SPAC
Illinois Sentencing Policy Advisory Council

MODELING POLICY OPTIONS
CHANGING LENGTH OF STAY

The Sentencing Policy Advisory Council (SPAC) created a computer model for how changes to current sentencing policies addressing length of stay (LOS) would affect the population of the Illinois Department of Corrections (IDOC). Importantly, the model holds constant the average admissions for each felony class and for those subject to truth-in-sentencing over the next twenty years.

This document explains how to operate the model and read the results. The assumptions are discussed below, and the full methodology is described in Appendix A. This tool can be used to estimate the potential options for sentencing reform and how these reforms might affect the system over time under basic assumptions. The prison population-reducing options for reform modeled here are:

A) Expanding eligibility for earned good-time sentence credits;
B) Reducing the minimum sentences for each felony class;
   Reducing the maximum sentences for each felony class; and
C) Reducing the possible extended-term sentence ranges for each felony class.

MODELING POLICY OPTIONS
CHANGING LENGTH OF STAY

Sentencing Policy Advisory Council
Policy Options on Length of Stay - Model Options

1. Adjust the percentage of sentence imposed that truth-in-sentencing inmates must serve.

2. Select a percent to reduce the usual and extended terms' felony class prison sentences.

Option A
Good-time sentence credits received per month

Current TIS	Modeled	
	Percent Served	Days per month
100%	75.0%	7.5
85%	60.0%	12.0
75%	60.0%	12.0
50%	50.0%	15.0

Option B
Minimum and Maximums

Felony Classes	Minimum Sentences			Maximum Sentences			Extended Terms		
	Current	Modeled 10%		Current	Modeled 10%		Current	Modeled 10%	
	Minimum	New Min	Percent	Maximum	New Max	Percent	Extended	New Max	Percent
Murder	20	18.0	10%	60	54.0	10%	100	96.0	10%
Class X	6	5.0	10%	30	27.0	10%	60	57.0	10%
Class 1	4	3.0	10%	15	13.0	10%	30	28.0	10%
Class 2	3	2.0	10%	7	6.0	10%	14	13.0	10%
Class 3	2	1.0	10%	5	4.0	10%	10	9.0	10%
Class 4	1	1.0	10%	3	2.0	10%	6	5.0	10%

Estimated Impact by 2025

-5,200

Average Age of Death in Prison

60	
Apply to Current Inmates (Yes or No)	Apply Retroactively (Yes or No)
Yes	No
Round Down to Whole Number (Yes or No)	Model Used (TIS, Range, Both)
Yes	Both
Discount Rate	

3. Select basic parameters for modeling, including the life expectancy for prison inmates, how to apply policy reforms, and what results to show.

Year

Reduction in IDOC Inmates

2017 2019 2021 2023 2025 2027 2029 2031 2033 2035

0, -1,000, -2,000, -3,000, -4,000, -5,000, -6,000, -7,000

-5,200
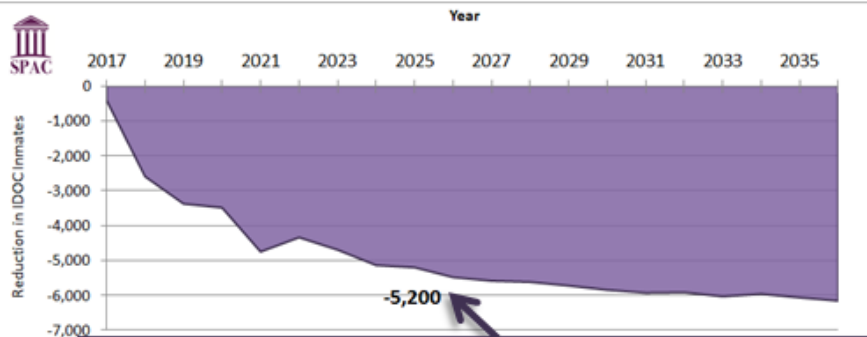
4. The overall reduction of IDOC's inmate population due to applying the sentencing changes and the chosen model settings starting in 2017. The number in the graph indicates that population impact in year 2025.

The model has four important tabs within the Excel Workbook: **Tab 1 Model Options**, **Tab 2 Financial Results**, **Tab 3 Assumptions**, and **Tab 4 Raw Results**.

Change only the red numbers to change one or all of the options.		
TAB 1 MODEL OPTIONS	**TAB 1 MODEL OPTIONS (BOX 3)**	**TAB 2 FINANCIAL RESULTS**
This tab shows population impacts based on changes to: **Option A** – the eligibility for good-time credit due to truth-in-sentencing and resulting incarceration time. **Option B** – the statutory minimums, statutory maximums, or both for felony crimes. **Option C** – the extended terms authorized for aggravating factors to felony crimes.	**Retroactivity** – measure the impact of applying the changes to only new admissions, to current population but only for the time remaining on their sentences, or to current inmates for their total time incarcerated, including time already served. **Average Age of Death** – change life expectancy of inmates and change the number of inmates impacted by sentencing changes. SPAC's analysis of IDOC data concludes 60 years is a conservative estimate. **Model Used** – toggle between policy options to see how much of the total impact is due to each change without resetting other policy options. **Round Down to Nearest Whole Number** – round fractions down to the nearest whole year for Options B and C. "No" allows for sentence ranges and extended terms to be partial years.	Using the inputs from Tab 1 the spreadsheet calculates the total net present value of IDOC costs avoided through 2025, as well as the average costs avoided for the first nine years. The results are dependent on the selected discount rate. **TAB 3 ASSUMPTIONS** This tab details the assumptions made in developing this spreadsheet and will be revised as new data becomes available. **TAB 4 RAW RESULTS** This tab displays the raw data underlying the calculations in Tab 1.

On the Welcome tab, the date of the version in use is displayed. The version discussed here is the version **as of June 10, 2016**. As SPAC continues to update and improve the model, the version date will be updated to show when changes were last made.

Tab 1 – Model Options

Model Option A: TIS Option
The SPAC model allows the user to simulate changes to truth-in-sentencing laws.

Option A		
Good-time sentence credits received per month		
Current TIS	**Modeled**	
	Percent Served	Days per month
100%	**75.0%**	7.5
85%	**60.0%**	12.0
75%	**60.0%**	12.0
50%	**50.0%**	15.0

This panel allows the user to change the number of credits per month inmates can earn. On the left, the current truth-in-sentencing level is listed. Most inmates in state prisons are eligible for day-for-day sentence credits (15 days per month) and serve, on average, 50% of their imposed sentences. People convicted of homicide are currently required to serve 100%.

What Are the Current TIS Levels?

100% - first-degree murder and terrorism

85% - attempted murder or terrorism, sexual assault offenses, aggravated or heinous battery, armed habitual criminals, offenses where great bodily harm occurs, aggravated discharge of a firearm, or domestic battery

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75% - Class X drug offenses

Source: Summary of 730 ILCS 5/3-6-3

For inmates sentenced for murder or terrorism offenses, they must serve 100% of their sentence and are eligible for 0 days per month. Change the percent of the sentence to see the number of days per month and the potential results.

For example, changing the 85% TIS level to 70% results in doubling the days an offender can earn with good behavior, from 4.5 to 9 days per month. The law specifies days-per-month of credit eligibility, so the model uses that tool to control the model results.

Note: The model displays the 50% TIS level, the level for day-for-day good time credits, for informational purposes only.

Model Option B: Sentence Minimums and Maximums

The SPAC model allows the user to reduce the minimum and/or the maximum sentence for each felony class by a set percentage. For example, a 10% reduction in the minimum 20 year sentence for murder results in a new minimum sentence of 18 years. Similarly, a 10% reduction in the maximum 60 year sentence for murder results in a new maximum sentence of 54 years.

Felony Classes	*Option B* *Minimum and Maximums*					
	Minimum Sentences			**Maximum Sentences**		
	Current	**Modeled**	**10%**	**Current**	**Modeled**	**10%**
	Minimum	**New Min**	Percent	Maximum	**New Max**	Percent
Murder	20	**18.0**	10%	60	**54.0**	10%
Class X	6	**5.0**	10%	30	**27.0**	10%
Class 1	4	**3.0**	10%	15	**13.0**	10%
Class 2	3	**2.0**	10%	7	**6.0**	10%
Class 3	2	**1.0**	10%	5	**4.0**	10%
Class 4	1	**1.0**	10%	3	**2.0**	10%

The model can be set to round down to the lower whole number or allow for the felony class ranges to be fractions of a year. For example, when the "Round Down to Whole Number" cell is marked "Yes," a 10% reduction in the Class 3 minimum of 2 years becomes 1 year (1.8 rounded down to 1.0 year).

Note: the model calculates the impact of changing the minimum sentence by shifting *all* prison inmates currently at the minimum sentence to the new minimum. It does not affect the sentence of those with an imposed term above the minimum and below the modeled maximum. For the impact of changing the maximum sentence, the model increases the number of inmates receiving the new sentence based upon the prison inmates who currently are sentenced for a term above the modeled maximum.

Model Option C: Extended Terms

This panel allows the user to modify the extended terms for the felony classes by a set percentage. Similar to the Option B sentence range calculations, the user may round down to whole numbers or allow fractions of a year.

Note: the model calculates the impact of changing the extended terms by counting the number of inmates receiving the new sentence who are currently sentenced for a term above the new extended term's range.

Felony Classes		Option C Extended Terms		
		Extended Terms		
	Current	**Modeled**	**10%**
	Extended	**New Max**	Percent
Murder	100	**96.0**	10%
Class X	60	**57.0**	10%
Class 1	30	**28.0**	10%
Class 2	14	**13.0**	10%
Class 3	10	**9.0**	10%
Class 4	6	**5.0**	10%

Extended terms are sentences above the usual terms for each felony class, as defined by the Illinois Code of Corrections. 730 ILCS 5/5-4.5. These sentences are allowed under 730 ILCS 5/5-8-2 for cases that warrant longer sentences after consideration of factors of aggravation (730 ILCS 5-5-3.2, with a long list of factors, or 730 ILCS 5/5-8-1, which specific enhancements for types of murder or firearm additions). Some longer sentences occur when the criminal code specifies a special range of sentences for a specific crime.[1] All of these "extended terms" are included in this analysis.

Tab 1 – Model Settings

The model has five main settings in the panel below.

Average Age of Death in Prison	
60	
Apply to Current Inmates *(Yes or No)*	Apply Retroactively *(Yes or No)*
Yes	**No**
Round Down to Whole Number *(Yes or No)*	Model Used *(TIS, Range, Both)*
Yes	**Both**
Discount Rate	
3%	

First, the user may alter assumptions about life expectancy in prison as a proxy for natural life sentences and for de facto life sentences. SPAC analysis of IDOC data on deaths in prison revealed that most inmates pass away before the age of 60. Using this life expectancy estimate matches the practices of the U.S. Sentencing Commission, which calculates life sentences as approximately 40 years of imprisonment due to average age of admission and life expectancies. If this average age is increased, more inmates will be affected by the modeled shorter lengths of stay and the projected impact will be larger.

Second, the user can select whether (A) to apply the truth-in-sentencing (TIS) reforms to current inmates and apply the reforms retroactively; and (B) to round the sentencing range reforms to whole numbers.

Finally, the user can toggle between using the TIS reforms, the sentencing range reforms, or both reforms together. This toggle does not change any calculations but changes the results shown in the output by limiting it only to selected reform.

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[1] See, for example, unlawful use of a weapon by a felon under 720 ILCS 5/24-1.6. The crime is an enhanced Class 3 felony, subject to a term of imprisonment between 2 and 10 years.

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As a rule, changes to the Criminal or Corrections Codes are applied prospectively. Amendments to the codes apply to the people who commit crimes after the effective date of the change. However, if a statutory change specifically allows for retroactive application, the change may allow some revisions to already convicted offenders. For sentence credit policies, statutory changes may specify to whom the Department of Corrections can give credits and who is excluded from the incentives.

The model allows the user to apply any proposed TIS sentence-credit changes to only new admissions to prison or to the current inmate population. If under the "Apply to Current Inmates" box the user enters "Yes," all current inmates would begin receiving the days per month selected in the Option A panel. If the user selects "Yes" in the "Apply Retroactively" box, IDOC could calculate sentence credits for months already served by inmates. If TIS changes are applied retroactively, many inmates would be eligible for immediate release.

Consider the hypothetical below for an inmate sentenced to 20 years under a 100% TIS sentence, a murder offense, where the user inputs a change to 50% (15 days per month:

| | Current Policy | Apply Retroactively = **NO** | | Apply Retroactively = **YES** |
		Apply to Current Inmates = **NO**	Apply to Current Inmates = **YES**	
Sentence Imposed	**20 years**, sentenced in 2006			
Already Served	**10 years served** as of 2016			
Time Left	**10 years**	**10 years**	**5 years**	**0 years**
Release year	**2026**	**2026**	**2021**	**2016**
Why?	TIS mandates 100% of sentence imposed must be served.	Only new admissions eligible for credits. Current inmates must continue to serve 100%.	Going forward, would receive day-for-day credits and be eligible for release in 5 years.	With past good behavior, would receive day-for-day credit for time already served.

Note: the model is not currently designed to calculate the impact of removing sentence credit eligibility and increasing the truth-in-sentencing percentage.

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Tab 1 – Model Results

The results are shown on the main Model Options tab in the main graph:
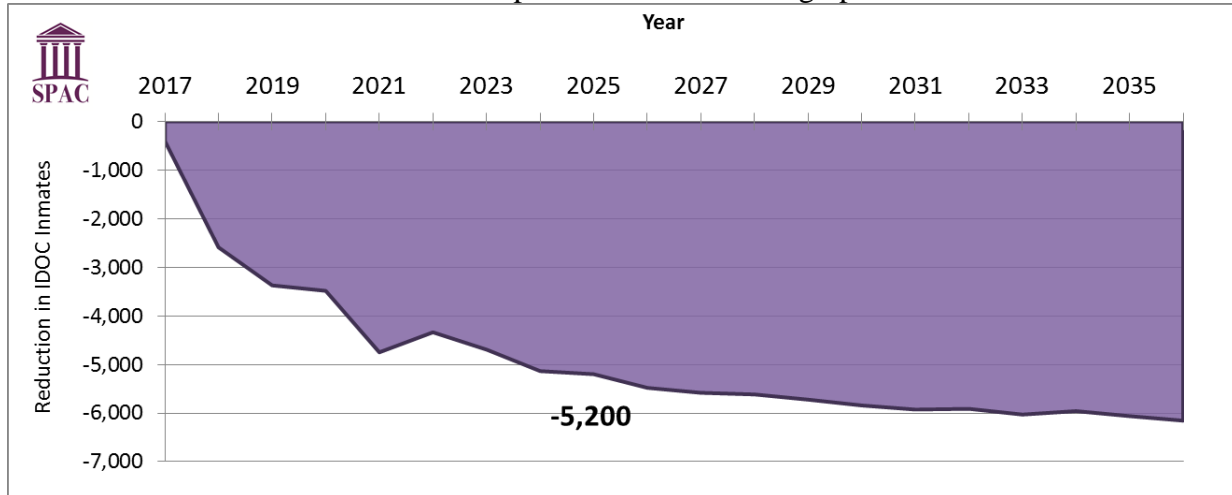
Estimated Impact by 2025
-5,200

The above graph shows the results of a 10% reduction in minimum, maximum, and extended term sentences, rounded down to whole numbers, and a change of TIS to allow all non-murder/terrorism inmates 50% time off (day-for-day sentence credits), including current inmates but not applied retroactively. By 2025, the change is expected to be 5,200 fewer inmates in prison, the bold number in the graph and in the panel on the left.

For most scenarios, the impact grows from the initial year after implementation, which here is 2017.

Tab 2 – Financial Results

The model also produces financial estimates of how the projected change in the prison population will affect the expenditures of the Illinois Department of Corrections (IDOC). On the **Financial Results** tab, the annual costs avoided graph shows (in millions) the estimated impact for IDOC. The results are dependent on the selected discount rate.
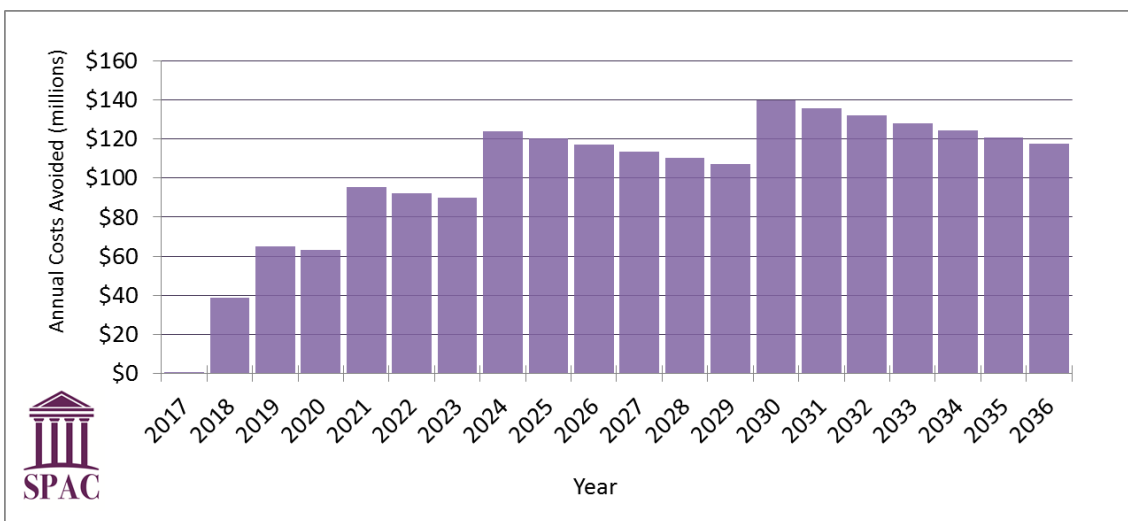
The financial results above are the results from the scenario on the previous page. Each column represents the annual costs avoided, discounted by the user's selected rate. SPAC uses 3% as the
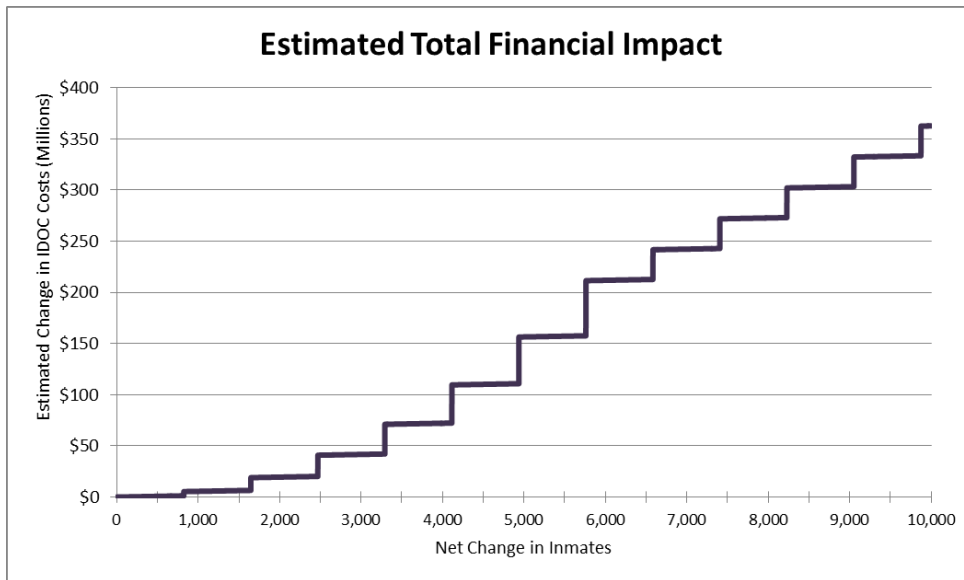
starting point for analysis. In the Illinois Results First cost-benefit approach, SPAC varies the discount rates between 2 and 5 percent.

Net Present Value of Benefits through 2025	Average Annual Benefit (9 years)
$688,841,566	$76,537,952

Two additional financial results show the (1) net present value of the costs avoided from 2017 through 2025 and (2) the average annual costs avoided. The net present value is the total value of each future year's costs avoided through 2025. The average annual benefit is the average costs avoided over those nine years. For example, under the proposed scenario, the first year results in minimal costs avoided and the second year almost $40 million. By 2021, the costs avoided grow to an annual costs avoided of over $90 million each year.

Note: the model calculates the expected costs avoided with a dynamic per-person cost, depending on the size of the decrease in the average daily population (ADP). For small changes in the ADP, only costs that IDOC can change quickly would be affected. These variable costs would result in a relatively small budgetary impact. The per-person costs increase at the size of a housing unit (defined here as 822 individuals), as more and more personnel and staff benefits become impacted. At the eighth step (approximately 10% of IDOC's current population), SPAC uses the true per-capita cost of incarceration per person. The chart on the left shows how these "steps" increase as the net change in inmates increases.

Estimated Total Financial Impact

(y-axis: Estimated Change in IDOC Costs (Millions), ranging $0 to $400; x-axis: Net Change in Inmates, ranging 0 to 10,000)

Tab 3 – Assumptions

Modeling Policy Options:

- No retroactivity is applied unless selected.
- New admissions are assumed to be consistent with the past three years' average. The sentences and time served are assumed to be, on average, constant with these past three years.
- The truth-in-sentencing model only counts changes that occur before the average age of death in prison. If the average age is older, more inmates could be affected and released by policy changes.
  - o SPAC conservatively uses 60 years as the average age of death, based on analyses of deaths in prison over the past thirty years. This methodology matches the practices of the U.S. Sentencing Commission.
  - o Outside of prison, the U.S. CDC has the average life expectancy at birth of 76 for males and 81

for females.
- For the estimations of changing the sentencing ranges, no adjustment is made for the pre-trial detention or for earned sentence credits.
- For the sentencing ranges, the calculations assume there are no changes to admissions or other sentencing policies other than the sentencing reductions.
- There would be an additional impact if both the ranges and truth-in-sentencing were changed at the same time. The sentencing range calculations assume each inmate's credits are unchanged for the estimation of the size of the impact.
- For many scenarios, the effect of a change in sentence lengths would not be felt for several years.

Financial Results Calculations:
- The financial model uses the selected discount rate to reduce future savings by the selected rate at the end of the year. SPAC uses 3% as a starting point for analysis. In the Illinois Results First cost-benefit approach, SPAC uses a range of discount rates between 2 and 5 percent.
- The calculations use an innovative approach of gradually increasing the costs that would be avoided until larger steps are reached, at which point some personnel costs can be adjusted. SPAC found almost all (95%) monthly variation is below 822 inmates, which is also the size of a large housing unit within a facility. If the change was not above 822, only variable costs were applied (those costs that change per inmate). After each step, SPAC gradually increased the percent of personnel costs included until the 7th step is reached (a change of 4,937 inmates), where SPAC included all personnel costs as part of the per-capita costs.
- The SPAC approach provides a conservative but realistic fiscal impact for small changes. At large changes, the estimates match the costs that would be avoided if those facilities total operating costs are completely avoided.
- SPAC includes the personnel costs that are paid from Central Management Services' budget and not from IDOC's line items. These personnel costs are pensions, workers' compensation, and group insurance costs.

Tab 4 – Raw Results

This tab shows the calculated impact of the policy changes selected on the earlier tabs.

First, Rows 8-13 show the impact of providing additional sentence credits to inmates currently subject to 730 ILCS 5/3-6-3 restrictions.

Second, Rows 15-37 show the impact of changing the range of possible sentences. For the sentence ranges, the calculations are a rough estimation of what the new equilibrium would be with a shorter sentence length and a gradual increase in the impact to that new equilibrium over time.

The tables on this tab show the results of the model's calculations. The totals starting on Row 40 are the results that create the graphs in the earlier tabs.

APPENDIX A

Methodology

For the **truth-in-sentencing (TIS) estimation (Option A)**, the underlying calculations use Illinois Department of Corrections (IDOC) population as of June 30, 2015, and the past three years of admissions to prison. In each future year, the spreadsheet counts the change in the number of inmates. The model uses a rough projection of the expected release dates under the current sentence credit rules and the proposals selected on the Model Options tab. The projection is rough because it is rounded to the nearest year, masking sub-year variation.

The TIS calculations assume all individuals get the maximum possible good-time sentence credits. In reality, these sentence credits are discretionary and can be withheld for inmates not behaving within state prisons.

For new admissions, the model calculates the impact for three years' admissions and then divides this impact by three to create the average yearly change due to the modeled policy. This approach assumes admissions and sentences remain constant with the past three years' convictions, sentences, and admissions to prison. Each annual cohort's impacts are then added each following year for twenty years.

For modeling changes to the **felony class sentence ranges (Options B and C)**, a new equilibrium is calculated by a rough estimation that assumes that the admissions, sentence credit policies, and programming efforts all remain constant. This calculation is done in three steps:

- First, determine the total bed-years consumed by today's inmates:
    Ex: 3,250 * 3 years = 9,750 bed-years

- Second, those same number of people would now consume fewer bed-years because of the new sentence
    Ex: 3,250 * 2 years = 6,500 bed-years

- Third, distribute that savings (3,250 bed-years) across the original length of time
    Ex: 6,500 bed-years / 3 years = 2,167 inmates

In other words, we find the new equilibrium where the same resource consumption takes place but with the new number of bed-years needed for those offenders. The interpretation is that we are assuming that all inputs in the system remain the same, but we are simply finding what reduction results from shortening the length of stay.

The number of inmates is determined based on SPAC's analysis of IDOC's population as of June 30, 2015. When the user selects reforms to the maximum or extended terms, the model increases the number of inmates affected (*i.e.*, a change from the current maximum of 15 years to 12 years for Class 1 felonies will select inmates with sentences between 12 and 15 years).

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Class 2 Minimum Example
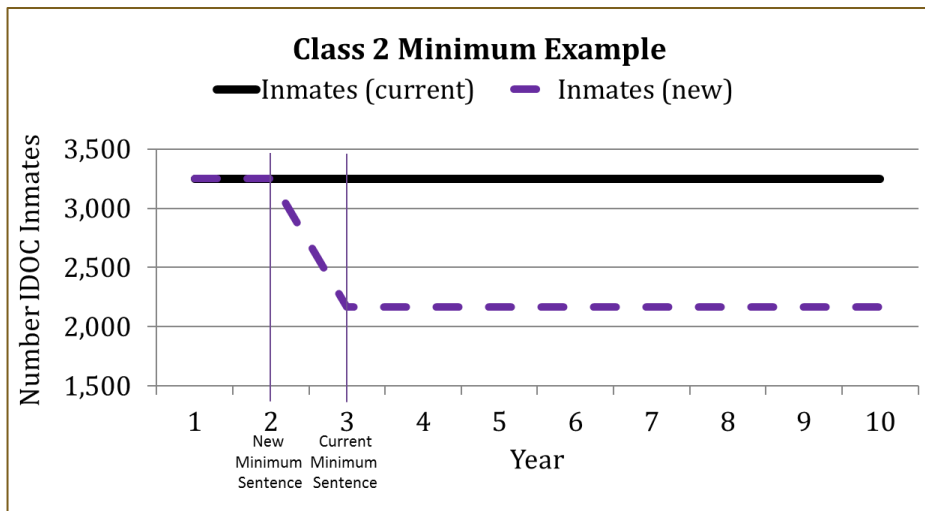
The above graph shows how the equilibrium is reached by a slopping line between the new sentence and the current sentence. Because the ADP impact is summarized to the nearest year, the estimation becomes more accurate when examining large trends than the exact impact in any given year.

Feedback and Comments

The Sentencing Policy Advisory Council (SPAC) created this model to facilitate discussion by the Governor's Illinois Commission on Criminal Justice and Sentencing Reform. SPAC used available resources and approximation methods that could encourage debate and understanding among commissioners. Continual refinement of this method will improve decision making in Illinois.

If you have suggestions, feedback, or comments for SPAC, please direct your response to Nate.Steinfeld@Illinois.gov. In addition, please feel free to send questions on how to use the model or interpret the results.