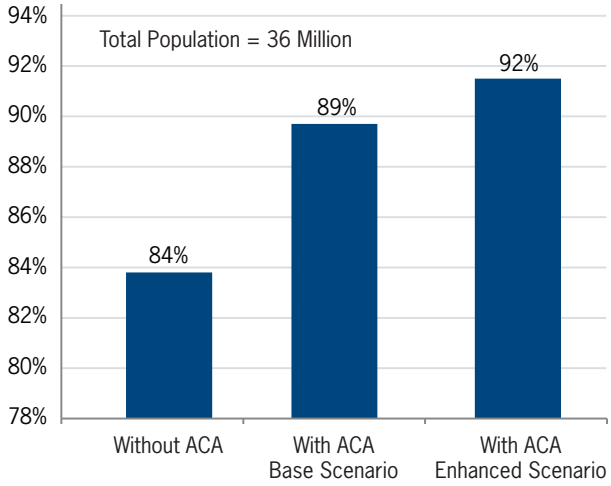
BASE SCENARIO

- Propensities for individuals to take up coverage are based on the best available data from the health economics literature.
- Medi-Cal take up for newly eligible is projected to match the current take-up rate in the state for the uninsured (61%).
- Medi-Cal and Healthy Families take up for previously eligible, but uninsured, will be 10%.
- Limited English Proficient (LEP) individuals will be less likely to enroll.

ENHANCED SCENARIO

- Factors taken into account:
    - o Simplification of eligibility determination
    - o Strong outreach and education
    - o No wrong door
    - o Cultural sensitivity and language appropriate outreach and enrollment
    - o Maximum use of pre-enrollment strategies
- Assumes 75% take up of Medi-Cal and Healthy Families for newly eligible and 40% for previously eligible but uninsured.
- Assumes 75% take up of uninsured adults eligible for subsidies into the Exchange/ individual market.

Exhibit 1. Percentage of Californians under Age 65 with Insurance, 2019



Total Population = 36 Million

Source: UC Berkeley–UCLA CalSIM model, version 1.7.
Note: Based on U.S. Census Bureau, Population Division, Interim State Population Projections, 2005.

Exhibit 2a. Changes Due to Policy in Types of Coverage for Californians under Age 65 (in millions), 2019, *Base Scenario*

Type of Coverage	Without ACA 2019	Adding due to ACA	Leaving due to ACA	Net Policy Change	After ACA 2019
Employer Sponsored Insurance (ESI)	19.78	0.35	–1.06	–0.71	19.07
Medi-Cal	5.90	1.15	—	1.15	7.05
Healthy Families	0.80	0.14	–0.33	–0.19	0.61
Other Public	1.26	—	—	—	1.26
Exchange with Subsidies	—	1.75	—	1.75	1.75
Individual Market/Exchange without Subsidies[1]	2.29	0.89	–1.07	–0.18	2.11
Uninsured—Eligible for Coverage	4.73	0.29	–2.14	–1.85	2.88
Uninsured—Not Eligible due to Citizenship Status	1.06	0.07	–0.06	0.02	1.07

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

[1] Previous micro-simulation modeling literature estimates a range of 46–73% of this group will enroll through the Exchange.

Exhibit 2b. Changes Due to Policy in Types of Coverage for Californians under Age 65 (in millions), 2019, *Enhanced Scenario*

Type of Coverage	Without ACA 2019	Adding due to ACA	Leaving due to ACA	Net Policy Change	After ACA 2019
Employer Sponsored Insurance (ESI)	19.78	0.35	–1.05	–0.70	19.08
Medi-Cal	5.90	1.56	—	1.56	7.45
Healthy Families	0.80	0.20	–0.33	–0.13	0.67
Other Public	1.26	—	—	—	1.26
Exchange with Subsidies	—	2.15	—	2.15	2.15
Individual Market/Exchange without Subsidies[1]	2.29	0.97	–1.10	–0.13	2.16
Uninsured—Eligible for Coverage	4.73	0.27	–2.99	–2.72	2.01
Uninsured—Not Eligible due to Citizenship Status	1.06	0.07	–0.10	–0.03	1.03

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

[1] Previous micro-simulation modeling literature estimates a range of 46–73% of this group will enroll through the Exchange.

Exhibit 3a. Coverage by Source for Californians under Age 65 (in millions), 2014–2019, *Base Scenario*

Type of Coverage	Without ACA 2014	With ACA 2014	With ACA 2016	With ACA 2019
Employer Sponsored Insurance (ESI)	19.15	19.15	19.10	19.07
Medi-Cal	5.71	6.57	6.80	7.05
Healthy Families	0.78	0.58	0.60	0.61
Other Public	1.22	1.22	1.24	1.26
Exchange with Subsidies	—	0.90	1.44	1.75
Individual Market/Exchange without Subsidies	2.21	1.69	1.92	2.11
Uninsured—Eligible for Coverage	4.58	3.57	3.04	2.88
Uninsured—Not Eligible due to Citizenship Status	1.03	1.00	1.00	1.07

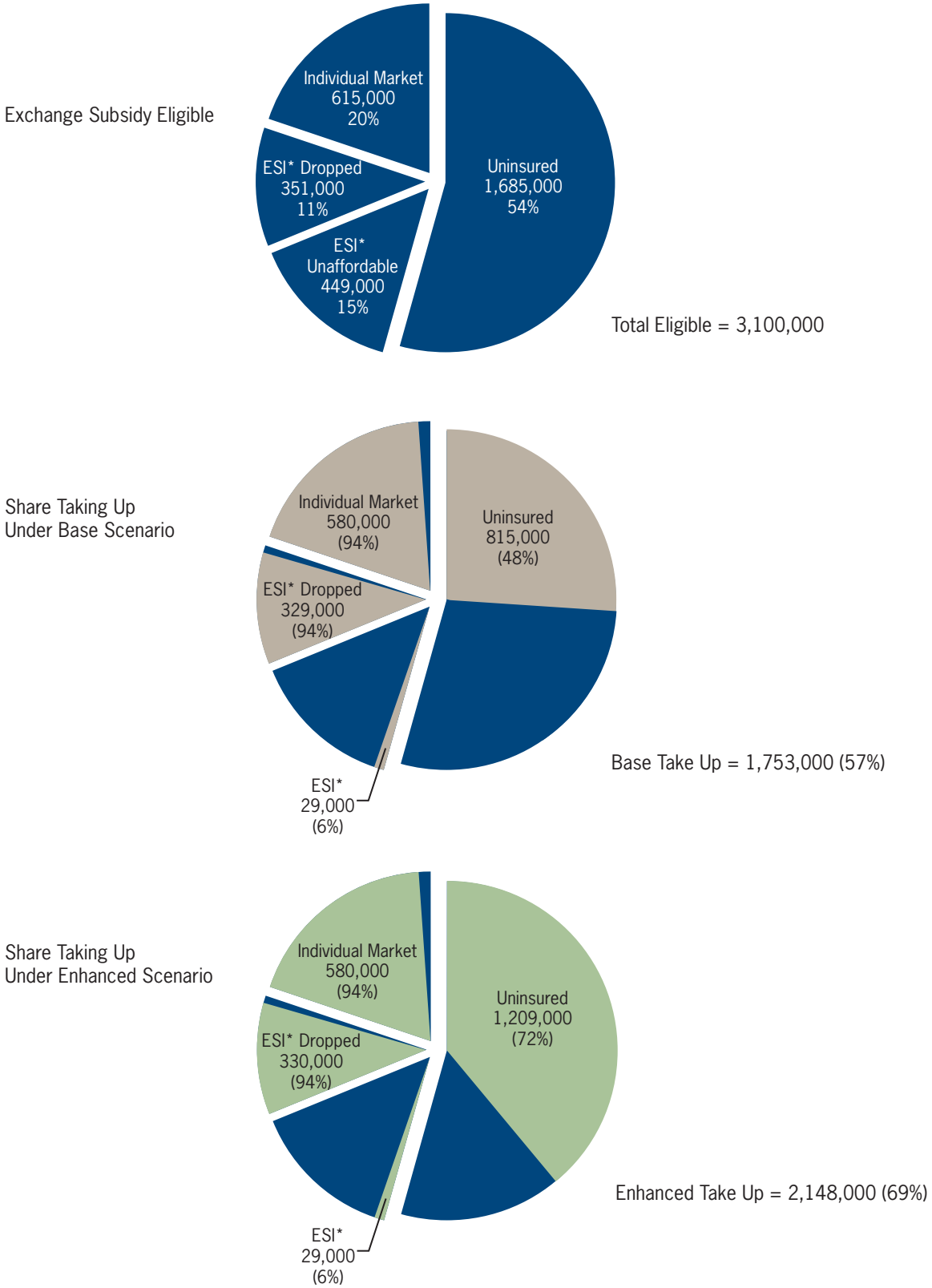
Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 3b. Coverage by Source for Californians under Age 65 (in millions), 2014–2019, *Enhanced Scenario*

Type of Coverage	Without ACA 2014	With ACA 2014	With ACA 2016	With ACA 2019
Employer Sponsored Insurance (ESI)	19.15	19.15	19.08	19.08
Medi-Cal	5.71	7.09	7.30	7.45
Healthy Families	0.78	0.63	0.66	0.67
Other Public	1.22	1.22	1.24	1.26
Exchange with Subsidies	—	1.19	2.03	2.15
Individual Market/Exchange without Subsidies	2.21	1.70	2.04	2.16
Uninsured—Eligible for Coverage	4.58	2.72	1.84	2.01
Uninsured—Not Eligible due to Citizenship Status	1.03	0.98	0.95	1.03

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 4. Exchange Subsidy Eligible Californians under Age 65 by Source of Insurance without the ACA, 2019, and Take Up under Base and Enhanced Scenarios



Source: UC Berkeley–UCLA CalSIM model, version 1.7.

* ESI = Employer Sponsored Insurance

Exhibit 5. Income of Exchange Subsidy Eligible Californians under Age 65 by Source of Insurance without the ACA, 2019

Income	Uninsured		ESI		Individual Market		Total	
138% FPL or less	135,000	8%	—		11,000	2%	146,000	5%
139–200% FPL	604,000	36%	150,000	19%	171,000	28%	925,000	30%
201–250% FPL	357,000	21%	216,000	27%	89,000	14%	662,000	21%
251–400% FPL	589,000	35%	433,000	54%	343,000	56%	1,365,000	44%
Total	**1,685,000**		**799,000**		**614,000**		**3,098,000**	

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 6. Characteristics of Californians under Age 65 who Take Up Subsidized Exchange Coverage, 2019

	Base		Enhanced	
Total	**1,753,000**		**2,148,000**	
Race and Ethnicity				
Latino	743,000	42%	1,034,000	48%
Asian	178,000	10%	205,000	10%
African American	83,000	5%	91,000	4%
White	692,000	39%	756,000	35%
Other	57,000	3%	61,000	3%
Gender				
Female	902,000	51%	1,088,000	51%
Male	851,000	49%	1,060,000	49%
Age				
0–18 years	144,000	8%	144,000	7%
19–29 years	416,000	24%	542,000	25%
30–44 years	536,000	31%	682,000	32%
45–64 years	658,000	38%	780,000	36%
Source of Coverage, without ACA				
Employer Sponsored Insurance Dropped	329,000	19%	330,000	15%
Employer Sponsored Insurance Unaffordable	29,000	2%	29,000	1%
Individual Market	580,000	33%	580,000	27%
Uninsured	815,000	46%	1,209,000	56%
Income				
138% FPL or less	88,000	5%	140,000	7%
139–200% FPL	630,000	36%	786,000	37%
201–250% FPL	335,000	19%	422,000	20%
251–400% FPL	699,000	40%	800,000	37%
Limited English Proficiency (18 and older)				
Yes	515,000	29%	774,000	36%
No	1,100,000	63%	1,236,000	58%

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 7. Characteristics of Californians under Age 65 who Are Eligible but Do Not Take Up Subsidized Exchange Coverage, 2019

	Base		Enhanced	
Total	**1,346,000**		**951,000**	
Race and Ethnicity				
Latino	684,000	51%	393,000	41%
Asian	234,000	17%	207,000	22%
African American	45,000	3%	37,000	4%
White	359,000	27%	294,000	31%
Other	24,000	2%	20,000	2%
Gender				
Female	502,000	37%	316,000	33%
Male	844,000	63%	636,000	67%
Age				
0–18 years	50,000	4%	50,000	5%
19–29 years	449,000	33%	324,000	34%
30–44 years	356,000	26%	210,000	22%
45–64 years	490,000	36%	368,000	39%
Source of Coverage, without ACA				
Employer Sponsored Insurance Dropped	20,000	2%	20,000	2%
Employer Sponsored Insurance Unaffordable	420,000	31%	419,000	44%
Individual Market	35,000	3%	35,000	4%
Uninsured	870,000	65%	477,000	50%
Income				
138% FPL or less	58,000	4%	6,000	1%
139–200% FPL	295,000	22%	139,000	15%
201–250% FPL	327,000	24%	241,000	25%
251–400% FPL	667,000	50%	566,000	60%
Limited English Proficiency (18 and older)				
Yes	628,000	47%	371,000	39%
No	672,000	50%	536,000	56%

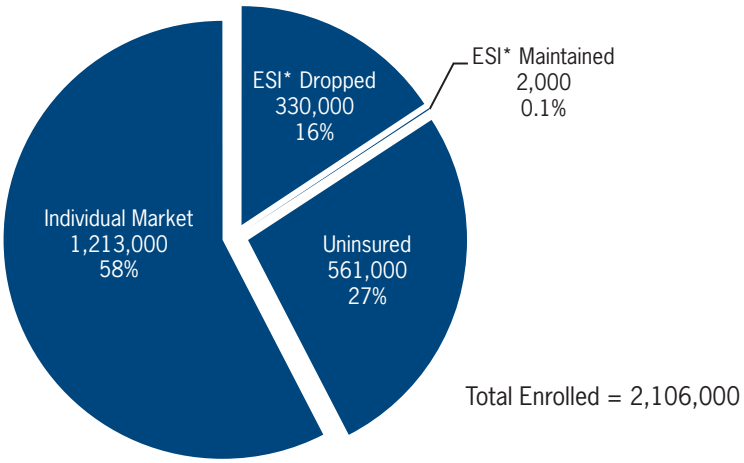
Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 8. Take-Up Rates by Population Characteristics among Exchange Subsidy Eligible Californians under Age 65, 2019

	Base	Enhanced
Race and Ethnicity		
Latino	52%	72%
Asian	43%	50%
African American	65%	71%
White	66%	72%
Other	70%	75%
Gender		
Female	64%	77%
Male	50%	63%
Age		
0–18 years	74%	74%
19–29 years	48%	63%
30–44 years	60%	76%
45–64 years	57%	68%
Source of Coverage, without ACA		
Employer Sponsored Insurance Dropped	94%	94%
Employer Sponsored Insurance Unaffordable	6%	6%
Individual Market	94%	94%
Uninsured	48%	72%
Income		
138% FPL or less	60%	96%
139–200% FPL	68%	85%
201–250% FPL	51%	64%
251–400% FPL	51%	59%
Limited English Proficiency (18 and older)		
Yes	45%	68%
No	62%	70%

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 9. Source of Previous Insurance Coverage for Californians under Age 65 who Take Up Coverage without Subsidies in the Exchange or Individual Market, 2019, *Base Scenario*



Source: UC Berkeley–UCLA CalSIM model, version 1.7.

* ESI = Employer Sponsored Insurance

Exhibit 10. Characteristics of Californians under Age 65 who Take Up Coverage without Subsidies in the Exchange and Individual Market, 2019, *Base Scenario*

Total	**2,106,000**	
Catastrophic Plan	335,000	16%
Race and Ethnicity		
Latino	567,000	27%
Asian	302,000	14%
African American	94,000	4%
White	1,082,000	51%
Other	62,000	3%
Gender		
Female	1,015,000	48%
Male	1,092,000	52%
Age		
0–18 years	368,000	17%
19–29 years	784,000	37%
30–44 years	343,000	16%
45–64 years	612,000	29%
Source of Coverage, without ACA		
Employer Sponsored Insurance Dropped	338,000	15%
Employer Sponsored Insurance Unaffordable	2,000	0.1%
Individual Market	1,215,000	55%
Uninsured	654,000	30%
Income		
138% FPL or less	228,000	11%
139–200% FPL	121,000	6%
201–250% FPL	111,000	5%
251–400% FPL	328,000	16%
Above 400% FPL	1,319,000	63%
Limited English Proficiency (18 and older)		
Yes	278,000	13%
No	1,547,000	73%

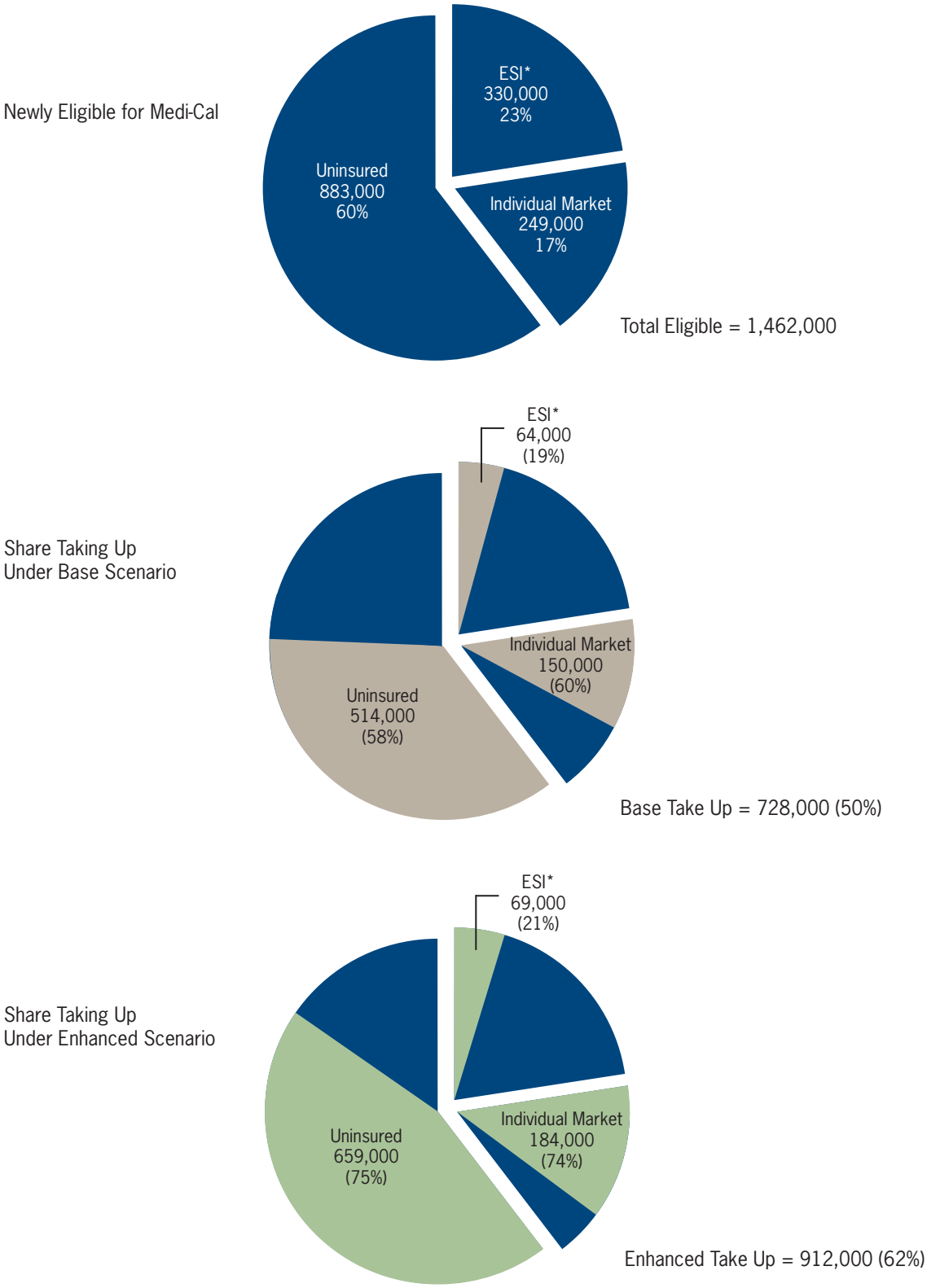
Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 11. Distribution of Chronic Conditions among Adult Californians under Age 65 in the Individual Market, 2019

	Individual Market without the ACA		**Exchange and Individual Market with the ACA, *Base Scenario***		**Exchange and Individual Market with the ACA, *Enhanced Scenario***	
No chronic conditions	1,264,000	69%	2,485,000	70%	2,906,000	73%
One or more chronic conditions	568,000	31%	1,040,000	30%	1,074,000	27%
Total	**1,832,000**		**3,525,000**		**3,980,000**	

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 12. Californians under Age 65 Newly Eligible for Medi-Cal by Source of Insurance without the ACA, 2019, and Take Up under Base and Enhanced Scenarios



Source: UC Berkeley–UCLA CalSIM model, version 1.7.

* ESI = Employer Sponsored Insurance

Exhibit 13. Characteristics of Californians under Age 65 Newly Eligible for Medi-Cal who Take Up, 2019

	Base		Enhanced	
Total	**728,000**		**912,000**	
Race and Ethnicity				
Latino	379,000	52%	463,000	51%
Asian	56,000	8%	70,000	8%
African American	54,000	7%	65,000	7%
White	217,000	30%	285,000	31%
Other	23,000	3%	29,000	3%
Gender				
Female	378,000	52%	457,000	50%
Male	350,000	48%	455,000	50%
Age				
0–18 years	—		—	
19–29 years	178,000	24%	256,000	28%
30–44 years	223,000	31%	269,000	29%
45–64 years	327,000	45%	386,000	42%
Source of Coverage, without ACA				
Employer Sponsored Insurance Dropped	28,000	4%	35,000	4%
Employer Sponsored Insurance Unaffordable	36,000	5%	34,000	4%
Individual Market	150,000	21%	184,000	20%
Uninsured	514,000	71%	659,000	72%
Income				
Less than 100% FPL	344,000	47%	471,000	52%
101–138% FPL	385,000	53%	440,000	48%
Limited English Proficiency (18 and older)				
Yes	275,000	38%	347,000	38%
No	453,000	62%	564,000	62%

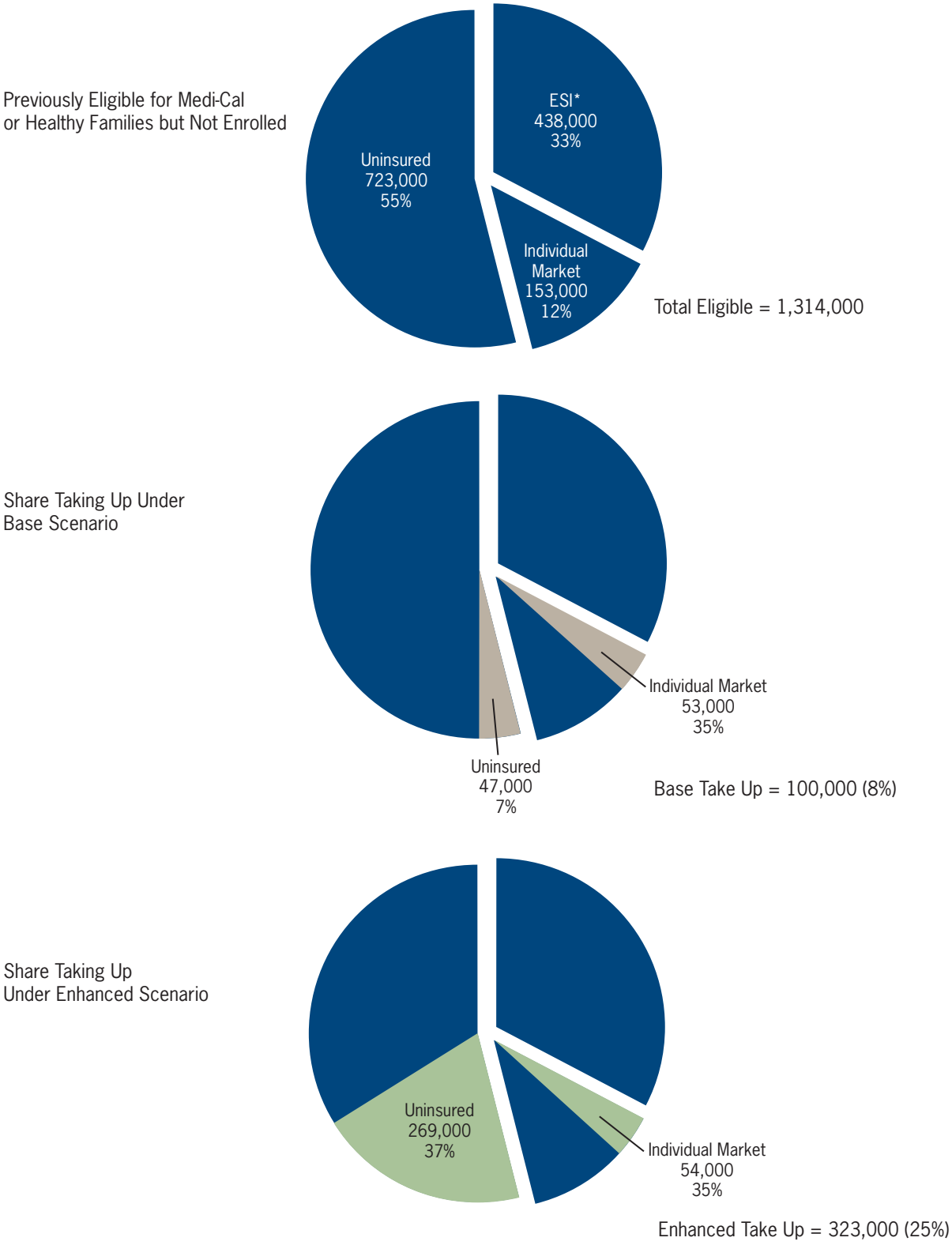
Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 14. Characteristics of Californians under Age 65 Newly Eligible for Medi-Cal who Do Not Take Up, 2019

	Base		Enhanced	
Total	**733,000**		**550,000**	
Race and Ethnicity				
Latino	334,000	46%	250,000	45%
Asian	47,000	6%	33,000	6%
African American	56,000	8%	45,000	8%
White	272,000	37%	205,000	37%
Other	24,000	3%	18,000	3%
Gender				
Female	306,000	42%	227,000	41%
Male	427,000	58%	323,000	59%
Age				
0–18 years	—		—	
19–29 years	317,000	43%	239,000	43%
30–44 years	195,000	27%	149,000	27%
45–64 years	221,000	30%	162,000	29%
Source of Coverage, without ACA				
Employer Sponsored Insurance Dropped	20,000	3%	12,000	2%
Employer Sponsored Insurance Unaffordable	246,000	34%	249,000	45%
Individual Market	99,000	14%	65,000	12%
Uninsured	369,000	50%	224,000	41%
Income				
Less than 100% FPL	373,000	51%	246,000	45%
101–138% FPL	360,000	49%	305,000	55%
Limited English Proficiency (18 and older)				
Yes	240,000	33%	169,000	31%
No	493,000	67%	382,000	69%

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 15. Californians under Age 65 Eligible for Medi-Cal under the ACA and Previously Eligible for Medi-Cal or Healthy Families but Not Enrolled, by Source of Insurance without the ACA, 2019, and Take Up under Base and Enhanced Scenarios



Source: UC Berkeley–UCLA CalSIM model, version 1.7.

* ESI = Employer Sponsored Insurance

Note: Figures do not include previously eligible for Healthy Families over 138% of FPL.

Exhibit 16. Characteristics of Californians under Age 65 Previously Eligible for Medi-Cal or Healthy Families but Not Enrolled who Take Up Medi-Cal with ACA, 2019

	Base		Enhanced	
Total	**100,000**		**323,000**	
Race and Ethnicity				
Latino	52,000	52%	218,000	67%
Asian	6,000	6%	23,000	7%
African American	8,000	8%	17,000	5%
White	29,000	29%	57,000	18%
Other	5,000	5%	7,000	2%
Gender				
Female	60,000	60%	194,000	60%
Male	40,000	40%	128,000	40%
Age				
0–18 years	72,000	72%	140,000	43%
19–29 years	8,000	8%	51,000	16%
30–44 years	15,000	15%	93,000	29%
45–64 years	6,000	6%	39,000	12%
Source of Coverage, without ACA				
Employer Sponsored Insurance Dropped	—		—	
Employer Sponsored Insurance Unaffordable	—		—	
Individual Market	53,000	53%	54,000	17%
Uninsured	47,000	47%	269,000	83%
Income				
Less than 100% FPL	69,000	69%	259,000	80%
101–138% FPL	31,000	31%	63,000	20%
Limited English Proficiency (18 and older)				
Yes	14,000	14%	111,000	34%
No	22,000	22%	84,000	26%

Source: UC Berkeley–UCLA CalSIM model, version 1.7.
Note: Table does not include previously eligible for Healthy Families over 138% of FPL.

Exhibit 17. Characteristics of Californians under Age 65 Eligible for Medi-Cal under the ACA and Previously Eligible for Medi-Cal or Healthy Families but Not Enrolled who Do Not Take Up Medi-Cal with ACA, 2019

	Base		Enhanced	
Total	**1,215,000**		**992,000**	
Race and Ethnicity				
Latino	759,000	62%	592,000	60%
Asian	95,000	8%	78,000	8%
African American	75,000	6%	66,000	7%
White	250,000	21%	222,000	22%
Other	36,000	3%	34,000	3%
Gender				
Female	659,000	54%	526,000	53%
Male	556,000	46%	467,000	47%
Age				
0–18 years	515,000	42%	447,000	45%
19–29 years	167,000	14%	124,000	13%
30–44 years	372,000	31%	294,000	30%
45–64 years	161,000	13%	128,000	13%
Source of Coverage, without ACA				
Employer Sponsored Insurance Dropped	52,000	4%	52,000	5%
Employer Sponsored Insurance Unaffordable	386,000	32%	386,000	39%
Individual Market	100,000	8%	99,000	10%
Uninsured	677,000	56%	455,000	46%
Income				
Less than 100% FPL	902,000	74%	712,000	72%
101–138% FPL	314,000	25%	267,000	27%
Limited English Proficiency (18 and older)				
Yes	366,000	30%	269,000	27%
No	368,000	30%	306,000	31%

Source: UC Berkeley–UCLA CalSIM model, version 1.7.
Note: Table does not include previously eligible for Healthy Families over 138% of FPL.

Exhibit 18. Characteristics of Californians under Age 65 Remaining Uninsured with ACA, 2019

	Base		Enhanced	
	Individuals	Percent of Remaining Uninsured	Individuals	Percent of Remaining Uninsured
Undocumented	1,074,000	27%	1,033,000	34%
Eligible for Medi-Cal or Healthy Families	1,218,000	31%	789,000	26%
Eligible for Exchange Subsidies	793,000	20%	409,000	13%
Eligible for Exchange without Subsidies	873,000	22%	811,000	27%
400% FPL or less	226,000	6%	211,000	7%
Greater than 400% FPL	647,000	16%	600,000	20%
Total	**3,958,000**		**3,042,000**	
Remaining Uninsured Exempt from Individual Penalty	54%		57%	

Source: UC Berkeley–UCLA CalSIM model, version 1.7.

Exhibit 19. Comparison Estimates of who Take Up in the Exchange across Micro-Simulation Models

Model (in Millions)	Exchange Enrolled Population Estimate–*California*		Exchange Enrolled Population Estimate–*California*	
	Subsidized	Unsubsidized	Subsidized	Unsubsidized
CalSIM: Base Scenario	1.75 (2019)	2.11* (2019)		
CalSIM: Enhanced Scenario	2.15 (2019)	2.16* (2019)		
CalSIM: May 2011 Board Meeting	2.39 (2019)	2.00* (2019)		
Lewin	2.29[1] (2011)	0.84[1] (2011)	22.06[2] (2011)	4.04[2] (2011)
Urban Institute	3.44[3] (2011)		8.5[4] (2011)	6.8[4] (2011)
Long and Gruber	4.01[5] (2016)			
RAND**	3.5[6] (2016)	2.1[6] (2016)	27.9[7] (2016)	
Congressional Budget Office			18.0[8] (2019)	5.0[8] (2019)

* Includes individuals enrolled in the non-group market outside of the Exchange.

** Does not account for undocumented immigrants.

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Appendix: Methodology

The California Simulation of Insurance Markets (CalSIM) model is designed to estimate the impact of various elements of the ACA on employer decisions to offer insurance coverage and individual decisions to obtain coverage in California. The CalSIM model uses four data sources: the 2004–2008 Medical Expenditure Panel Survey (MEPS) Household Component (MEPS-HC) and the Person Round Plan (MEPS-PRPL) public use data files, the 2009 California Health Interview Survey (CHIS), California Employment Development Department (EDD) 2007 wage distribution, insurance offer, and firm size data, and the 2010 California Employer Health Benefits Survey (EHBS). CHIS, EDD and CEHBS provide weights and wage distributions that adjust the nationally-representative MEPS data to build a California-specific model. Once re-weighted, the MEPS-HC respondents are then assumed to represent the population of California. However, MEPS-HC does not include data on immigration status, and until 2007 did not report whether an individual was born in the United States. We therefore constructed a regression model using CHIS 2009 confidential data to predict the immigration status of MEPS-HC respondents based on a variety of socioeconomic, demographic and family characteristics. By accounting for immigration status within the individual dataset construction process, the CalSIM model is able to adjust Medi-Cal and Exchange eligible populations based on undocumented immigrant and recent legal permanent residence status before determining firm and individual coverage decisions, rather than imposing an ex post adjustment. This approach enables a more accurate picture of the Medi-Cal and Exchange eligible and enrolled populations in California. However, it is limited by the sensitivity of the logistic regression modeling approach and predicted immigration status propensity scores.

Individuals are then identified as workers and non-workers (i.e., the unemployed and the respective dependents/spouses of workers). Workers are assigned employer wage distribution characteristics from EDD 2007 data based on firm size and insurance offer status from their MEPS record. The firms are then statistically matched to the Employer Sponsored Insurance (ESI) data from the 2010 CEHBS, which contains additional information on the actuarial value of the health plans offered. The matched dataset is used to create synthetic firms consisting of workers and their families, who then choose to participate in different aspects of the ACA, such as taking up coverage or dropping coverage. These decisions, once made by the firm and linked to each employee and their families, allow for individual probabilities to be assigned for insurance choices depending on family characteristics such as household income, health status, cost, availability of other coverage options, and immigration status.

The CalSIM model was created by the UC Berkeley Center for Labor Research and Education and the UCLA Center for Health Policy Research with funding from The California Endowment. For further information on the CalSIM methodology, please visit http://www.healthpolicy.ucla.edu/pubs/files/calsim_methods.pdf.

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