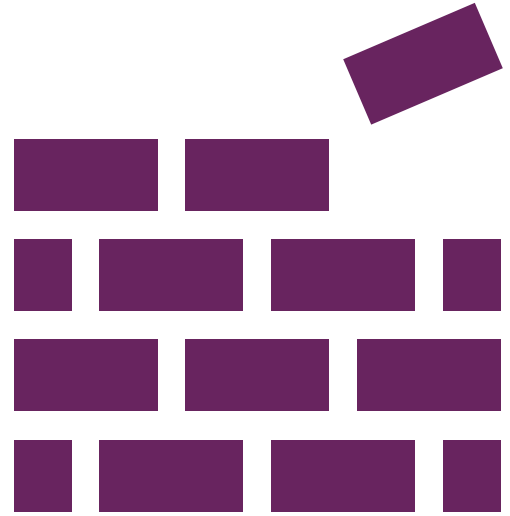
Impact Analysis
Quantitative Building Blocks

- Three-year lookback
- Demographics and summary numbers
- Model changes in sentencing and apply costs
- Discount future costs
- Prison projections
- Model changes in recidivism (victimization) and apply costs



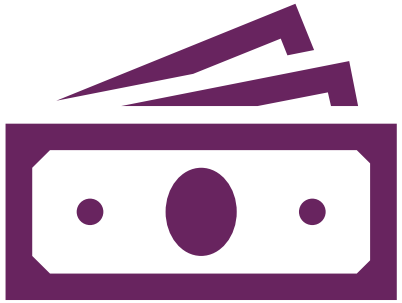
General Approach

People or Sentences

x

Length of Stay

x



Annual Cost

For each sector (prison, jail, mandatory supervised release, probation):

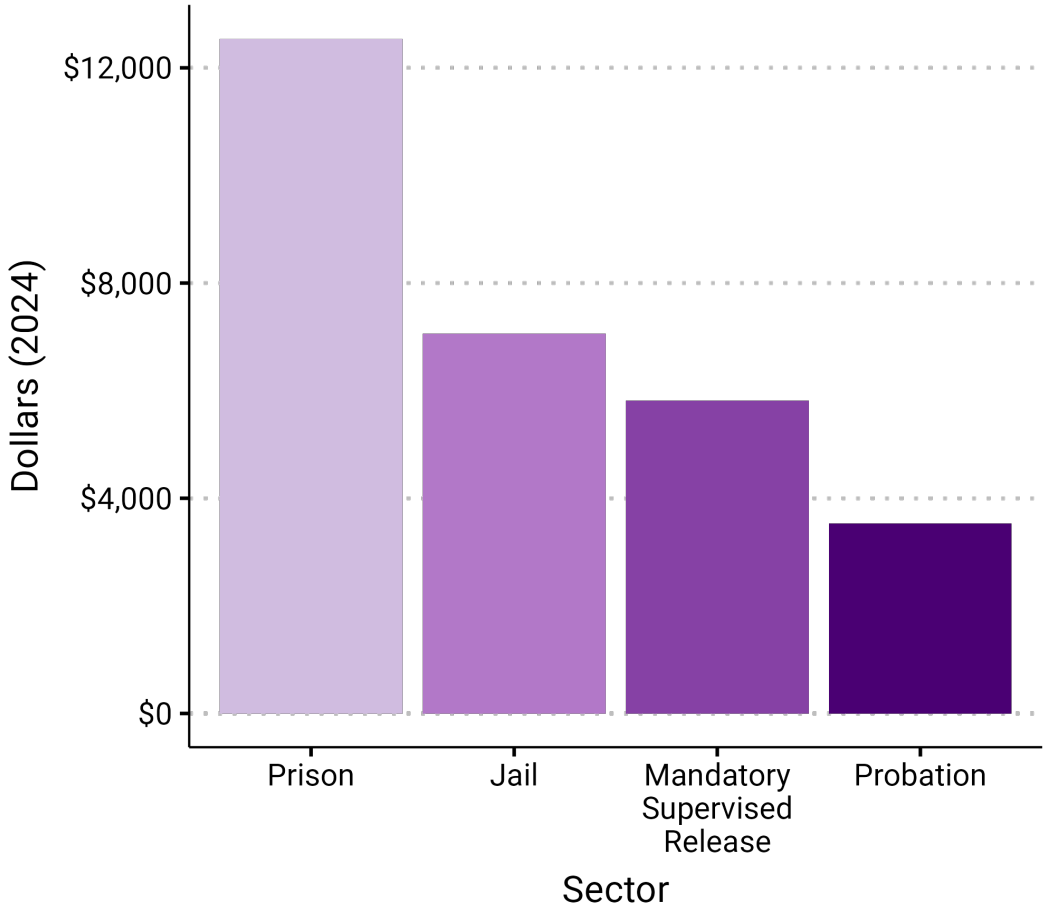
1. Estimate the system costs from the past three years with no changes (current)
2. Estimate the system costs from past three years with changes specified by the legislation (proposed)
3. Find the difference between current and proposed
4. Incorporate estimated victimization cost changes

Data Sources, Demographics and Summary Numbers

- CHRI data on arrests, guilty dispositions, and probation and jail sentences
  - Demographics and offense information
  - Probation sentence length and length of stay assumed equal
  - Estimate jail sentence length of stay based on sentence length and statutory restrictions to credits
- IDOC data on prison admissions, exits, population
  - Demographics and offense information
  - Sentence length, length of stay, and truth in sentencing
- Jail credit time served data from CHRI and IDOC
  - Cannot determine what is electronic monitoring or not
  - Credit time served in CHRI only available for sentenced people
- NIBRS data for some legislation
  - Theft and retail theft dollar values
  - Drug possession weights

Cost Data – System Costs
FY26 Impact Analyses (FY24 dollars)

- SPAC's FY24 costs per year
  - Prison (marginal) - $12,543
  - Jail (marginal)- $7,056
  - MSR (average) - $5,814
  - Probation (average) - $3,534
  - Conditional discharge and court supervision assumed at $0
- Jail Costs
  - Based on SPAC work from about a decade ago, needs an update
  - Electronic monitoring issues

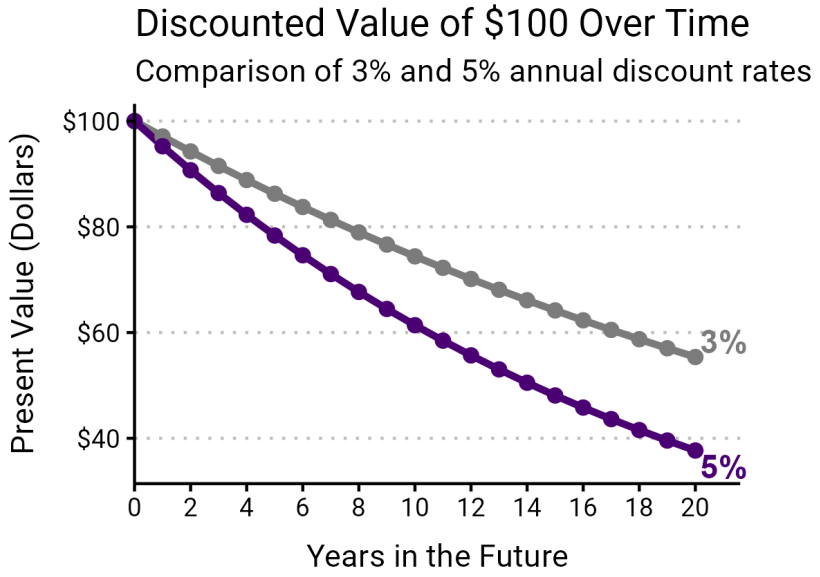


Discounting Future Costs

- Impacts can take longer than three years to take full effect
- A discount rate is used in cost-benefit analyses to convert future costs and benefits into present values, reflecting the time value of money
- Use of discounting is not controversial, but the choice of the actual rate can be
- 2-5% is common for social discount rates and SPAC typically uses a 3% discount rate
- SPAC discounts future costs at the person-year level where possible

$$PV = \frac{FV}{(1+r)^t}$$

- PV: present value
- FV: future value
- r: discount rate
- t: time (in years from starting point)



Model Individual Person Trajectories

- Person sentenced to 12-year prison sentence at 85% who served about 19 months in pretrial custody and admit into prison in February 2024.
- The bill would reduce their TIS from 85% to 60%, meaning their projected exit would have changed from around September 2032 to September 2029.

					Current LOS (Days)		Proposed LOS (Days)	
Begin Date	**End Date**	**Discount Rate t**	**Prison Cost**	**MSR Cost**	**Prison**	**MSR**	**Prison**	**MSR**
7/1/2023	6/30/2024	0	$11,473	$5,074	128	0	128	0
7/1/2024	6/30/2025	1	$11,139	$4,926	365	0	365	0
7/1/2025	6/30/2026	2	$10,814	$4,783	365	0	365	0
7/1/2026	6/30/2027	3	$10,499	$4,643	365	0	365	0
7/1/2027	6/30/2028	4	$10,194	$4,508	365	0	365	0
7/1/2028	6/30/2029	5	$9,897	$4,377	365	0	365	0
7/1/2029	6/30/2030	6	$9,608	$4,249	365	0	70	294
7/1/2030	6/30/2031	7	$9,329	$4,126	365	0	0	365
7/1/2031	6/30/2032	8	$9,057	$4,005	365	0	0	365
7/1/2032	6/30/2033	9	$8,793	$3,889	60	304	0	69
7/1/2033	6/30/2034	10	$8,537	$3,776	0	365	0	0
7/1/2034	6/30/2035	11	$8,288	$3,666	0	365	0	0
7/1/2035	6/30/2036	12	$8,047	$3,559	0	60	0	0
			Total Costs in Net Present Value:		**$86,002.03**	**$11,262.38**	**$58,405.09**	**$12,286.19**

Putting it all together

- We create that data structure for all individuals and model time in jail, prison, or the community under the current and proposed language
- Estimate total current costs and proposed costs by summing costs across all people and sector
- Difference between sum of the current and proposed is the fiscal impact

Example from Recent TIS Stepdown Legislation for Prison Costs

TIS Group	Prison Cost	Current Sentences	Current Avg. LOS	Proposed Avg. LOS	Current Cost (Discounted)	Proposed Cost (Discounted)
100%	$11,473	615	29.7	23.5	$135,620,036	$114,198,068
85%	$11,473	3,420	8.3	5.5	$271,521,268	$188,115,628
75%	$11,473	169	6.9	4.2	$12,347,707	$8,015,471

Victimization Costs – Tangible vs. Intangible

- Tangible costs are direct monetary costs that include medical costs, mental health costs, productivity losses, and loss or damage of property

- Intangible costs include costs associated with pain, suffering, and lost quality of life which are based on estimating the portion of jury and settlement awards that are non-pecuniary

	Cost Type		
Offense Type	**Tangible**	**Intangible**	**Total**
Murder	$2,438,658	$6,776,809	$9,215,466
Criminal Sexual Assault	$22,618	$420,531	$443,148
Other Sexual Assault/Abuse	$5,413	$108,552	$113,965
Robbery	$10,629	$19,282	$29,912
Assault/Battery	$6,399	$27,825	$34,225
Intimate Partner Violence	$3,054	$33,471	$36,524
Child Maltreatment	$19,800	$53,593	$73,392
Arson	$33,681	$8,460	$42,141
Impaired Driving with Crash	$38,182	$70,321	$108,503
Other Impaired Driving	$0	$0	$0
Burglary	$3,843	$0	$3,843
Larceny Theft	$1,425	$0	$1,425
Motor Vehicle Theft	$9,653	$0	$9,653
Fraud	$2,514	$0	$2,514
Fraud (identity theft)	$939	$0	$939
Vandalism	$513	$0	$513

These costs are for police-reported offenses and are adjusted for inflation to December 2025. SPAC has estimates from this same source for offenses not police-reported, however, our victimization costs in fiscal impacts relies on the offense to involve a conviction or other guilty finding.
Original source: Miller, Cohen, Et al. (2021). Incidence and Costs of Personal and Property Crimes in the USA, 2017. *Journal of Benefit-Cost Analysis.*

Modeling changes to recidivism

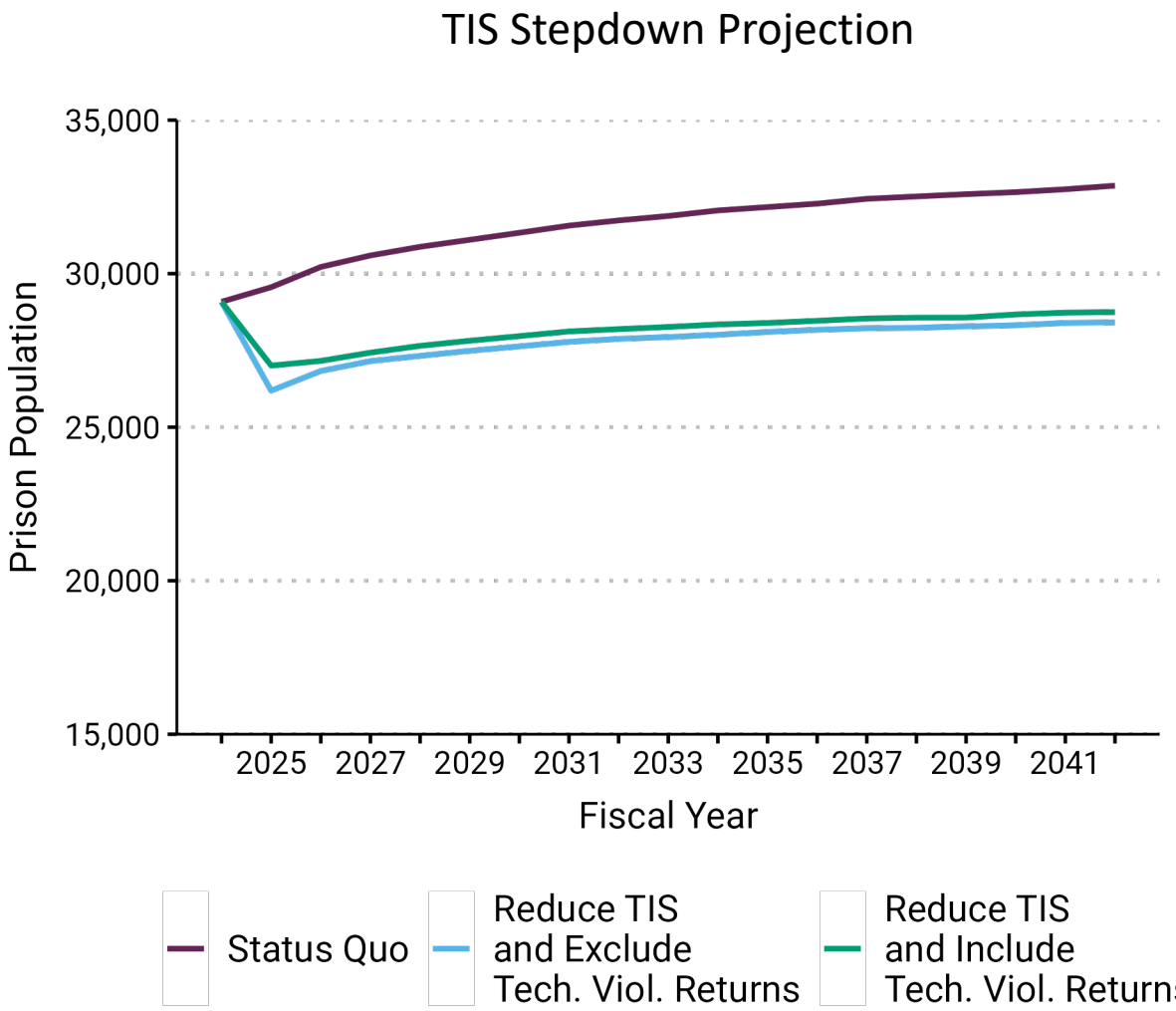
- SPAC relies on CHRI reconviction data to determine if a typical person on probation or exiting prison committed an offense within three years
  - This is likely a large underestimate
  - Unreported offenses
  - Offenses with no arrest
  - Crimes where a conviction did not occur
  - We are not aware of research to solve this without large assumptions
- Incapacitation
  - Delaying recidivism leads to lower present value costs because of discounting and the time value of money
  - SPAC applies discount rates to victimization costs based on changes to incapacitation
- Age change
  - Modify recidivism costs for lower probability of recidivism at older ages
- We report changes in estimated victimization costs separated by tangible and intangible costs so the reader can adjust the “topline” cost number if they wish

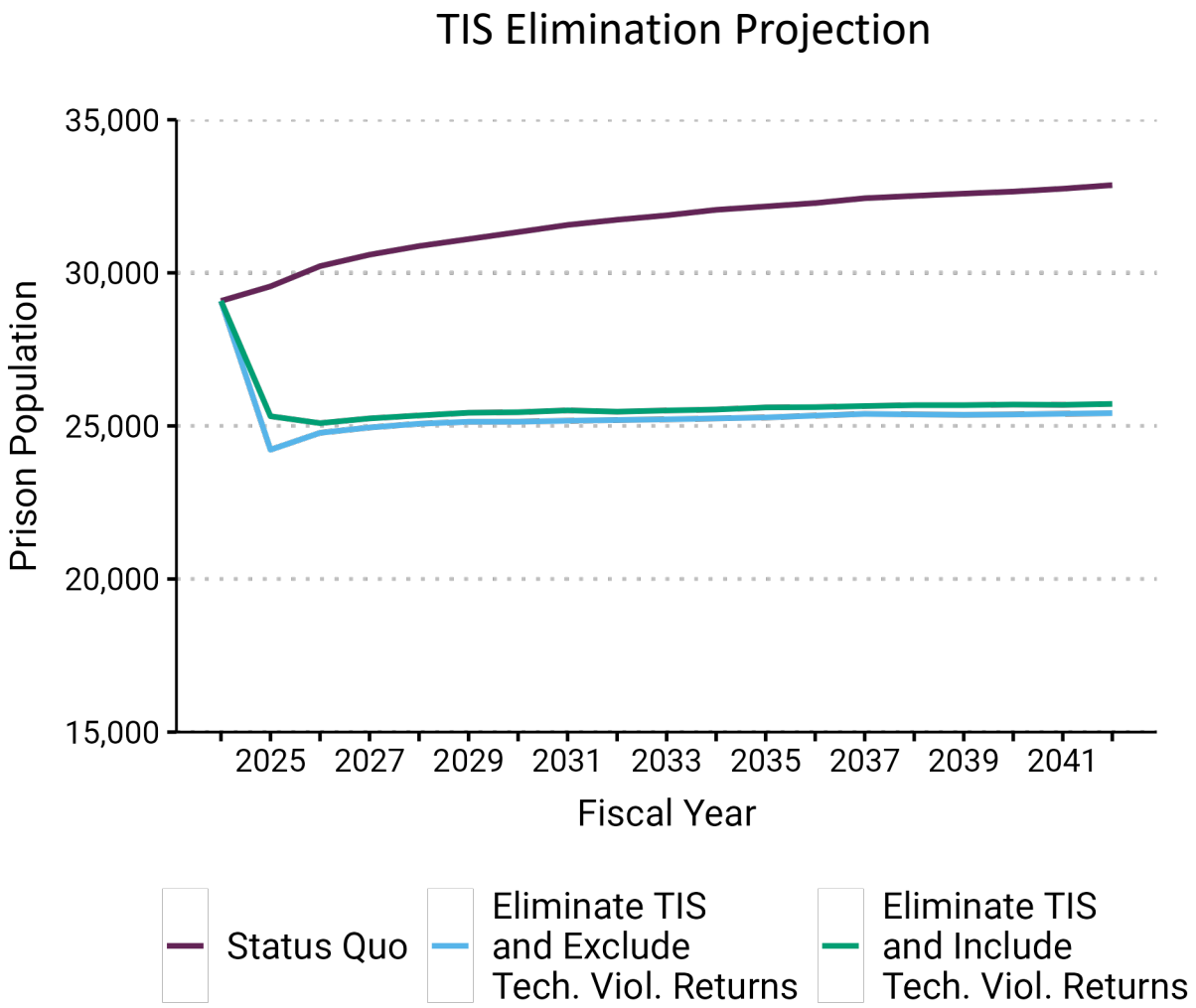
Prison Projection

- Discrete event simulation model
- Projection model, not a forecast
- Status quo projection
  - Assume constant admissions that are the same as the prior fiscal year and use most recent June 30th population model
  - Model movement in and out of prisons based on time served, credits, and mortality
- For each bill, modify status quo projection to fit legislative changes and compare to status quo
- Costs are not tied to the projection

	Projection	Forecast
Purpose	Model hypothetical scenarios for future population	Predict most likely future population
Language	"Assuming admissions are constant and credits earned are similar to past trends, the prison population will be…."	"The prison population is forecasted to be …"
Usage	Policy analysis, alternative scenario modeling	Operations and management
Uncertainty	Higher uncertainty	Lower uncertainty

Projection Examples
Truth in Sentencing





Some Insights We Have Learned

- We can model different sets of assumptions and give ranges, but we tend to think our audience prefers a set of simple, headline numbers
  - Legislators can and do ask us for alternate scenarios
  - Alternative scenarios are sometimes included in the Appendix
- Discounting is necessary, but it can make calculations harder to follow
- Assumptions – trend in cost benefit analysis is to make them when they are reasonable
- We no longer model staffing changes in our prison costs with changes to the population

Improvements and Potential Improvements

- Improvements
  - Better cost data and less reliance on national estimates
  - NIBRS data in Illinois allows for more inference, such as amounts and weights of drug arrests and value of stolen items in theft
  - Projections now are more flexible and run faster
  - More consistent and improved discounting
  - More demographic data and appendix data
  - Updated victimization costs
  - Consistent structure in Impact Analyses
- Future
  - Do more with consecutive sentences and concurrent non-holding sentences
  - Redo jail costs and try to account for electronic monitoring