Impact Report for iBudget Algorithm Study

October 14, 2025

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Contents

0.1 Introduction

The Florida iBudget algorithm represents a critical component of the state's developmental disability services infrastructure, determining individual budget allocations for Home and Community-Based Services (HCBS) under the Developmental Disabilities Individual Budgeting waiver program. This system currently serves over 36,000 enrollees, making algorithmic decisions that directly impact the quality of life and service access for individuals with developmental disabilities across Florida. The algorithm's role extends beyond mere budget calculation; it fundamentally shapes how resources are distributed, what services individuals can access, and how person-centered planning principles are implemented in practice.

The enactment of House Bill 1103 in the 2025 legislative session has fundamentally altered the regulatory landscape for iBudget allocation methodologies. This legislation mandates a comprehensive study to review, evaluate, and identify recommendations regarding the current algorithm, with particular emphasis on ensuring compliance with person-centered planning requirements under section 393.0662, Florida Statutes. The bill's requirements extend beyond simple algorithmic refinement, demanding a fundamental reassessment of how statistical methods align with person-centered planning principles and contemporary disability services philosophy.

This analysis addresses the impact of the iBudget recommendations detailed in the [======] Report.

0.2 Economic Impact Analysis

This section presents the economic impact analysis for each budget allocation model. The conservative budget estimate is defined as the maximum of the actual cost and predicted cost for each case: Conservative = max(Actual, Predicted). This approach ensures adequate funding while accounting for model uncertainty.

0.2.1 Model 1: Impact Analysis

Table 1: Model 1: Economic Impact Summary

Metric	Value	Per Client
Sample Size	6,834	—
Total Actual Cost	$302,173,388.29	$44,216.18
Total Predicted Cost	$254,727,261.09	$37,273.52
Total Conservative Budget	$352,936,104.68	$51,644.15
Economic Impact	**$+50,762,716.39**	**$+7,427.97**
Impact Percentage	16.80%	—
Cases Over Budget	3,547	51.9%
Model R^2 (Test)	0.4300	—
RMSE (Test)	$33,718.68	—

Table 2: Model 1: Economic Impact by Age Group

Age Group	N	Mean Actual	Mean Conservative	Impact	Impact %
21-30	1,797	$42,554.08	$50,357.41	$+14,022,588.57	+441.70%
31+	4,343	$48,377.38	$56,034.88	$+33,256,547.28	+185.41%
Under 21	694	$22,479.49	$27,499.06	$+3,483,580.54	+463.05%

Table 3: Model 1: Economic Impact by Living Setting

Living Setting	N	Mean Actual	Mean Conservative	Impact	Impact %
FH	3,767	$22,615.08	$27,089.50	$+16,855,140.75	+278.50%
ILSL	893	$45,826.71	$55,320.72	$+8,478,151.82	+290.31%
RH1	1,831	$83,525.89	$95,336.64	$+21,625,469.64	+245.92%
RH2	36	$60,713.32	$71,710.54	$+395,899.79	+178.86%
RH3	238	$71,998.39	$83,901.13	$+2,832,853.10	+614.15%
RH4	69	$55,100.06	$63,436.31	$+575,201.29	+131.76%

Tables 2 through 5 present detailed subgroup analyses, revealing how economic impact varies across age groups, living settings, budget levels, and impact categories. These breakdowns help identify which populations are most affected by prediction errors and where conservative budgeting has the greatest effect.

Figure 0.2-1 presents the distribution analysis for Model 1, showing the distributions of actual costs, predicted costs, prediction errors, and conservative budget estimates.

The conservative budgeting approach for Model 1 would require an additional $50,762,716.39 (16.80%) compared to actual costs, averaging $7,427.97 per client. The model under-predicted costs in 51.9% of cases, necessitating the conservative approach to avoid budget shortfalls.

Table 4: Model 1: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	1,709	$1,771.97	$14,945.00	$+22,512,703.62	+1,046.91%
Q2	1,708	$16,053.05	$22,862.91	$+11,631,231.72	+60.19%
Q3	1,708	$52,959.21	$59,431.17	$+11,054,106.41	+12.63%
Q4 (High)	1,709	$106,069.13	$109,325.23	$+5,564,674.63	+3.97%

Table 5: Model 1: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	3,287	48.1%	$67,139.58	$+0.00	+0.00%
Small Increase (0-10%)	357	5.2%	$61,243.94	$+2,857.40	+4.75%
Moderate Increase (10-25%)	430	6.3%	$53,603.28	$+9,175.82	+17.31%
Large Increase (>25%)	2,760	40.4%	$13,250.75	$+16,593.12	+692.46%

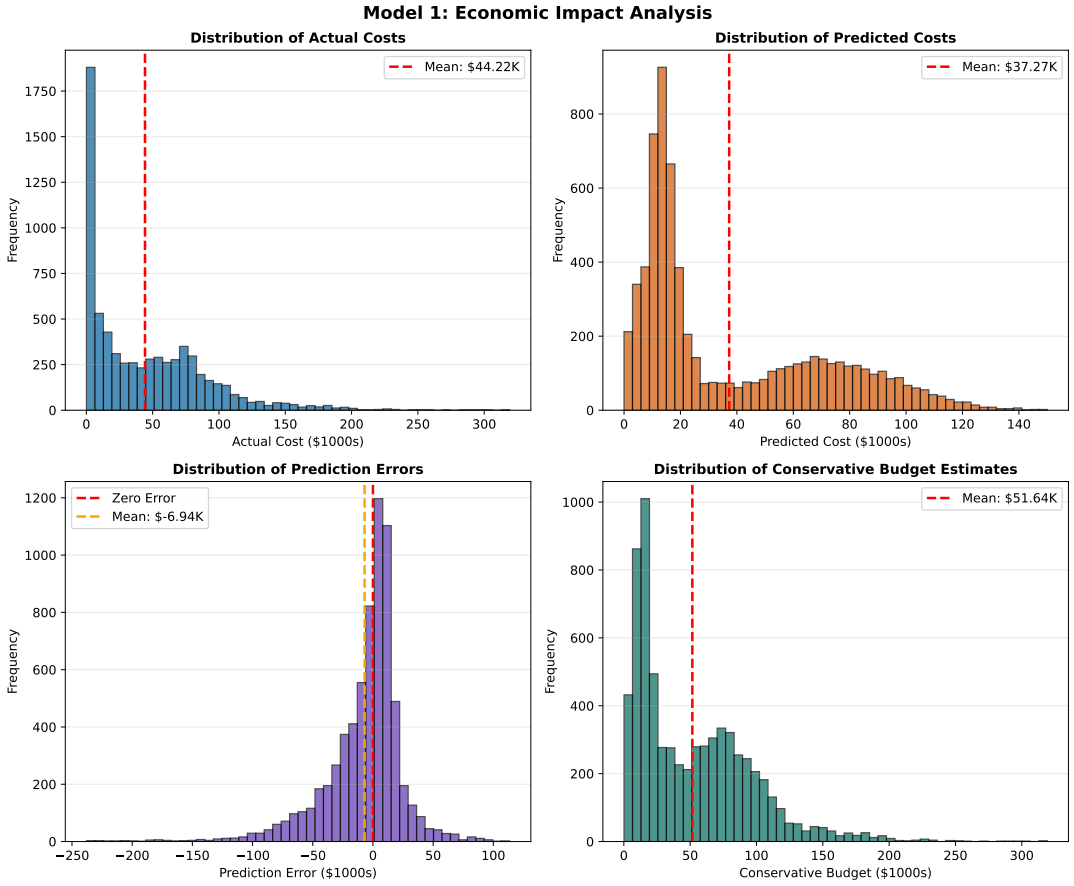

Figure 0.2-1: Model 1: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

0.2.2 Model 2: Impact Analysis

Table 6: Model 2: Economic Impact Summary

Metric	Value	Per Client
Sample Size	6,834	—
Total Actual Cost	$302,173,388.29	$44,216.18
Total Predicted Cost	$280,247,265.15	$41,007.79
Total Conservative Budget	$368,832,113.67	$53,970.17
Economic Impact	**$+66,658,725.38**	**$+9,753.98**
Impact Percentage	22.06%	—
Cases Over Budget	3,909	57.2%
Model R^2 (Test)	0.4252	—
RMSE (Test)	$33,859.02	—

Table 7: Model 2: Economic Impact by Age Group

Age Group	N	Mean Actual	Mean Conservative	Impact	Impact %
21-30	1,797	$42,554.08	$53,660.90	$+19,958,952.51	+561.43%
31+	4,343	$48,377.38	$58,371.78	$+43,405,715.04	+230.81%
Under 21	694	$22,479.49	$27,225.97	$+3,294,057.83	+633.87%

Table 8: Model 2: Economic Impact by Living Setting

Living Setting	N	Mean Actual	Mean Conservative	Impact	Impact %
FH	3,767	$22,615.08	$29,838.16	$+27,209,313.73	+441.15%
ILSL	893	$45,826.71	$55,439.16	$+8,583,918.51	+285.44%
RH1	1,831	$83,525.89	$98,125.01	$+26,730,977.68	+214.19%
RH2	36	$60,713.32	$73,118.07	$+446,570.98	+163.85%
RH3	238	$71,998.39	$84,544.09	$+2,985,878.29	+529.37%
RH4	69	$55,100.06	$65,274.94	$+702,066.18	+151.35%

Tables 7 through 10 present detailed subgroup analyses, revealing how economic impact varies across age groups, living settings, budget levels, and impact categories. These breakdowns help identify which populations are most affected by prediction errors and where conservative budgeting has the greatest effect.

Figure 0.2-2 presents the distribution analysis for Model 2, showing the distributions of actual costs, predicted costs, prediction errors, and conservative budget estimates.

The conservative budgeting approach for Model 2 would require an additional $66,658,725.38 (22.06%) compared to actual costs, averaging $9,753.98 per client. The model under-predicted costs in 57.2% of cases, necessitating the conservative approach to avoid budget shortfalls.

Table 9: Model 2: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	1,709	$1,771.97	$18,983.20	$+29,413,998.77	+1,333.85%
Q2	1,708	$16,053.05	$24,411.65	$+14,276,479.22	+79.70%
Q3	1,708	$52,959.21	$60,148.28	$+12,278,921.51	+13.52%
Q4 (High)	1,709	$106,069.13	$112,323.86	$+10,689,325.87	+7.28%

Table 10: Model 2: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	2,925	42.8%	$71,402.99	$+0.00	+0.00%
Small Increase (0-10%)	346	5.1%	$60,318.87	$+2,913.96	+4.86%
Moderate Increase (10-25%)	449	6.6%	$52,460.74	$+9,028.24	+17.37%
Large Increase (>25%)	3,114	45.6%	$15,701.49	$+19,780.61	+784.11%

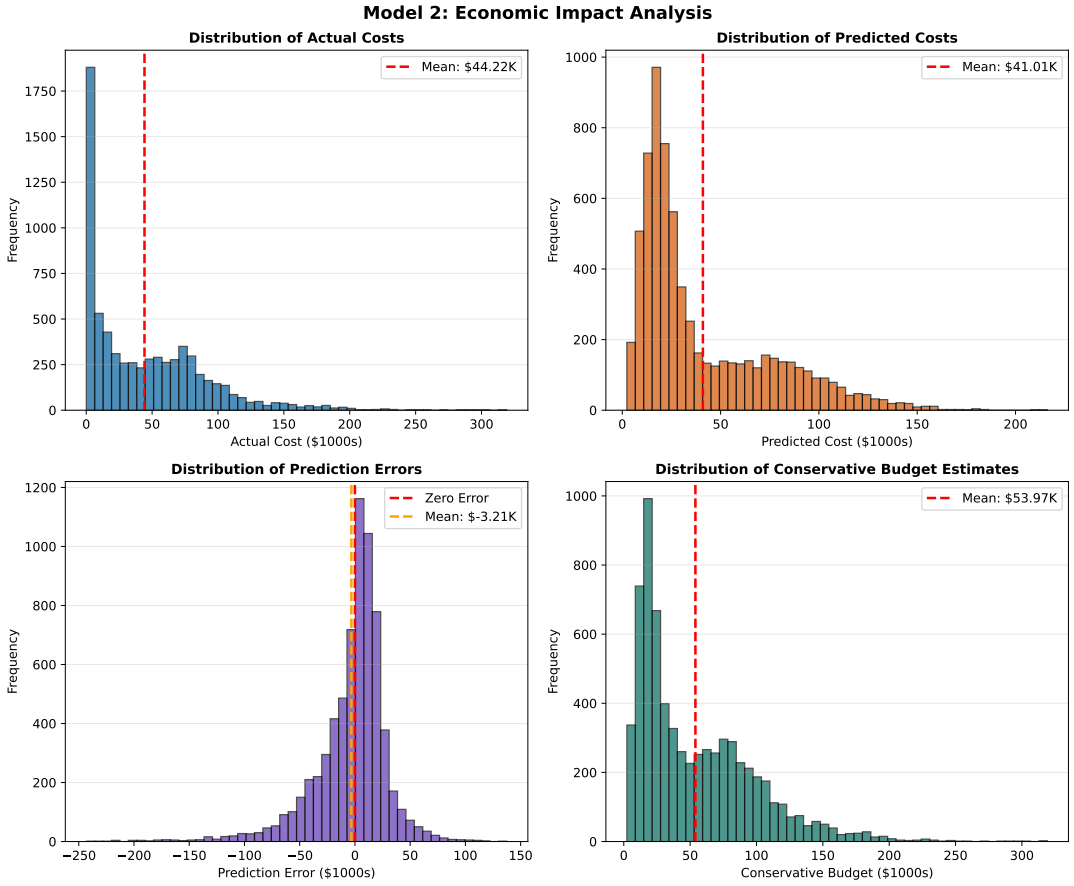

Figure 0.2-2: Model 2: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

0.2.3 Model 3: Impact Analysis

Table 11: Model 3: Economic Impact Summary

Metric	Value	Per Client
Sample Size	6,834	—
Total Actual Cost	$302,173,388.29	$44,216.18
Total Predicted Cost	$253,500,237.16	$37,093.98
Total Conservative Budget	$352,264,517.13	$51,545.88
Economic Impact	**$+50,091,128.84**	**$+7,329.69**
Impact Percentage	16.58%	—
Cases Over Budget	3,508	51.3%
Model R^2 (Test)	0.4317	—
RMSE (Test)	$33,666.51	—

Table 12: Model 3: Economic Impact by Age Group

Age Group	N	Mean Actual	Mean Conservative	Impact	Impact %
21-30	1,797	$42,554.08	$50,310.30	$+13,937,927.72	+443.23%
31+	4,343	$48,377.38	$55,925.15	$+32,779,991.53	+187.82%
Under 21	694	$22,479.49	$27,340.02	$+3,373,209.59	+464.39%

Table 13: Model 3: Economic Impact by Living Setting

Living Setting	N	Mean Actual	Mean Conservative	Impact	Impact %
FH	3,767	$22,615.08	$27,235.06	$+17,403,456.39	+286.73%
ILSL	893	$45,826.71	$55,106.00	$+8,286,406.40	+285.96%
RH1	1,831	$83,525.89	$94,883.50	$+20,795,782.19	+240.61%
RH2	36	$60,713.32	$71,232.51	$+378,690.68	+173.32%
RH3	238	$71,998.39	$83,220.76	$+2,670,924.71	+601.60%
RH4	69	$55,100.06	$63,156.13	$+555,868.47	+130.87%

Tables 12 through 15 present detailed subgroup analyses, revealing how economic impact varies across age groups, living settings, budget levels, and impact categories. These breakdowns help identify which populations are most affected by prediction errors and where conservative budgeting has the greatest effect.

Figure 0.2-3 presents the distribution analysis for Model 3, showing the distributions of actual costs, predicted costs, prediction errors, and conservative budget estimates.

The conservative budgeting approach for Model 3 would require an additional $50,091,128.84 (16.58%) compared to actual costs, averaging $7,329.69 per client. The model under-predicted costs in 51.3% of cases, necessitating the conservative approach to avoid budget shortfalls.

Table 14: Model 3: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	1,709	$1,771.97	$15,134.80	$+22,837,074.78	+1,056.01%
Q2	1,708	$16,053.05	$22,803.51	$+11,529,786.98	+60.18%
Q3	1,708	$52,959.21	$59,140.21	$+10,557,153.19	+12.08%
Q4 (High)	1,709	$106,069.13	$109,092.60	$+5,167,113.90	+3.70%

Table 15: Model 3: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	3,326	48.7%	$67,212.81	$+0.00	+0.00%
Small Increase (0-10%)	342	5.0%	$60,280.17	$+2,865.83	+4.90%
Moderate Increase (10-25%)	419	6.1%	$53,625.55	$+9,006.99	+17.13%
Large Increase (>25%)	2,747	40.2%	$12,937.26	$+16,504.22	+700.99%

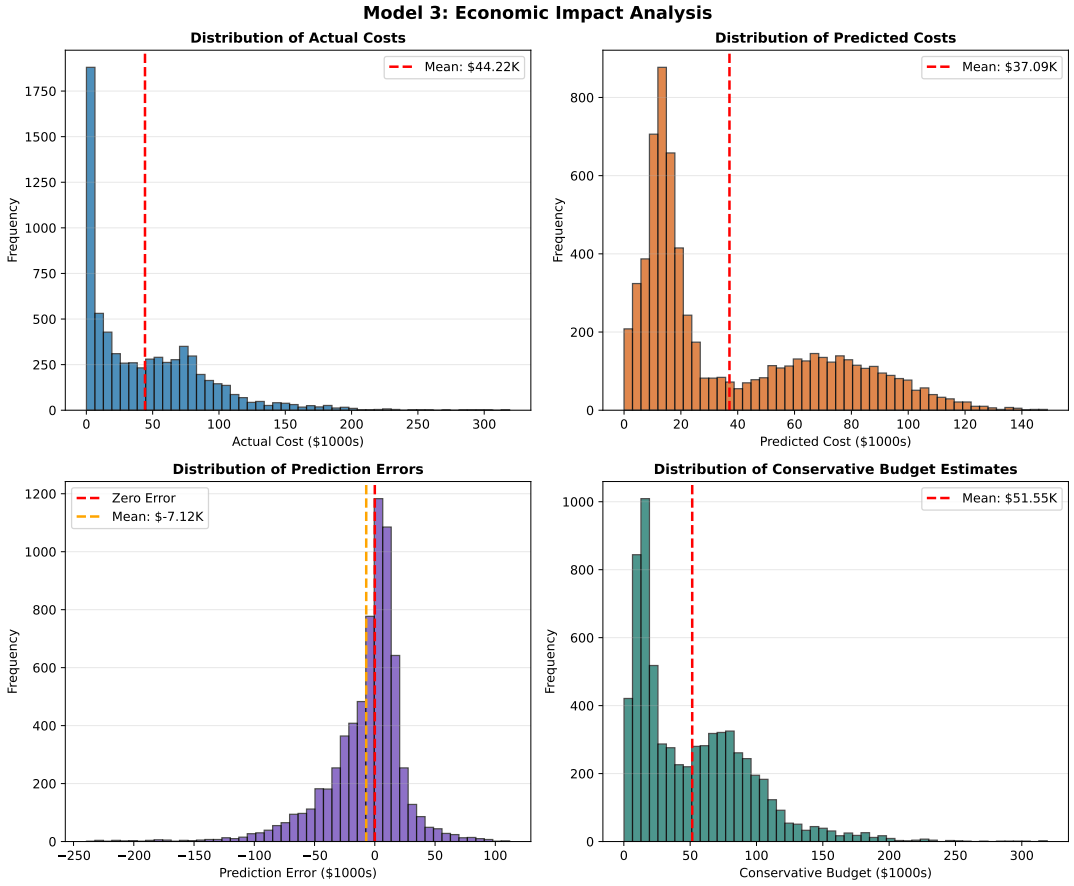

Figure 0.2-3: Model 3: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

0.2.4 Model 4: Impact Analysis

Table 16: Model 4: Economic Impact Summary

Metric	Value	Per Client
Sample Size	6,834	—
Total Actual Cost	$302,173,388.29	$44,216.18
Total Predicted Cost	$301,205,398.71	$44,074.54
Total Conservative Budget	$378,953,638.78	$55,451.22
Economic Impact	**$+76,780,250.49**	**$+11,235.04**
Impact Percentage	25.41%	—
Cases Over Budget	4,042	59.1%
Model R^2 (Test)	0.4717	—
RMSE (Test)	$32,462.66	—

Table 17: Model 4: Economic Impact by Age Group

Age Group	N	Mean Actual	Mean Conservative	Impact	Impact %
21-30	1,797	$42,554.08	$56,224.17	$+24,565,145.33	+714.34%
31+	4,343	$48,377.38	$59,022.83	$+46,233,197.67	+295.27%
Under 21	694	$22,479.49	$31,098.95	$+5,981,907.50	+792.79%

Table 18: Model 4: Economic Impact by Living Setting

Living Setting	N	Mean Actual	Mean Conservative	Impact	Impact %
FH	3,767	$22,615.08	$33,076.36	$+39,407,635.63	+572.94%
ILSL	893	$45,826.71	$57,571.41	$+10,488,021.09	+328.89%
RH1	1,831	$83,525.89	$95,945.08	$+22,739,534.78	+270.50%
RH2	36	$60,713.32	$71,986.28	$+405,826.40	+169.45%
RH3	238	$71,998.39	$84,958.29	$+3,084,457.20	+642.70%
RH4	69	$55,100.06	$64,589.56	$+654,775.39	+143.13%

Tables 17 through 20 present detailed subgroup analyses, revealing how economic impact varies across age groups, living settings, budget levels, and impact categories. These breakdowns help identify which populations are most affected by prediction errors and where conservative budgeting has the greatest effect.

Figure 0.2-4 presents the distribution analysis for Model 4, showing the distributions of actual costs, predicted costs, prediction errors, and conservative budget estimates.

The conservative budgeting approach for Model 4 would require an additional $76,780,250.49 (25.41%) compared to actual costs, averaging $11,235.04 per client. The model under-predicted costs in 59.1% of cases, necessitating the conservative approach to avoid budget shortfalls.

Table 19: Model 4: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	1,709	$1,771.97	$24,280.10	$+38,466,393.88	+1,691.98%
Q2	1,708	$16,053.05	$28,171.99	$+20,699,136.04	+113.47%
Q3	1,708	$52,959.21	$60,213.54	$+12,390,387.78	+14.25%
Q4 (High)	1,709	$106,069.13	$109,126.08	$+5,224,332.80	+3.78%

Table 20: Model 4: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	2,792	40.9%	$74,303.63	$+0.00	+0.00%
Small Increase (0-10%)	392	5.7%	$62,188.60	$+2,994.06	+4.89%
Moderate Increase (10-25%)	492	7.2%	$51,948.10	$+8,832.94	+17.22%
Large Increase (>25%)	3,158	46.2%	$14,180.26	$+22,565.16	+983.47%

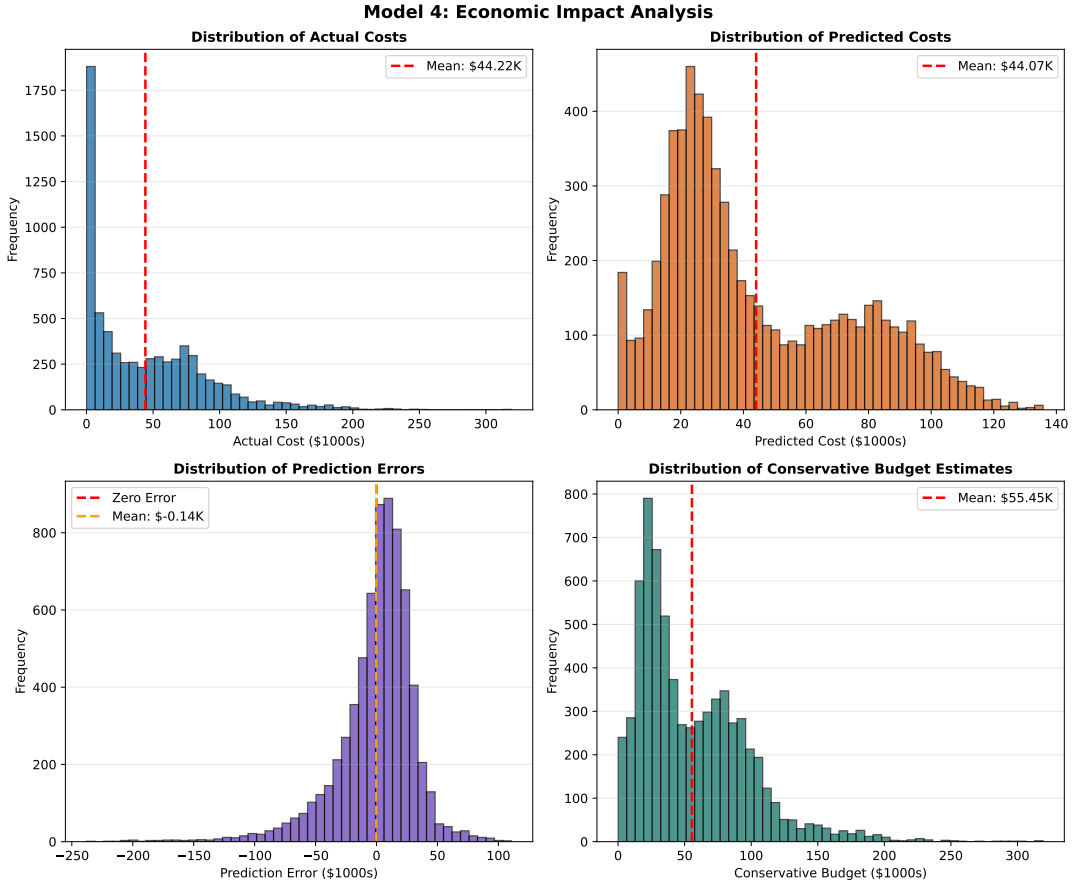

Figure 0.2-4: Model 4: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

0.2.5 Model 5: Impact Analysis

Table 21: Model 5: Economic Impact Summary

Metric	Value	Per Client
Sample Size	6,834	—
Total Actual Cost	$302,173,388.29	$44,216.18
Total Predicted Cost	$260,331,382.59	$38,093.56
Total Conservative Budget	$356,096,831.54	$52,106.65
Economic Impact	**$+53,923,443.25**	**$+7,890.47**
Impact Percentage	17.85%	—
Cases Over Budget	3,576	52.3%
Model R^2 (Test)	0.4474	—
RMSE (Test)	$33,198.10	—

Table 22: Model 5: Economic Impact by Age Group

Age Group	N	Mean Actual	Mean Conservative	Impact	Impact %
21-30	1,797	$42,554.08	$51,584.40	$+16,227,476.92	+508.32%
31+	4,343	$48,377.38	$56,271.48	$+34,284,107.83	+214.98%
Under 21	694	$22,479.49	$27,395.71	$+3,411,858.50	+512.23%

Table 23: Model 5: Economic Impact by Living Setting

Living Setting	N	Mean Actual	Mean Conservative	Impact	Impact %
FH	3,767	$22,615.08	$28,731.78	$+23,041,576.43	+365.15%
ILSL	893	$45,826.71	$54,403.95	$+7,659,474.53	+271.92%
RH1	1,831	$83,525.89	$94,415.46	$+19,938,795.93	+234.75%
RH2	36	$60,713.32	$69,756.74	$+325,563.23	+153.51%
RH3	238	$71,998.39	$82,342.67	$+2,461,938.61	+589.44%
RH4	69	$55,100.06	$62,289.84	$+496,094.52	+125.13%

Tables 22 through 25 present detailed subgroup analyses, revealing how economic impact varies across age groups, living settings, budget levels, and impact categories. These breakdowns help identify which populations are most affected by prediction errors and where conservative budgeting has the greatest effect.

Figure 0.2-5 presents the distribution analysis for Model 5, showing the distributions of actual costs, predicted costs, prediction errors, and conservative budget estimates.

The conservative budgeting approach for Model 5 would require an additional $53,923,443.25 (17.85%) compared to actual costs, averaging $7,890.47 per client. The model under-predicted costs in 52.3% of cases, necessitating the conservative approach to avoid budget shortfalls.

Table 24: Model 5: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	1,709	$1,771.97	$17,406.98	$+26,720,243.85	+1,204.97%
Q2	1,708	$16,053.05	$23,422.95	$+12,587,783.12	+69.34%
Q3	1,708	$52,959.21	$58,610.67	$+9,652,686.97	+11.03%
Q4 (High)	1,709	$106,069.13	$108,973.01	$+4,962,729.31	+3.55%

Table 25: Model 5: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	3,258	47.7%	$69,236.99	$+0.00	+0.00%
Small Increase (0-10%)	344	5.0%	$58,093.94	$+2,828.28	+5.01%
Moderate Increase (10-25%)	408	6.0%	$52,517.02	$+8,726.65	+17.04%
Large Increase (>25%)	2,824	41.3%	$12,460.35	$+17,489.39	+776.89%

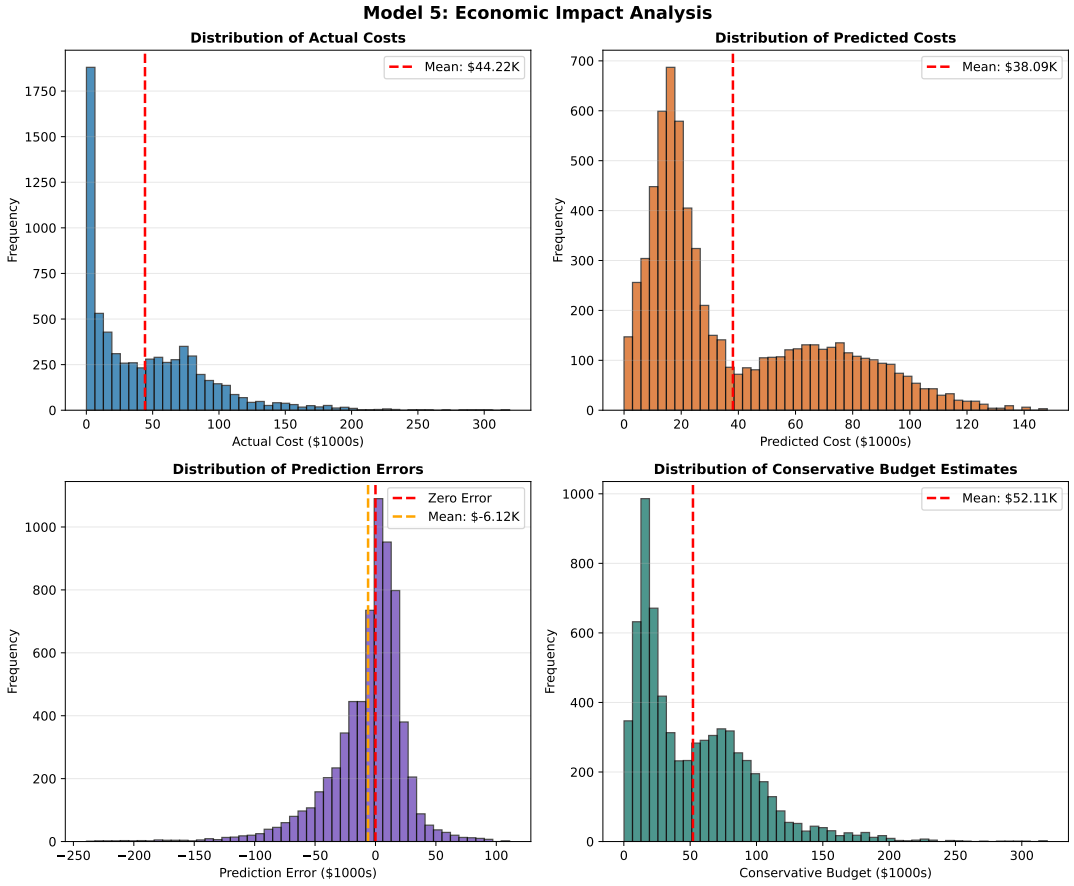

Figure 0.2-5: Model 5: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

0.2.6 Model 6: Impact Analysis

Table 26: Model 6: Economic Impact Summary

Metric	Value	Per Client
Sample Size	6,834	—
Total Actual Cost	$302,173,388.29	$44,216.18
Total Predicted Cost	$413,605,889.79	$60,521.79
Total Conservative Budget	$477,292,383.97	$69,840.85
Economic Impact	**$+175,118,995.68**	**$+25,624.67**
Impact Percentage	57.95%	—
Cases Over Budget	4,818	70.5%
Model R^2 (Test)	-0.3008	—
RMSE (Test)	$50,935.97	—

Table 27: Model 6: Economic Impact by Age Group

Age Group	N	Mean Actual	Mean Conservative	Impact	Impact %
21-30	1,797	$42,554.08	$63,581.92	$+37,787,034.28	+671.47%
31+	4,343	$48,377.38	$79,309.13	$+134,336,609.80	+314.51%
Under 21	694	$22,479.49	$26,795.56	$+2,995,351.59	+509.66%

Table 28: Model 6: Economic Impact by Living Setting

Living Setting	N	Mean Actual	Mean Conservative	Impact	Impact %
FH	3,767	$22,615.08	$29,769.03	$+26,948,920.21	+413.92%
ILSL	893	$45,826.71	$63,702.54	$+15,963,117.17	+412.69%
RH1	1,831	$83,525.89	$147,041.69	$+116,297,420.82	+394.51%
RH2	36	$60,713.32	$99,441.65	$+1,394,219.92	+302.28%
RH3	238	$71,998.39	$122,724.34	$+12,072,777.28	+1,038.93%
RH4	69	$55,100.06	$90,499.20	$+2,442,540.28	+261.09%

Tables 27 through 30 present detailed subgroup analyses, revealing how economic impact varies across age groups, living settings, budget levels, and impact categories. These breakdowns help identify which populations are most affected by prediction errors and where conservative budgeting has the greatest effect.

Figure 0.2-6 presents the distribution analysis for Model 6, showing the distributions of actual costs, predicted costs, prediction errors, and conservative budget estimates.

The conservative budgeting approach for Model 6 would require an additional $175,118,995.68 (57.95%) compared to actual costs, averaging $25,624.67 per client. The model under-predicted costs in 70.5% of cases, necessitating the conservative approach to avoid budget shortfalls.

Table 29: Model 6: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	1,709	$1,771.97	$20,814.25	$+32,543,263.29	+1,503.09%
Q2	1,708	$16,053.05	$29,293.66	$+22,614,948.74	+112.26%
Q3	1,708	$52,959.21	$81,142.91	$+48,137,762.25	+51.58%
Q4 (High)	1,709	$106,069.13	$148,095.47	$+71,823,021.40	+45.44%

Table 30: Model 6: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	2,016	29.5%	$64,432.66	$+0.00	+0.00%
Small Increase (0-10%)	210	3.1%	$59,081.25	$+2,944.77	+5.17%
Moderate Increase (10-25%)	302	4.4%	$62,379.16	$+11,256.01	+17.87%
Large Increase (>25%)	4,306	63.0%	$32,752.34	$+39,735.55	+678.07%

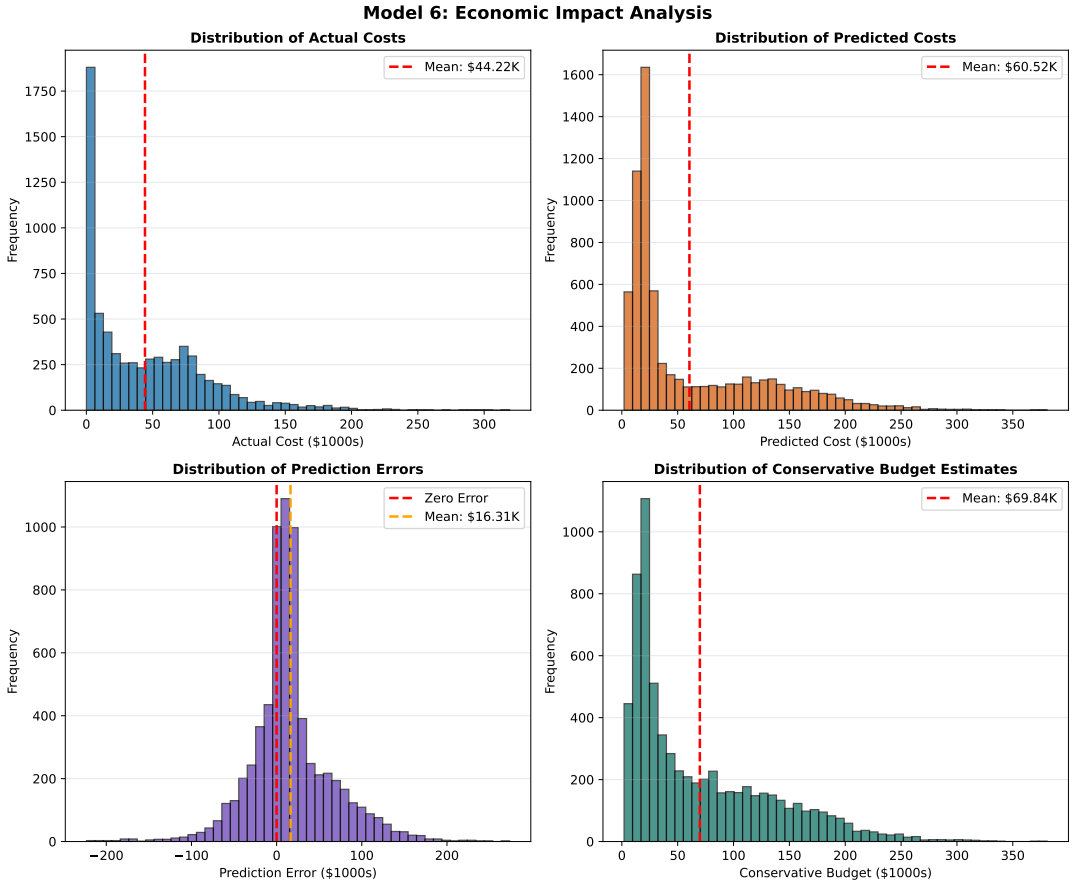

Figure 0.2-6: Model 6: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

0.2.7 Model 9: Impact Analysis

Table 31: Model 9: Economic Impact Summary

Metric	Value	Per Client
Sample Size	19,893	—
Total Actual Cost	$787,621,455.30	$39,592.89
Total Predicted Cost	$679,742,324.93	$34,169.93
Total Conservative Budget	$915,710,129.65	$46,031.78
Economic Impact	**$+128,088,674.35**	**$+6,438.88**
Impact Percentage	16.26%	—
Cases Over Budget	10,164	51.1%
Model R^2 (Test)	0.5472	—
RMSE (Test)	$27,777.18	—

Table 32: Model 9: Economic Impact by Age Group

Age Group	N	Mean Actual	Mean Conservative	Impact	Impact %
21-30	5,679	$38,992.01	$45,848.61	$+38,938,642.91	+323.68%
31+	12,297	$42,849.01	$49,255.41	$+78,779,482.95	+248.12%
Under 21	1,917	$20,485.92	$25,895.70	$+10,370,548.48	+469.01%

Table 33: Model 9: Economic Impact by Living Setting

Living Setting	N	Mean Actual	Mean Conservative	Impact	Impact %
FH	10,934	$19,551.76	$24,579.22	$+54,970,262.64	+324.51%
ILSL	2,644	$40,050.06	$46,984.54	$+18,334,766.66	+236.70%
RH1	5,196	$76,590.56	$85,429.96	$+45,929,559.10	+185.65%
RH2	85	$56,926.77	$67,240.02	$+876,625.85	+201.91%
RH3	826	$67,055.48	$74,818.26	$+6,412,058.85	+498.80%
RH4	208	$46,918.24	$54,444.21	$+1,565,401.26	+1,060.15%

Tables 32 through 35 present detailed subgroup analyses, revealing how economic impact varies across age groups, living settings, budget levels, and impact categories. These breakdowns help identify which populations are most affected by prediction errors and where conservative budgeting has the greatest effect.

Figure 0.2-7 presents the distribution analysis for Model 9, showing the distributions of actual costs, predicted costs, prediction errors, and conservative budget estimates.

The conservative budgeting approach for Model 9 would require an additional $128,088,674.35 (16.26%) compared to actual costs, averaging $6,438.88 per client. The model under-predicted costs in 51.1% of cases, necessitating the conservative approach to avoid budget shortfalls.

Table 34: Model 9: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	4,974	$1,672.98	$14,342.86	$+63,019,982.36	+1,077.01%
Q2	4,973	$13,405.24	$19,923.52	$+32,415,430.48	+73.02%
Q3	4,973	$45,817.01	$50,720.91	$+24,387,048.25	+11.50%
Q4 (High)	4,973	$97,483.97	$99,146.19	$+8,266,213.25	+2.20%

Table 35: Model 9: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	9,729	48.9%	$62,836.15	$+0.00	+0.00%
Small Increase (0-10%)	1,046	5.3%	$51,781.10	$+2,415.80	+4.78%
Moderate Increase (10-25%)	1,054	5.3%	$43,212.44	$+7,345.10	+17.26%
Large Increase (>25%)	8,064	40.5%	$9,496.48	$+14,610.62	+714.93%

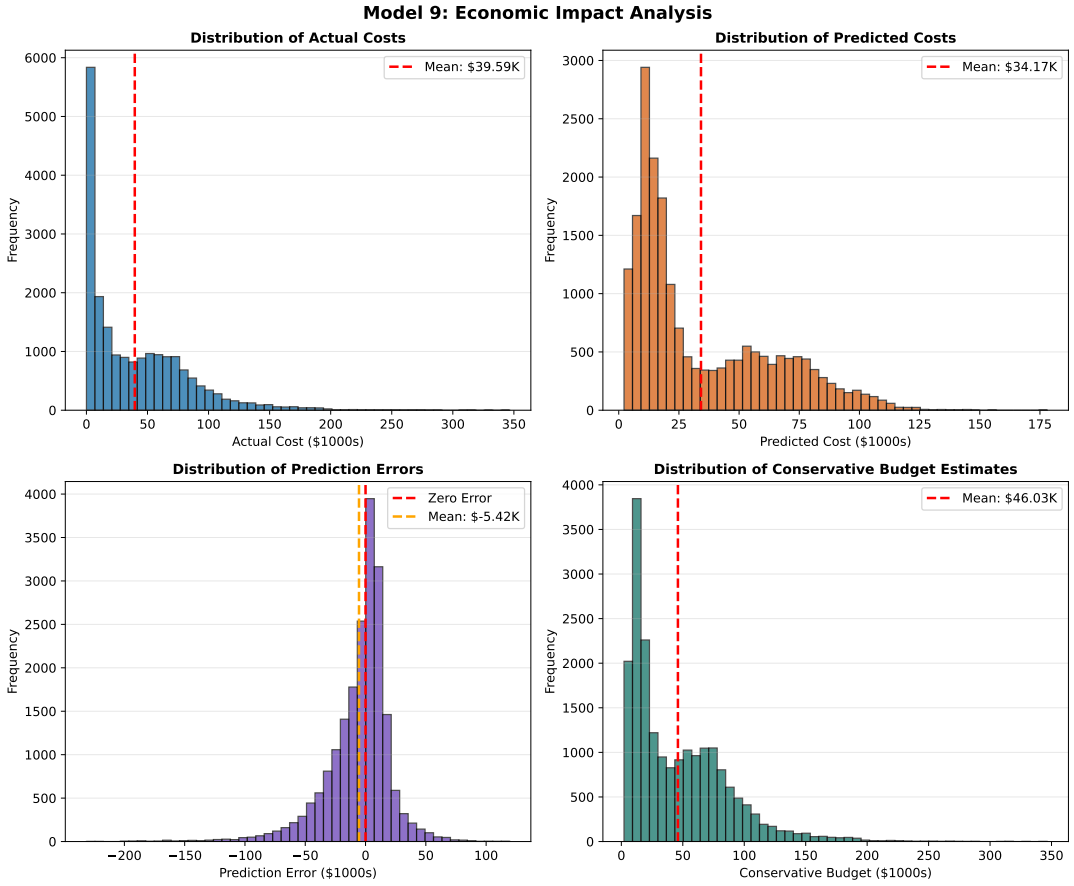

Figure 0.2-7: Model 9: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

0.2.8 Comparative Analysis Across Models

Table 36 presents a comprehensive comparison of economic impacts across all budget allocation models.

Table 36: Comparative Economic Impact Analysis Across All Models

Model	Samples	R^2 Test	Economic Impact	Impact %	Over Budget %
Model 1	6,834	0.4300	$+50,762,716.39	+16.80%	51.9%
Model 2	6,834	0.4252	$+66,658,725.38	+22.06%	57.2%
Model 3	6,834	0.4317	$+50,091,128.84	+16.58%	51.3%
Model 4	6,834	0.4717	$+76,780,250.49	+25.41%	59.1%
Model 5	6,834	0.4474	$+53,923,443.25	+17.85%	52.3%
Model 6	6,834	-0.3008	$+175,118,995.68	+57.95%	70.5%
Model 9	19,893	0.5472	$+128,088,674.35	+16.26%	51.1%

0.2.8.1 Key Insights

- Model 9 achieves the highest predictive accuracy with $R^2 = 0.5472$.
- Model 6 requires the largest conservative budget adjustment at 57.95%.
- The conservative budgeting approach ensures adequate funding to cover cases where the model under-predicts actual costs.
- Economic impact percentages reflect both model accuracy and the degree of systematic under- or over-prediction.
- Subgroup analyses reveal differential impacts across age groups, living settings, and budget levels, providing insights for targeted policy interventions.
- Impact level distributions identify high-risk cases requiring substantial budget adjustments beyond model predictions.