Impact Report for iBudget Algorithm Study

agency for persons with disabilities
State of Florida

ISF

October 15, 2025

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Impact Analysis

1.1   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 iBudget Study commissioned by APD in September/November 2025.

The model evaluation distinguishes three fiscal aggregates used for policy interpretation:

- **Total Actual Cost** — the sum of all observed expenditures in the historical dataset for the base year. This represents the agency's actual fiscal outlay for waiver services and serves as the empirical baseline.

- **Total Predicted Cost** — the sum of the model's estimated allocations for each individual, based solely on assessed need and model parameters. This reflects the theoretical distribution of funds if the predictive algorithm were implemented without any legal or policy constraints.

- **Total Compliant Budget** — this measure enforces statutory protections against reductions in individual allocations by setting each person's projected cost to the greater of the actual and predicted values, that is, $\text{Compliant}_i = \max(\text{Actual}_i, \text{Predicted}_i)$. The Total Compliant Budget therefore guarantees that no participant receives less than their current level of support, ensuring compliance with legislative requirements such as F.S. 393.0662.

1.2 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.

1.2.1 Model 1: Impact Analysis

Table 1.1: Model 1: Economic Impact Summary

Metric	Value	Per Client
Sample Size	34,173	—
Total Actual Cost	$1,523,553,431.26	$44,583.54
Total Predicted Cost	$1,286,441,271.41	$37,644.96
Total Conservative Budget	$1,777,650,305.90	$52,019.15
Economic Impact	**$+254,096,874.64**	**$+7,435.60**
Impact Percentage	16.68%	—
Cases Over Budget	17,584	51.5%
Model R^2 (Test)	0.4300	—
RMSE (Test)	$33,718.68	—

Table 1.2: Model 1: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	8,544	$1,858.29	$14,882.08	$+111,275,268.28	+1,020.63%
Q2	8,543	$16,299.64	$23,022.59	$+57,434,193.61	+57.49%
Q3	8,543	$53,447.49	$60,120.05	$+57,003,674.99	+12.90%
Q4 (High)	8,543	$106,733.76	$110,056.21	$+28,383,737.76	+3.98%

Table 1.3: Model 1: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	16,589	48.5%	$66,955.91	$+0.00	+0.00%
Small Increase (0-10%)	1,744	5.1%	$62,059.69	$+3,019.37	+4.88%
Moderate Increase (10-25%)	2,218	6.5%	$54,251.65	$+9,218.42	+17.18%
Large Increase (>25%)	13,622	39.9%	$13,526.62	$+16,765.87	+683.37%

Tables ?? through 1.3 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 1.2-1 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 $254,096,874.64 (16.68%) compared to actual costs, averaging $7,435.60 per client. The model under-predicted costs in 51.5% of cases, necessitating the conservative approach to avoid budget shortfalls. Notably, 39.9% of cases (13,622 clients) require large budget increases exceeding 25%, highlighting the importance of the conservative approach for high-risk cases.
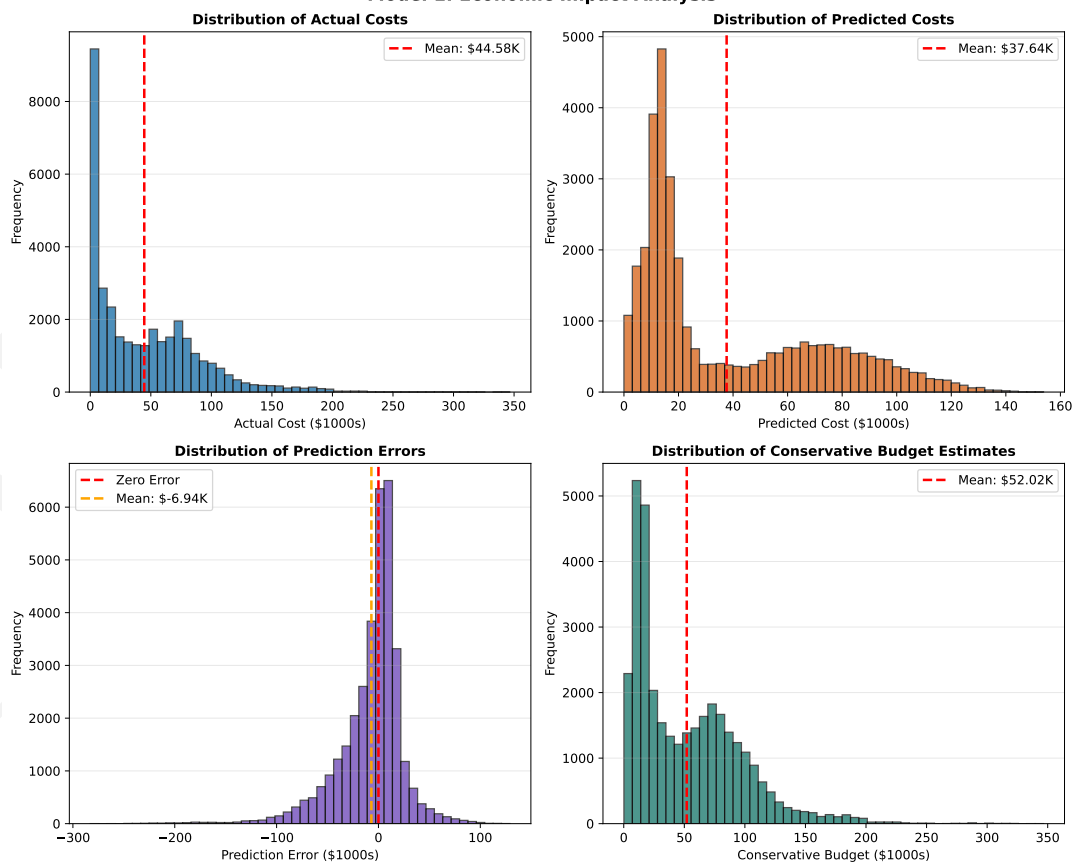
Model 1: Economic Impact Analysis

Figure 1.2-1: 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.

1.2.2 Model 2: Impact Analysis

Table 1.4: Model 2: Economic Impact Summary

Metric	Value	Per Client
Sample Size	34,173	—
Total Actual Cost	$1,523,553,431.26	$44,583.54
Total Predicted Cost	$1,563,444,952.18	$45,750.88
Total Conservative Budget	$1,945,318,814.76	$56,925.61
Economic Impact	**$+421,765,383.50**	**$+12,342.06**
Impact Percentage	27.68%	—
Cases Over Budget	21,035	61.6%
Model R^2 (Test)	0.4386	—
RMSE (Test)	$33,463.23	—

Table 1.5: Model 2: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	8,544	$1,858.29	$22,770.43	$+178,673,372.09	+1,548.90%
Q2	8,543	$16,299.64	$26,632.69	$+88,275,245.05	+92.70%
Q3	8,543	$53,447.49	$62,539.31	$+77,671,460.85	+17.05%
Q4 (High)	8,543	$106,733.76	$115,763.99	$+77,145,305.51	+10.21%

Table 1.6: Model 2: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	13,138	38.4%	$72,746.15	$+0.00	+0.00%
Small Increase (0-10%)	1,802	5.3%	$63,842.94	$+3,098.72	+4.88%
Moderate Increase (10-25%)	2,317	6.8%	$58,689.08	$+10,041.86	+17.21%
Large Increase (>25%)	16,916	49.5%	$18,727.06	$+23,227.39	+840.03%

Tables **??** through 1.6 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 1.2-2 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 $421,765,383.50 (27.68%) compared to actual costs, averaging $12,342.06 per client. The model under-predicted costs in 61.6% of cases, necessitating the conservative approach to avoid budget shortfalls. Notably, 49.5% of cases (16,916 clients) require large budget increases exceeding 25%, highlighting the importance of the conservative approach for high-risk cases.
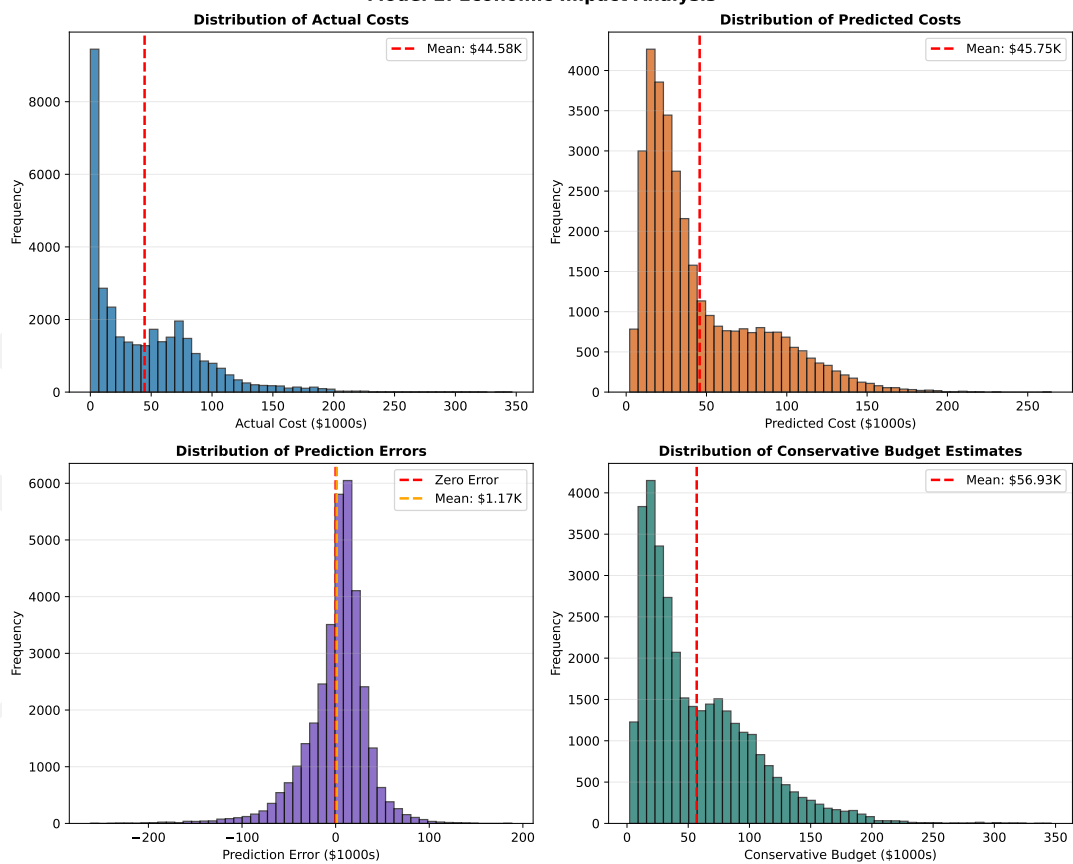
Figure 1.2-2: Model 2: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

1.2.3 Model 3: Impact Analysis

Table 1.7: Model 3: Economic Impact Summary

Metric	Value	Per Client
Sample Size	34,173	—
Total Actual Cost	$1,523,553,431.26	$44,583.54
Total Predicted Cost	$1,359,568,352.61	$39,784.87
Total Conservative Budget	$1,814,849,620.27	$53,107.71
Economic Impact	**$+291,296,189.01**	**$+8,524.16**
Impact Percentage	19.12%	—
Cases Over Budget	18,056	52.8%
Model R^2 (Test)	0.4534	—
RMSE (Test)	$33,018.58	—

Table 1.8: Model 3: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	8,544	$1,858.29	$18,782.60	$+144,601,362.08	+1,311.01%
Q2	8,543	$16,299.64	$25,022.04	$+74,515,451.59	+77.29%
Q3	8,543	$53,447.49	$59,771.67	$+54,027,474.86	+12.28%
Q4 (High)	8,543	$106,733.76	$108,858.53	$+18,151,900.48	+2.65%

Table 1.9: Model 3: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	16,117	47.2%	$68,779.43	$+0.00	+0.00%
Small Increase (0-10%)	1,982	5.8%	$60,455.93	$+2,930.50	+4.86%
Moderate Increase (10-25%)	2,275	6.7%	$52,996.11	$+8,935.32	+17.00%
Large Increase (>25%)	13,799	40.4%	$12,656.40	$+19,215.89	+865.34%

Tables **??** through 1.9 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 1.2-3 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 $291,296,189.01 (19.12%) compared to actual costs, averaging $8,524.16 per client. The model under-predicted costs in 52.8% of cases, necessitating the conservative approach to avoid budget shortfalls. Notably, 40.4% of cases (13,799 clients) require large budget increases exceeding 25%, highlighting the importance of the conservative approach for high-risk cases.
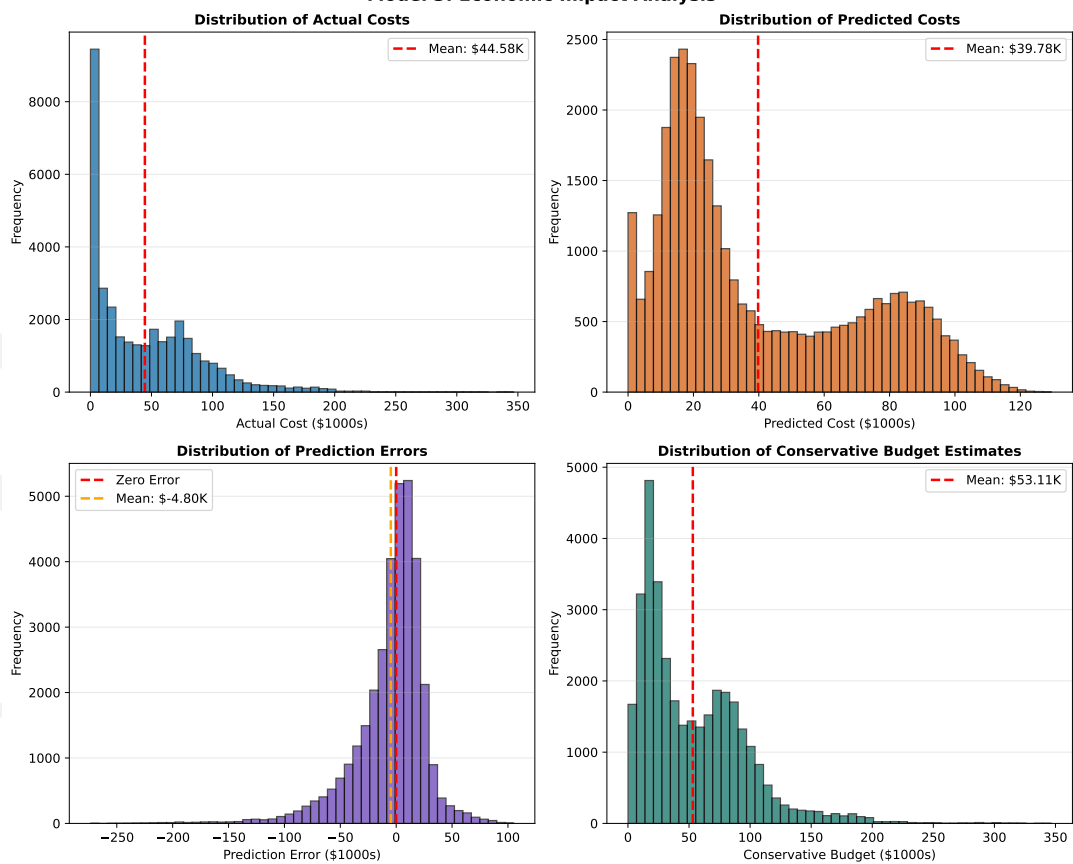
Figure 1.2-3: Model 3: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

1.2.4 Model 4: Impact Analysis

Table 1.10: Model 4: Economic Impact Summary

Metric	Value	Per Client
Sample Size	34,173	—
Total Actual Cost	$1,523,553,431.26	$44,583.54
Total Predicted Cost	$1,520,717,691.41	$44,500.56
Total Conservative Budget	$1,907,502,340.22	$55,818.99
Economic Impact	**$+383,948,908.96**	**$+11,235.45**
Impact Percentage	25.20%	—
Cases Over Budget	19,905	58.2%
Model R^2 (Test)	0.4746	—
RMSE (Test)	$32,372.08	—

Table 1.11: Model 4: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	8,544	$1,858.29	$24,780.45	$+195,846,932.63	+1,712.21%
Q2	8,543	$16,299.64	$28,514.80	$+104,354,151.10	+108.41%
Q3	8,543	$53,447.49	$60,504.58	$+60,288,747.72	+13.78%
Q4 (High)	8,543	$106,733.76	$109,479.76	$+23,459,077.51	+3.39%

Table 1.12: Model 4: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	14,268	41.8%	$73,741.36	$+0.00	+0.00%
Small Increase (0-10%)	1,961	5.7%	$62,399.94	$+3,026.00	+4.93%
Moderate Increase (10-25%)	2,437	7.1%	$54,758.36	$+9,189.80	+17.03%
Large Increase (>25%)	15,507	45.4%	$13,903.36	$+22,932.83	+1,009.27%

Tables **??** through 1.12 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 1.2-4 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 $383,948,908.96 (25.20%) compared to actual costs, averaging $11,235.45 per client. The model under-predicted costs in 58.2% of cases, necessitating the conservative approach to avoid budget shortfalls. Notably, 45.4% of cases (15,507 clients) require large budget increases exceeding 25%, highlighting the importance of the conservative approach for high-risk cases.
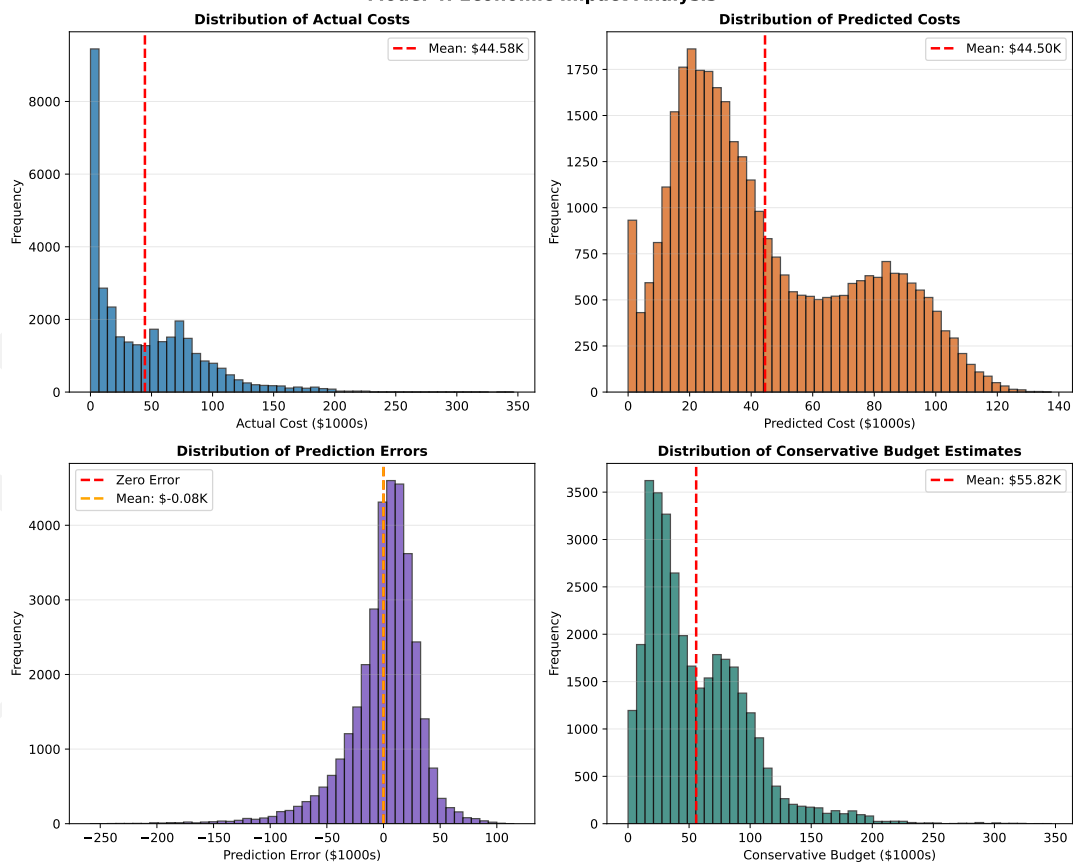
Figure 1.2-4: Model 4: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

1.2.5 Model 5: Impact Analysis

Table 1.13: Model 5: Economic Impact Summary

Metric	Value	Per Client
Sample Size	34,173	—
Total Actual Cost	$1,523,553,431.26	$44,583.54
Total Predicted Cost	$1,529,651,380.19	$44,761.99
Total Conservative Budget	$1,910,964,330.70	$55,920.30
Economic Impact	**$+387,410,899.44**	**$+11,336.75**
Impact Percentage	25.43%	—
Cases Over Budget	19,749	57.8%
Model R^2 (Test)	0.4772	—
RMSE (Test)	$32,290.80	—

Table 1.14: Model 5: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	8,544	$1,858.29	$24,077.75	$+189,843,071.70	+1,665.49%
Q2	8,543	$16,299.64	$28,270.83	$+102,269,877.17	+105.13%
Q3	8,543	$53,447.49	$61,133.08	$+65,658,018.28	+14.93%
Q4 (High)	8,543	$106,733.76	$110,203.26	$+29,639,932.29	+4.24%

Table 1.15: Model 5: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	14,424	42.2%	$70,971.59	$+0.00	+0.00%
Small Increase (0-10%)	1,965	5.8%	$64,516.99	$+3,086.53	+4.88%
Moderate Increase (10-25%)	2,492	7.3%	$57,430.37	$+9,715.04	+17.07%
Large Increase (>25%)	15,292	44.7%	$15,038.38	$+23,354.43	+996.58%

Tables **??** through 1.15 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 1.2-5 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 $387,410,899.44 (25.43%) compared to actual costs, averaging $11,336.75 per client. The model under-predicted costs in 57.8% of cases, necessitating the conservative approach to avoid budget shortfalls. Notably, 44.7% of cases (15,292 clients) require large budget increases exceeding 25%, highlighting the importance of the conservative approach for high-risk cases.
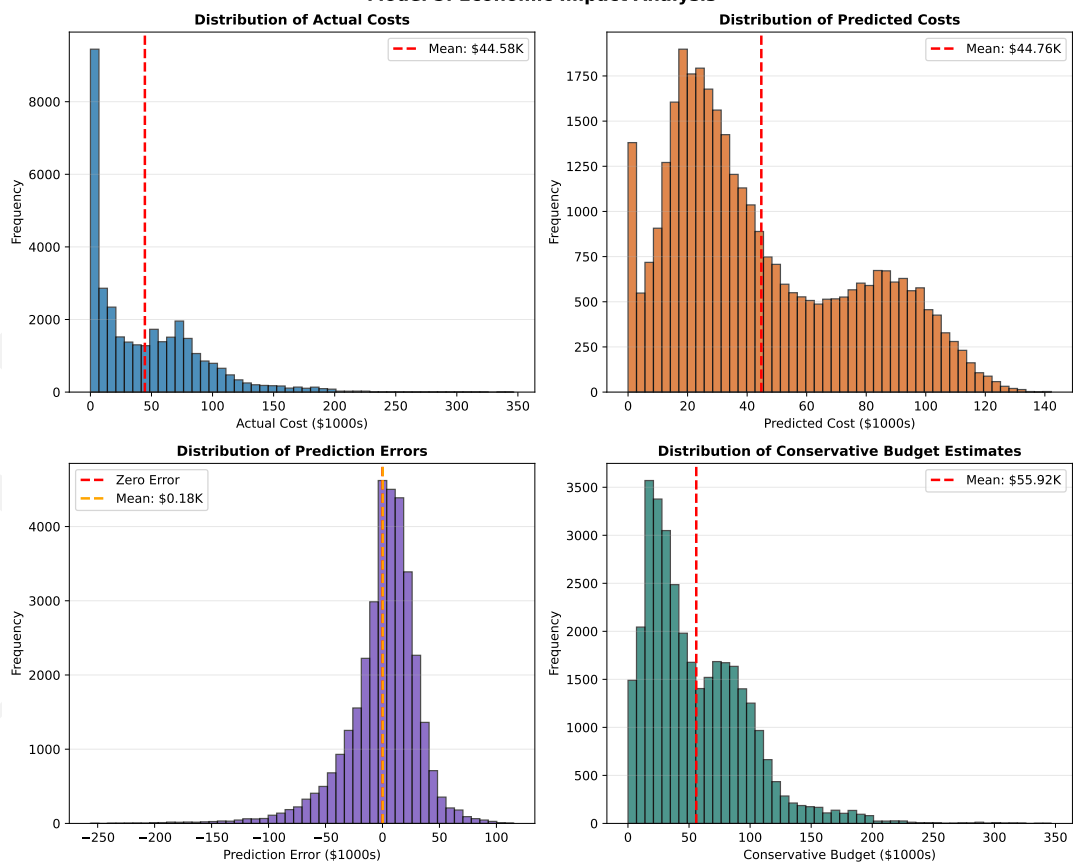
Figure 1.2-5: Model 5: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

1.2.6 Model 6: Impact Analysis

Table 1.16: Model 6: Economic Impact Summary

Metric	Value	Per Client
Sample Size	34,173	—
Total Actual Cost	$1,523,553,431.26	$44,583.54
Total Predicted Cost	$2,101,777,170.71	$61,504.03
Total Conservative Budget	$2,423,248,398.66	$70,911.20
Economic Impact	**$+899,694,967.40**	**$+26,327.66**
Impact Percentage	59.05%	—
Cases Over Budget	23,747	69.5%
Model R^2 (Test)	-0.3517	—
RMSE (Test)	$51,923.33	—

Table 1.17: Model 6: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	8,544	$1,858.29	$20,158.42	$+156,356,333.95	+1,375.19%
Q2	8,543	$16,299.64	$28,978.59	$+108,316,273.96	+103.59%
Q3	8,543	$53,447.49	$83,281.37	$+254,870,821.84	+53.77%
Q4 (High)	8,543	$106,733.76	$151,232.36	$+380,151,537.65	+48.01%

Table 1.18: Model 6: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	10,426	30.5%	$63,965.43	$+0.00	+0.00%
Small Increase (0-10%)	1,031	3.0%	$57,685.48	$+2,813.70	+4.86%
Moderate Increase (10-25%)	1,434	4.2%	$57,481.68	$+10,107.79	+17.52%
Large Increase (>25%)	21,282	62.3%	$33,584.60	$+41,457.54	+633.12%

Tables **??** through 1.18 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 1.2-6 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 $899,694,967.40 (59.05%) compared to actual costs, averaging $26,327.66 per client. The model under-predicted costs in 69.5% of cases, necessitating the conservative approach to avoid budget shortfalls. Notably, 62.3% of cases (21,282 clients) require large budget increases exceeding 25%, highlighting the importance of the conservative approach for high-risk cases.
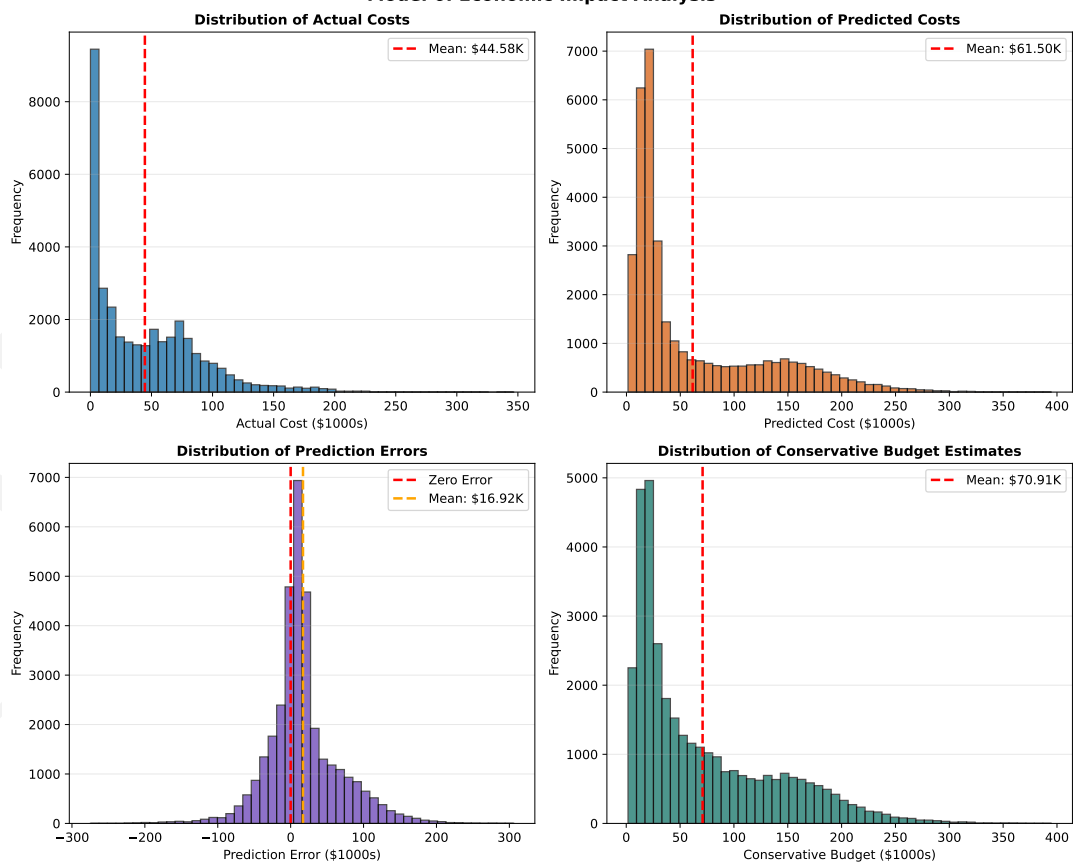
Figure 1.2-6: Model 6: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

1.2.7 Model 9: Impact Analysis

Table 1.19: Model 9: Economic Impact Summary

Metric	Value	Per Client
Sample Size	34,173	—
Total Actual Cost	$1,523,553,431.26	$44,583.54
Total Predicted Cost	$1,372,683,814.14	$40,168.67
Total Conservative Budget	$1,740,232,707.19	$50,924.20
Economic Impact	**$+216,679,275.93**	**$+6,340.66**
Impact Percentage	14.22%	—
Cases Over Budget	17,180	50.3%
Model R^2 (Test)	0.6412	—
RMSE (Test)	$24,727.15	—

Table 1.20: Model 9: Economic Impact by Budget Quartile

Budget Quartile	N	Mean Actual	Mean Conservative	Impact	Impact %
Q1 (Low)	8,544	$1,858.29	$17,265.24	$+131,636,992.93	+1,185.89%
Q2	8,543	$16,299.64	$22,725.41	$+54,895,345.26	+60.99%
Q3	8,543	$53,447.49	$56,143.93	$+23,035,686.71	+5.43%
Q4 (High)	8,543	$106,733.76	$107,566.17	$+7,111,251.02	+1.02%

Table 1.21: Model 9: Distribution by Impact Level

Impact Level	N	%	Mean Actual	Mean Impact	Impact %
No Change	16,993	49.7%	$72,642.31	$+0.00	+0.00%
Small Increase (0-10%)	2,112	6.2%	$53,076.58	$+2,380.68	+4.64%
Moderate Increase (10-25%)	1,857	5.4%	$41,284.16	$+6,822.26	+16.88%
Large Increase (>25%)	13,211	38.7%	$7,598.23	$+15,061.87	+807.45%

Tables ?? through 1.21 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 1.2-7 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 $216,679,275.93 (14.22%) compared to actual costs, averaging $6,340.66 per client. The model under-predicted costs in 50.3% of cases, necessitating the conservative approach to avoid budget shortfalls. Notably, 38.7% of cases (13,211 clients) require large budget increases exceeding 25%, highlighting the importance of the conservative approach for high-risk cases.
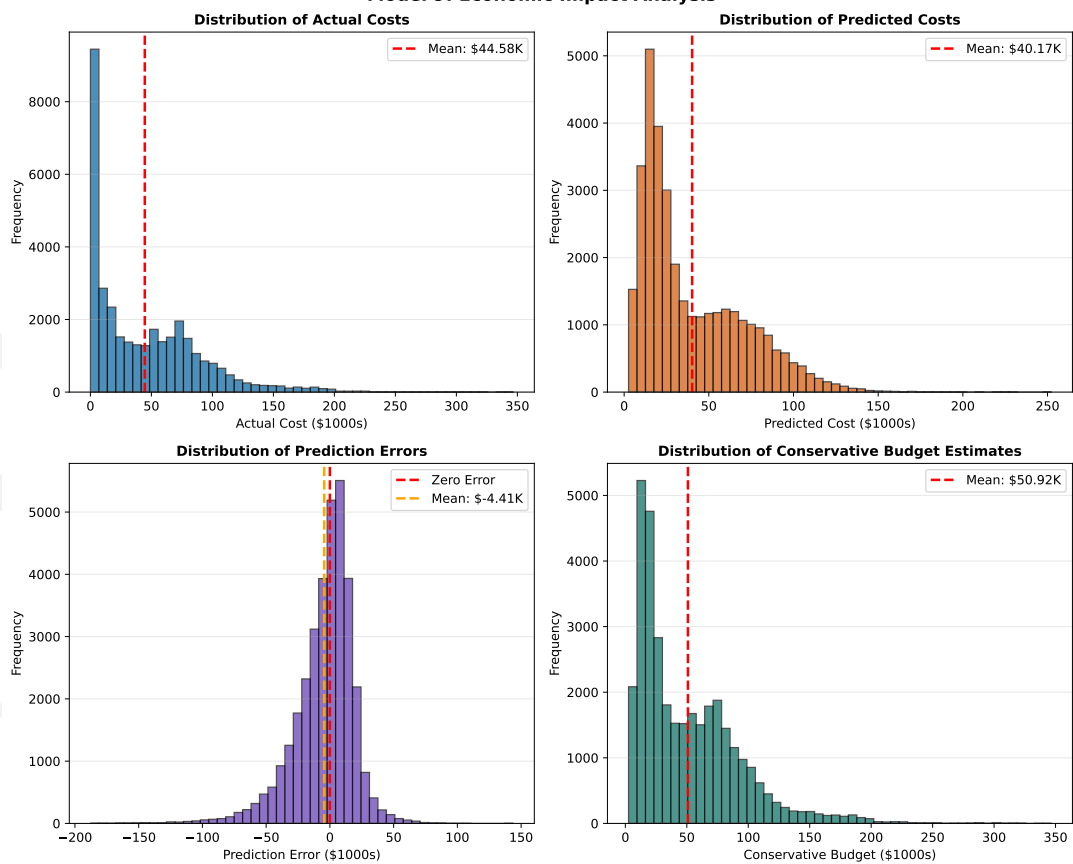
Figure 1.2-7: Model 9: Distribution of costs, predictions, errors, and conservative budget estimates. The conservative estimate takes the maximum of actual and predicted costs to ensure adequate funding.

1.3 Comparative Analysis Across Models

Table 1.22 presents a comprehensive comparison of economic impacts across all budget allocation models.

Table 1.22: Comparative Economic Impact Analysis Across All Models

Model	Samples	R^2 Test	Economic Impact	Impact %	Over Budget %
Model 1	34,173	0.4300	\$+254,096,874.64	+16.68%	51.5%
Model 2	34,173	0.4386	\$+421,765,383.50	+27.68%	61.6%
Model 3	34,173	0.4534	\$+291,296,189.01	+19.12%	52.8%
Model 4	34,173	0.4746	\$+383,948,908.96	+25.20%	58.2%
Model 5	34,173	0.4772	\$+387,410,899.44	+25.43%	57.8%
Model 6	34,173	-0.3517	\$+899,694,967.40	+59.05%	69.5%
Model 9	34,173	0.6412	\$+216,679,275.93	+14.22%	50.3%

1.3.0.1 Key Insights

- Model 9 achieves the highest predictive accuracy with $R^2 = 0.6412$.

- Model 6 requires the largest conservative budget adjustment at 59.05%.

- 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.