

Role of Expertise in Dynamic Inconsistency: Experimental Evidence with Students and State Prosecutors

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Introduction cont'd

Behavioural biases and cognitive limitations in the criminal justice system (e.g., overconfidence, anchoring, confirmation bias, or even birthday effects) have been documented worldwide.

Institutional features can either mitigate or reinforce such biases (e.g., blind CVs, simplified procedures without a main hearing, lack of peer review, nutrition labels, opt-out organ donation).

How do **institutional features**, e.g., two-stage role of prosecutors in sentencing, interact with individual **cognitive limitations** to shape **outcomes in criminal justice**—an environment characterised by high stakes, multiple stakeholders, and complex and often formalistic decisions?

This Project I

Use vignette experiments with public prosecutors and students to examine the two-stage decision-making role of public prosecutors in sentencing, when they recommend a sentence in the **indictment** and then in the **closing speech**.

RQ1: Does the **two-stage process** lead to different recommended sentences than in *all-information-at-once* condition (e.g., recency bias)?

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RQ1: Does the **two-stage process** lead to different recommended sentences than in *all-information-at-once* condition (e.g., recency bias)?

Yes, the recommended sentence in the two-stage sentencing is more lenient than in the *all-information-at-once* condition; consistent with overweighting the most recent *favourable* information.

The effect, while **sizeable** (up to 10% shorter sentence), is smaller for prosecutors.

This Project II

A commitment through a contingency plan may mitigate the issue.

RQ2: Are prosecutors (and students) **dynamically (in)consistent**? Do they recommend the sentence they intended, and does this depend on the description of the realised scenario?

This Project II

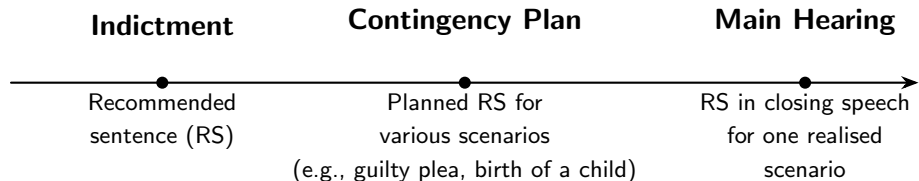
A commitment through a contingency plan may mitigate the issue.

RQ2: Are prosecutors (and students) **dynamically (in)consistent**? Do they recommend the sentence they intended, and does this depend on the description of the realised scenario?

Depending on the circumstances, between **10% and 45%** of participants are **dynamically (in)consistent**. And again, while still **sizeable**, prosecutors' decisions tend to be a bit more dynamically consistent.

Experimental Design

Design Overview



- **Baseline**: all-information-at-once: only main hearing with all information available.
- Treatment **A**: RS in indictment and closing speech; no contingency plan.
- Treatment **ConPlanA**: all stages; **abstract** description of the realised scenario.
- Treatment **ConPlanD**: all stages; **detailed** description of the realised scenario.

Opportunity to *revise* the RS after the closing speech in **ConPlans**.

Implementation

Two vignette cases: Dominik Loučný (DL) and Marek Pinc (MP) (details follow)

Participants are randomly assigned to a fixed pair of vignettes and treatment conditions:

- Baseline: MP and ConPlanA: DL
- A: MP and ConPlanA: DL
- Baseline: MP and ConPlanD: DL
- A: MP and ConPlanD: DL
- Baseline: DL and ConPlanA: MP
- A: DL and ConPlanA: MP
- Baseline: DL and ConPlanD: MP
- A: DL and ConPlanD: MP

Every participant completed one ConPlan treatment condition, always as the second vignette.

Data Collection

Students (June and October/November 2025)

- All Faculty of Law, CUNI students invited to participate via email
- The invitation was sent on behalf of the Dean
- One unique Qualtrics link per cohort (five in spring, one in fall)

Prosecutors (October 2025)

- All 1,300 prosecutors invited to participate via email from the Prosecutor General's Office
- On behalf of the Prosecutor General (Dr Bradáčová)
- A unique Qualtrics URL link
- Can identify multiple entries and link *some* characteristics (tenure, region, alma mater) (**TBD**)
- ▶ Invitation Email

Final Sample (as of Nov 2)

Treatment	DL: Stud	DL: Pros	MP:Stud	DL:Pros
A	100	237	129	241
Baseline	120	233	109	255
ConPlanA	159	239	137	234
ConPlanD	163	257	150	236

- 542 students participated (900+ in all treatments)
- 75 (1st year), 73 (2nd year), 62 (3rd year), 79 (4th year), 105 (5th year+)
- and 140+ (fresh cohort; ongoing)
- Total 950+ prosecutors (75%)
- 850+ definitely unique prosecutors (based on unique URL)
- Five prosecutor observations removed upon their request.

DL: Contingency Plan Stage

What sentence would you recommend if, during the main hearing, it emerged that:

- **DL:A:** DL inherited half of an apartment and intended to use it to compensate the victims.
- **DL:B:** DL sold his share to a friend for CZK 200,000 in cash, hid the money, and refused to disclose its location.
- **DL:C:** DL renounced the inheritance.
- **DL:D:** DL pleaded guilty to all charges.

Scenario **DL:A** materialized.

► ConPlanA vs. ConPlanD: DL:A

Case of Marek Pinc (MP vignette)

Housebreaking & Theft: MP was caught stealing a bicycle, intending to sell it to buy methamphetamine. His fingerprints also linked him to other burglaries with total damages of CZK 124,000.

He has multiple prior theft convictions, often committed to finance drug use, and has previously received both suspended and non-suspended prison sentences.

All types and lengths of main sentences are available for imposition.

MP: Contingency Plan Stage

What sentence would you recommend if, during the main hearing:

- **MP:A:** MP presented evidence of stable employment (3 months), ongoing outpatient drug treatment, and regular negative methamphetamine tests submitted to his employer.
- **MP:B:** It emerged that MP is expecting his first child in the coming months.
- **MP:C:** MP pleaded guilty to all charges.

Scenario **MP:A** materialised.

► ConPlanA vs. ConPlanD: MP:A

Two-Stage Sentencing Process

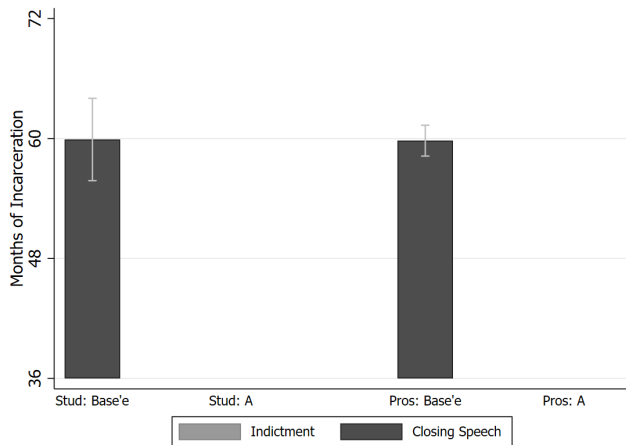
Two-Stage Sentencing

Does the **two-stage process** produce different recommended sentences in the closing speech (e.g., by overweighting the most recent information—recency bias)?

Compare the length of recommended sentences in the closing speech in **Baseline** and treatment **A**.

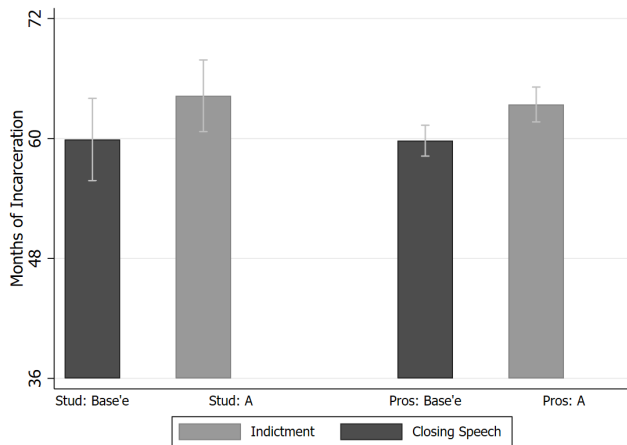
Since the additional information is in favour of the offender, overweighting of the most recent information would likely result in a more lenient sentence in **A**.

Two-Stage Sentencing: Length of Prison Sentence (DL)



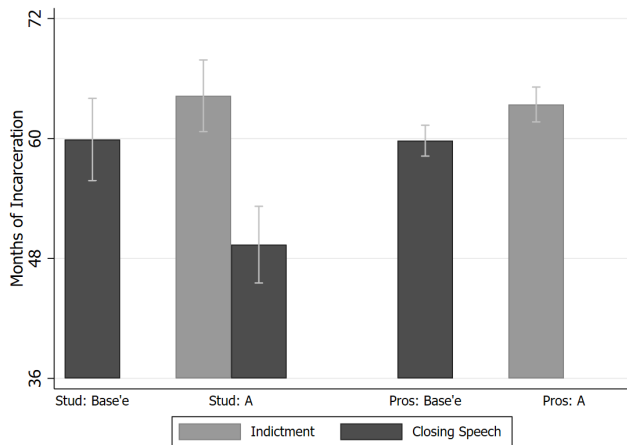
- Students and prosecutors recommend a 60-month prison sentence if provided with **all** information at once.

Two-Stage Sentencing: Length of Prison Sentence (DL)



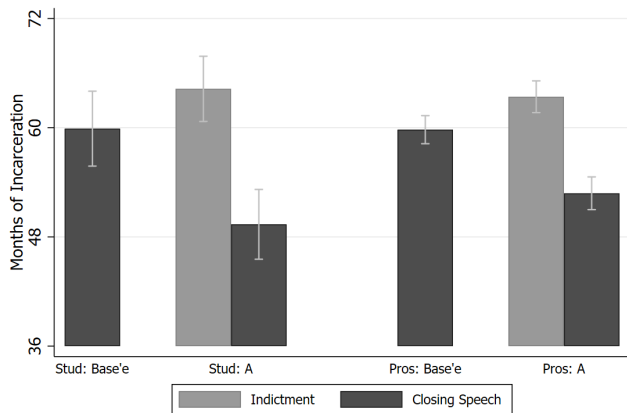
- His intention to sell his inheritance to compensate the victims has **not** yet been revealed to the sentencers.
- The average recommended sentence is longer by several months.

Two-Stage Sentencing: Length of Prison Sentence (DL)



- Once **students** learn the additional *favourable* information during the main hearing, they reduce the sentence by more than a year (within subject variation).
- Sentences in the closing speech in **Baseline** and **A** are recommended under the same information.
- Learning about the *favourable* information at the main hearing reduces the sentence by nearly one year compared to the *all-information-at-once* condition (between-subject variation).

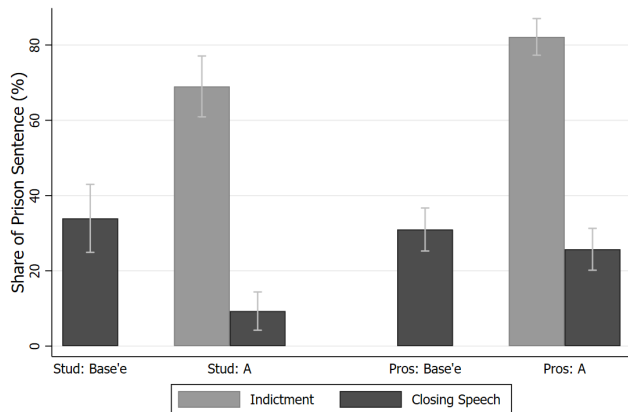
Two-Stage Sentencing: Length of Prison Sentence (DL)



Students: Baseline vs Closing Speech in A: t-test p-value = 0.000
Prosecutors: Baseline vs Closing Speech in A: t-test p-value = 0.000

- The same holds for **prosecutors**.
- Prosecutors recommend a substantially lower sentence in the closing speech if they learn the *favourable* information at the main hearing.
- The effect tends to be smaller than for students, but it is still a 7-month (10%) discount.
- ▶ Baseline FOSDs A

Two-Stage Sentencing: Share of Prison Sentence (MP)



Students: baseline vs A t-test p-value = 0.000
Prosecutors: baseline vs A: t-test p-value = 0.196

- Replicate the previous results with the share of prison sentence (MP vignette).
- **Students** were less likely to recommend a prison sentence if they learned the *favourable* information during the main hearing.
- **Prosecutors**: The effect (5 pp) is not statistically significant.
- ▶ All types of Sentences

Two-Stage Sentencing: Regression Results

	DL: Sentence Length (DL)		MP: Prison Sentence (= 1)	
Treatment A	-6.988*** (1.204)	-10.516*** (2.189)	-0.053 (0.041)	-0.246*** (0.056)
Prosecutor		-0.115 (1.812)		-0.030 (0.049)
Prosecutor x Treatment		3.528 (2.647)		0.194*** (0.068)
Constant	59.785*** (0.855)	59.900*** (1.472)	0.310*** (0.028)	0.339*** (0.041)
Obs.	470	689	496	734
Sample	Prosecutors	All	Prosecutors	All

Robust standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

- Comparison between the Baseline and A treatment.
- The effect is stronger among students.

Results: Two-Stage Sentencing

Students and prosecutors recommend a more lenient sentence if they learn *favourable* information at the main hearing, compared to the *all-info-at-once* condition.

The effect is less pronounced for prosecutors.

The effect is consistent with overweighing the most recent *favourable* information.

Dynamic Inconsistency

Dynamic Inconsistency

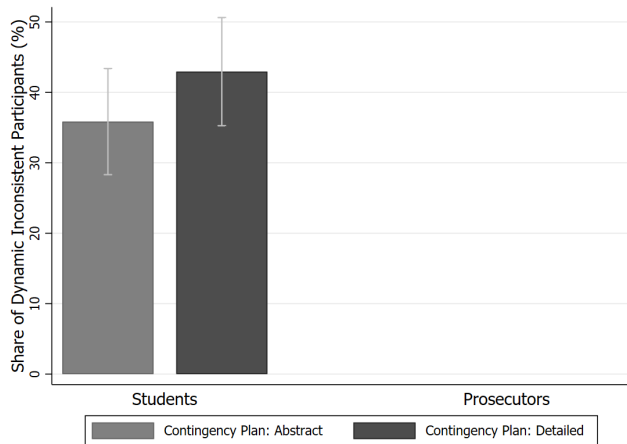
Perhaps a commitment device could help. Some prosecutors already prepare a contingency plan (mostly for a guilty plea).

Are prosecutors (and students) **dynamically (in)consistent** or is their expertise sufficient to mitigate it?

Does the sentence recommended in the closing speech align with their commitment from the contingency plan?

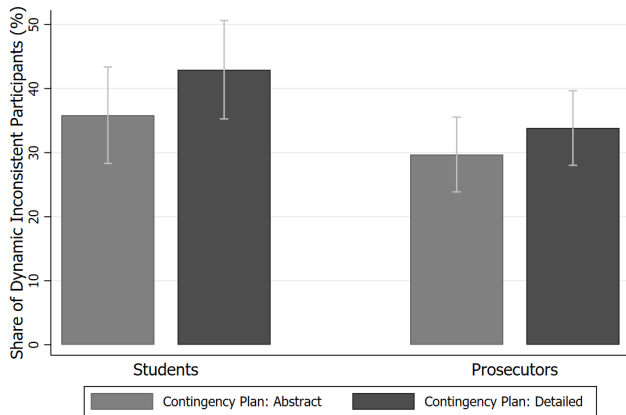
- DL: Inconsistency in the length of the prison sentence [▶ Length of Prison Sentence](#)
- MP: Inconsistency in the type and the length of the sentence [▶ Share of Prison Sentence](#)

DL: Share of Inconsistent Participants



- *Inconsistent* = 1 if the con. plan and closing speech sentences differ.
- Large share of inconsistent students.
- Irrelevant information has no statistically significant effect (7 pp; $p\text{-value} = 0.19$).

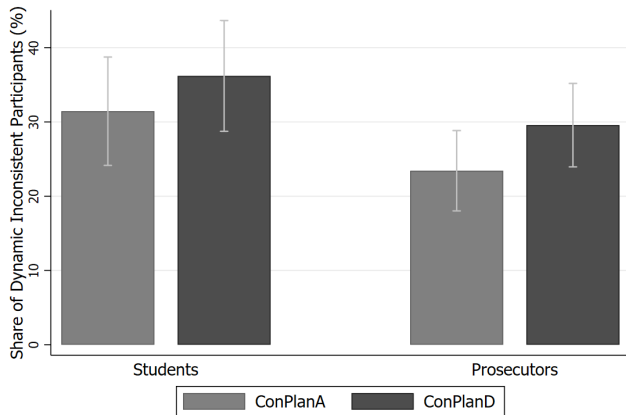
DL: Share of Inconsistent Participants



H0: Students (322) = Prosecutors (496): p-value (t-test) = 0.026
95% CIs plotted

- *Inconsistent* = 1 if the con. plan and closing speech sentences differ.
- Prosecutors are less often inconsistent (by 7 pp), but still more than 30% of them are dynamically inconsistent.

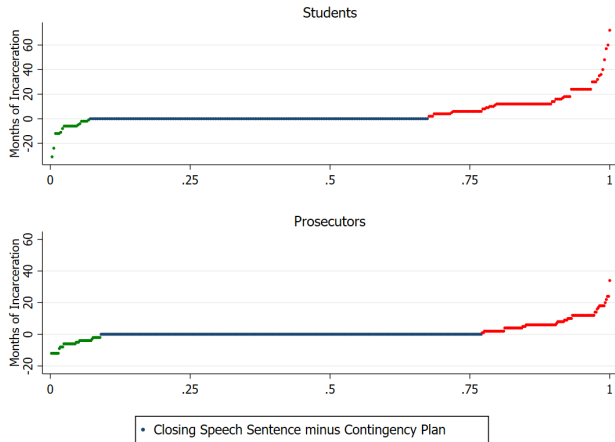
DL: Share of Inconsistent Participant After Sentence Adjustment



H0: Students (322) = Prosecutors (496): p-value (t-test) = 0.027
95% CIs plotted

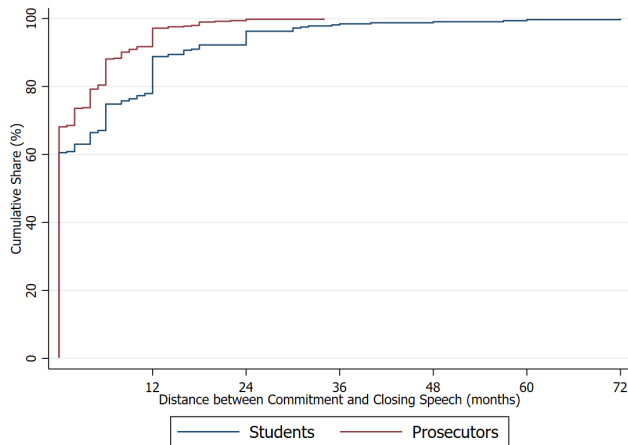
- *Inconsistent* = 1 if the commitment and **post** closing speech sentences differ.
- Final sentence is either from the closing speech or adjusted after the closing speech.
- Still a high share of knowingly inconsistent participants.
- ▶ No ex-post adjustment

DL: Margin of Inconsistency



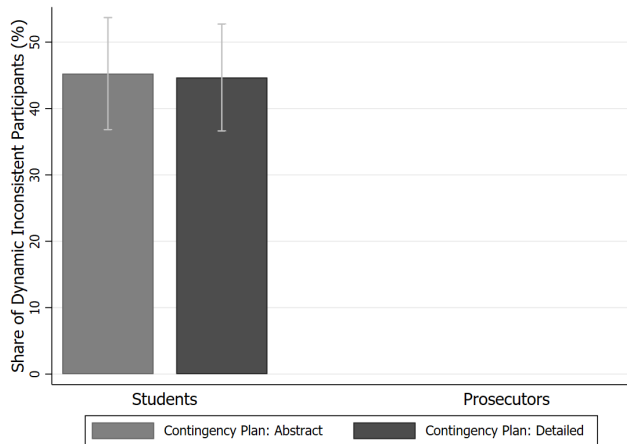
- Deviation of the recommended sentence in the closing speech from commitment (in months).
- Prosecutors tend to deviate less.
- **ConPlan:Abstract** and **ConPlan:Detailed** are pooled together.
- ▶ Normalized Results

DL: Margin of Inconsistency



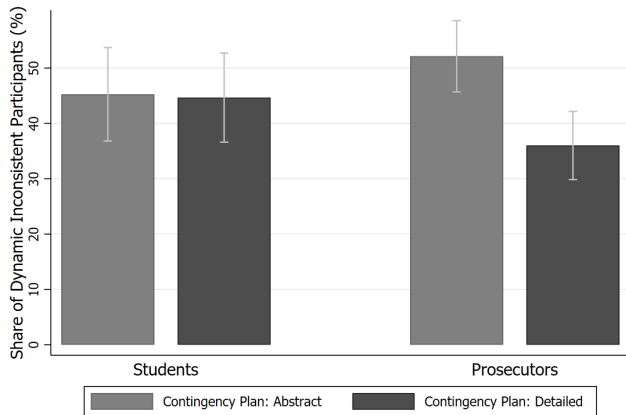
- Distance of the recommended sentence in the closing speech from commitment (months in absolute value).
- Students are more inconsistent (on the intensive margin) than prosecutors (Students FOSD Prosecutors).
- On average, students deviate by 3 months more (p-value 0.000).

MP: Share of Inconsistent Participants



- *Inconsistent* = 1 if the planned sentence (type, length, incl. probation period) differs from the recommended sentence in the closing speech.
- 45% of students are inconsistent.
- No evidence that a detailed description of the realised state changes behavior.

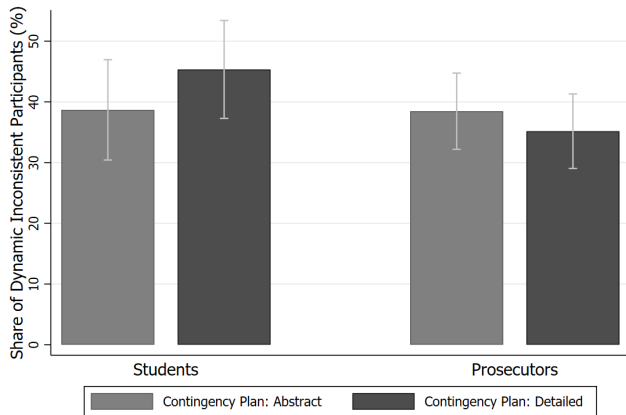
MP: Share of Inconsistent Participants



H0: Students (287) = Prosecutors (470): p-value (t-test) = 0.808
95% CIs plotted

- *Inconsistent* = 1 if the planned sentence (type, length, incl. probation period) differs from the recommended sentence in the closing speech.
- 40% of prosecutors are inconsistent.
- No statistical difference between students and prosecutors.

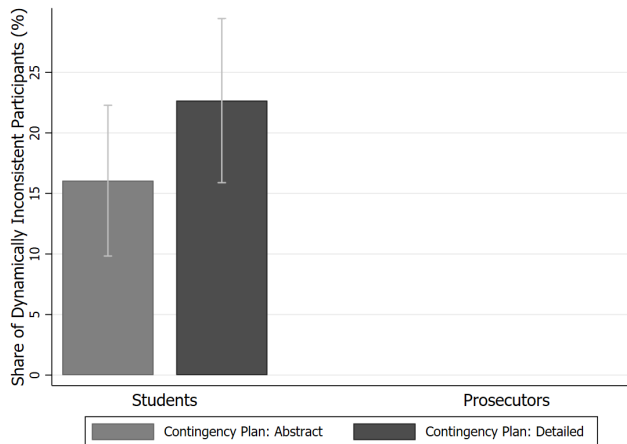
MP: Share of Inconsistent Participants After Sentence Adjustment



H0: Students (287) = Prosecutors (470): p-value (t-test) = 0.143
95% CIs plotted

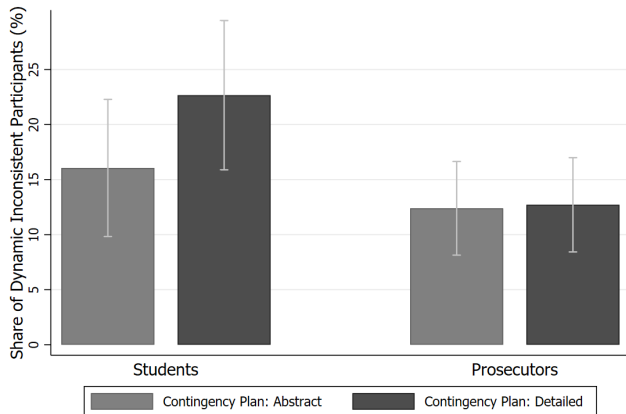
- *Inconsistent* = 1 if the planned sentence (type, length, incl. probation period) differs from the recommended sentence in the closing speech (incl. opportunity to adjust after the closing speech).
- Share of inconsistency decreased.
- Students and prosecutors remain statistically indistinguishable.
- ▶ No Adjustment

MP: Share of Inconsistent Participant (*type of sentence*)



- Less stringent definition of inconsistency.
- *Inconsistent* = 1 if the **type** of the sentence in the commitment differs from the recommended sentence in the closing speech.
- 20% of students are still classified as inconsistent.

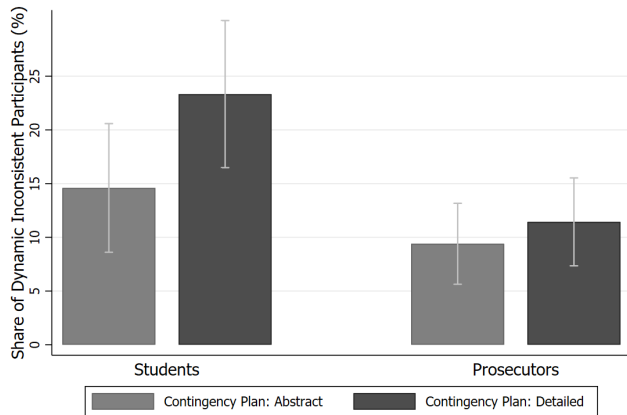
MP: Share of Inconsistent Participant (*type of sentence*)



H0: Students (287) = Prosecutors (470): p-value (t-test) = 0.010
95% CIs plotted

- *Inconsistent* = 1 if the **type** of the sentence in the commitment differs from the recommended sentence in the closing speech.
- Prosecutors are less inconsistent than students.
- When inconsistent, *prosecutors make smaller deviations*.

MP: Share of Inconsistent Participant After Sentence Adjustment (*type of sentence*)



H0: Students (287) = Prosecutors (470): p-value (t-test) = 0.001
95% CIs plotted

- *Inconsistent* = 1 if the **type** of the sentence in the commitment differs from the recommended sentence in the closing speech.
- ▶ No Adjustment

Results: Dynamic Inconsistency

Students and public prosecutors are often dynamically inconsistent, but prosecutors slightly less

- DL: Prosecutors are less likely to be inconsistent and show smaller deviations when they are inconsistent.
- MP: Prosecutors are significantly more *consistent* in types of sentences; not if consistency requires the same type and length of sentence.

Summary

A vignette experiment with students and public prosecutors studied behavioural aspects of decision-making in a two-stage sentencing process.

- Both students and prosecutors tend to recommend **different sentences in the two-stage process**; consistent with an overweighting of the most recent information. Prosecutors do that less.
- Both students and prosecutors are **dynamically inconsistent**. Prosecutors' recommendations show less inconsistency than students' decisions.
- **Irrelevant details** in the description of the realised state did not significantly affect sentencing outcomes or consistency, especially among prosecutors.



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Additional Slides

Invitation Email (Proposal)

The *Supreme Public Prosecutor's Office* has long collaborated with representatives of the academic community. Our colleagues . . . are conducting a study examining the factors that influence sentencing proposals.

For this purpose, they have prepared a short research questionnaire. We kindly ask you to complete it — it should take approximately fifteen minutes.

The results will contribute to reflections on possible reforms of sentencing proposals by public prosecutors in the Czech Republic. In addition to its scientific value, the study aims to provide insights relevant to prosecutorial practice.

The questionnaire will be open from ... to ... and can be accessed here: **[LINK]**.

JUDr. Lenka Bradáčová, Ph.D.

Prosecutor General

▶ Back

DL: ConPlanD (irrelevant details) vs ConPlanA (abstract version)

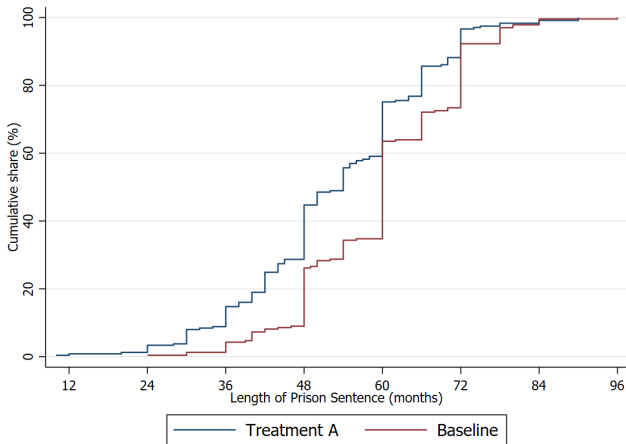
At the beginning of the main hearing, Dominik Loučný stated that a months-long inheritance proceeding had just concluded, through which he inherited a half share of the apartment in which he grew up, and that he intended to use this share to compensate for the damage he had caused. Dominik Loučný further explained that his brother, Karel Loučný, who also grew up in the apartment, (third party) was willing to immediately deposit a monetary security of CZK 3,150,000 (the value of Dominik's share) into the court's account in exchange for Dominik's share of the apartment being sold to him. Karel Loučný (third party) confirmed this arrangement at the hearing.

The negotiation between Dominik and Karel Loučný was not particularly complicated, as Karel wished to keep the apartment in the family, which had owned it for several generations.

MP: ConPlanD (irrelevant details) vs ConPlanA (abstract version)

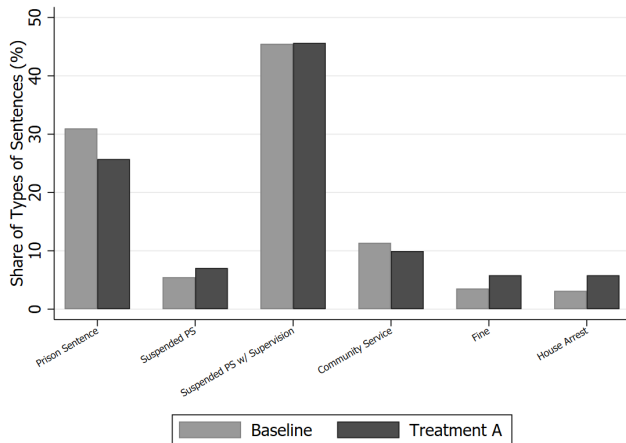
The main hearing was scheduled several months after the indictment was filed. At the hearing, Milan Pinc demonstrated that in the meantime he had found stable, well-paid employment relative to his qualifications at Škoda Auto a.s., having applied in response to a job advertisement he found while searching for work. He now works shifts on the assembly line, installing car doors. He has been working there for three months and hopes this will become a stable employment relationship. He is trying to maintain good relations with his supervisor, who, apart from one late arrival, has had no complaints about him so far. Milan Pinc substantiated his employment by presenting his payslip. He also provided evidence that he is attending accredited structured outpatient addiction treatment run by the non-profit organization Sananim z.ú. After three months, he is already in the second (treatment) phase of the program, which usually lasts 6 to 12 months. As part of the treatment, he undergoes weekly urine tests for the presence of methamphetamine, the results of which (all negative) he submits to his employer.

Two-stage Sentencing: DL Prosecutors (FOSD)



- Among **prosecutors**: distribution of recommended sentences in **Baseline** FOSDs distribution in treatment **A**.

Two-stage Sentencing: MP Prosecutors



- **Prosecutors:** Postponing *favourable* information disclosure to the main hearing marginally shifts the type of sentences towards less serious.

Screen: MP main hearing

Případ Milana Pince — hlavní líčení

Hlavní líčení bylo nařízeno několik měsíců po podání obžaloby. Na hlavním líčení Milan Pinc doložil, že si v mezidobí našel stabilní a na svoji kvalifikaci dobře placené zaměstnání, ve kterém pracuje již tři měsíce. Zároveň doložil, že dochází na akreditovanou odvykací léčbu (ambulantní formou, aby mohl pracovat) a každý týden podstupuje testy moči na přítomnost metamfetaminu, jejichž výsledky (všechny negativní) předkládá svému zaměstnavateli.

V obžalobě jste navrhli/a: $\$(e://Field/MP_first_answer_type)$ ve výměře $\$(e://Field/MP_first_answer_value)$ $\$(e://Field/MP_first_answer_unit)$.

Klikněte pro připomenutí případu Milana Pince

Příslušná ustanovení zvláštní části trestního zákoníku:

§ 205 Krádež

(1) Kdo si přisvojí cizí věc tím, že se jí zmocní, a

a) způsobí tak na cizím majetku škodu nikoliv nepatrnou,

b) čin spáchá vloupáním,

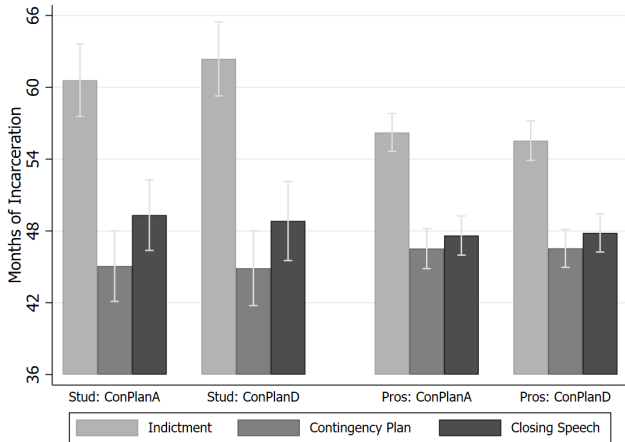
(3) Odnětím svobody na jeden rok až pět let nebo peněžitým trestem bude pachatel potrestán, způsobí-li činem uvedeným v odstavci 1 nebo 2 větší škodu. (Větší škodou se rozumí škoda ve výši 100 000 až 1 000 000 Kč.)

§ 178 Porušování domovní svobody

(1) Kdo neoprávněně vnikne do obydlí jiného nebo tam neoprávněně setrvává, bude potrestán odnětím svobody až na dvě léta.

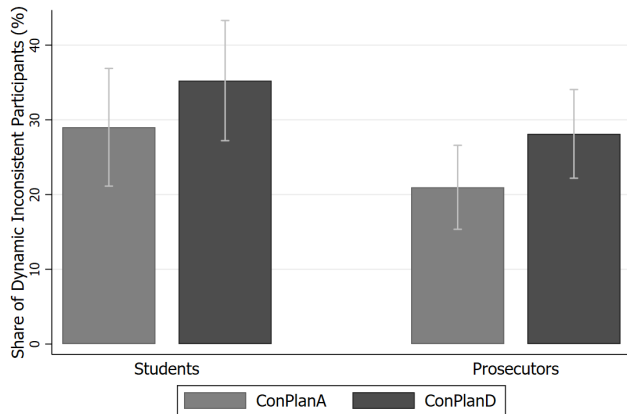
(2) Odnětím svobody na šest měsíců až tři léta bude pachatel potrestán, užije-li při činu uvedeném v odstavci 1 násilí nebo pohrůžky bezprostředního násilí nebo překoná-li překážku, jejímž účelem je zabránit vniknutí.

Average Length of Sentence (DL)



- **Students:** the average length of a sentence in the closing speech is 3 months longer ($p\text{-value} = 0.000$) than planned.

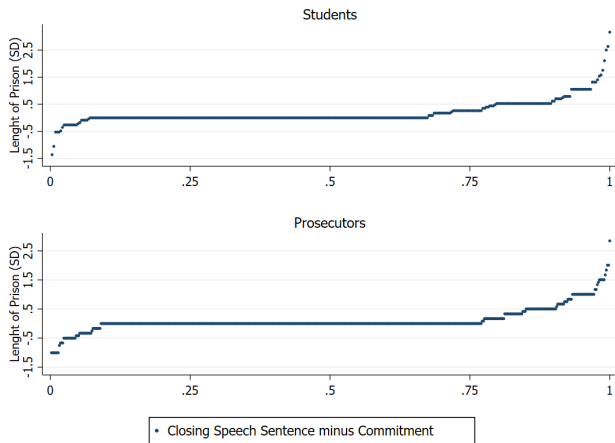
DL: Inconsistency Length of Sentence - Robust Results



H0: Students (270) = Prosecutors (429): p-value (t-test) = 0.031
95% CIs plotted

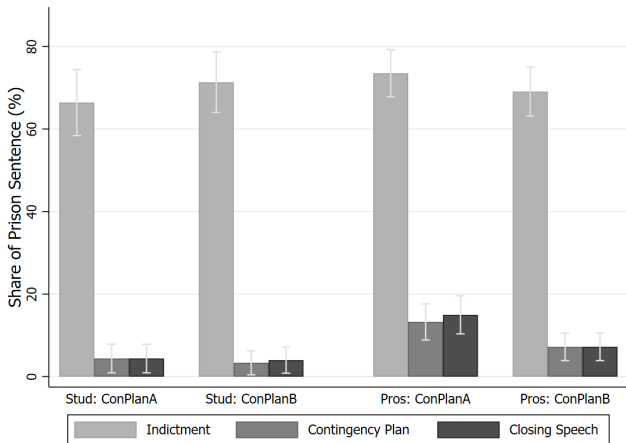
- Robustness check: Only participants who did not revise their recommendation after the main hearing

Intensive Margin Inconsistency - Normalised (DL)



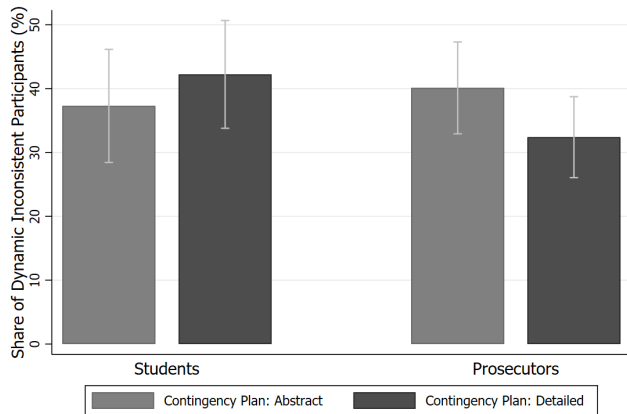
- Standardized by SDs of students and prosecutors, respectively, in **Baseline**.

Share of Prison Sentences (MP)



- The share of prison sentences is roughly the same in the closing speech sentences and commitment.
- P-values for **ConPlanA** and **ConPlanD** pooled together.

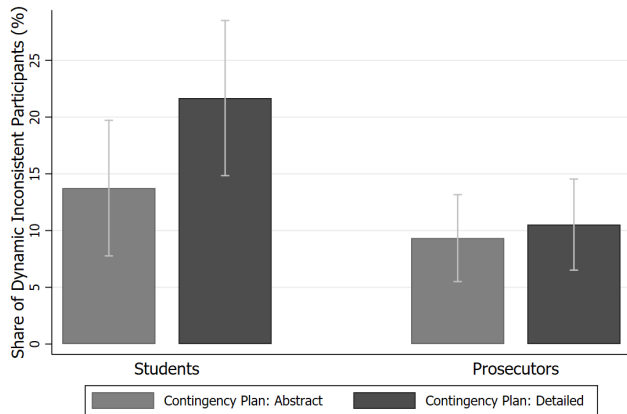
MP: Inconsistency Type and Length of Sentence - Robust Results



H0: Students (253) = Prosecutors (395): p-value (t-test) = 0.309
95% CIs plotted

- Only participants who did not revise their recommendation after the main hearing

MP: Inconsistency Type of Sentence - Robust Results



H0: Students (274) = Prosecutors (453): p-value (t-test) = 0.002
95% CIs plotted

- Only participants who did not revise their recommendation after the main hearing