

The Marginal Cost of Justice: A Theory of Optimal Use of Alternative Criminal Procedures

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Motivation

- ▶ A model to guide our empirical work.
- ▶ A general model of criminal process.
- ▶ So far, we have a ‘price theory’ of criminal process.

Outline

1. Background.
2. Model 1: Grand social optimum.
3. Model 2: Constrained optimum.
4. Model 3: Two-stage process.
5. Real world implications.
6. Conclusion

Alternative procedures in Europe

- ▶ Plea bargaining:
 - ▶ Poland (2003)
 - ▶ France (2004)
 - ▶ Slovakia (2005)
- ▶ Penal order:
 - ▶ Germany (forever)
 - ▶ Czech Republic (1994)
 - ▶ Netherlands (2008)
- ▶ Accelerated / simplified proceedings:
 - ▶ Spain (1998, 2002)
 - ▶ Czech Republic (2002)
 - ▶ Poland (2007)

Questions of this paper:

- ▶ Why do alternative procedures exist?
- ▶ What is the socially optimal use of the alternative procedures and courts?
- ▶ What are the effects of budgetary constraints and shifts in the costs associated with each procedure?
- ▶ Why did these procedures recently spread across Europe?
- ▶ Europe-US differences.

What the paper does:

- ▶ Alternative procedures: abstract from country-specific detail, emphasize the common economic logic: (Think of a parking ticket.)
 1. Alternative procedures are cheaper than trials.
 2. Lower standard of evidence scrutiny.
 3. Conviction with very high probability.
- ▶ A general normative model of the criminal procedure.
- ▶ Optimal allocation of cases into trial and alternative procedure.
- ▶ Focus on the costs and budgetary effects.

Related literature

- ▶ Classical L&E view of plea bargaining – formalize the “resource releasing” hypothesis (Givati 2014).
- ▶ Optimal standard of conviction (Andreoni 1991, Rizzolli and Saraceno 2011, Lando 2009, Domenech and Puchades 2014) – standard for convicting through an alternative procedure.
- ▶ Plea bargaining models (Grossman and Katz 1983, Reinganum 1988, ...) – generalize to other procedures, optimal scope of plea bargaining.

The model setup: our approach

Criminal justice has two goals:

- ▶ acquittal of the innocent and
- ▶ conviction of the guilty.

This is tricky, for

- ▶ evidence may be unclear and
- ▶ costly to obtain.

Thus, we have courts.

However, court trials are costly,

- ▶ as resources used therein have alternative uses, and
- ▶ criminal justice budgets may be suboptimal.

Costs and constraints result in compromises.

Not all cases are adjudicated by a court.

- ▶ Some cases are dropped by the state attorney.
- ▶ Or cases may be adjudicated through an alternative (less-than-trial) procedure.
- ▶ We model this as a 'direct conviction', i.e. a bureaucratic decision on guilt and punishment.

The model setup: two types of (social) cost

Costs of errors

- ▶ w_a wrongful acquittal,
- ▶ w_c wrongful conviction,
- ▶ $w_c > w_a$ (not required).

Decision options and their budgetary costs

- ▶ 0 is the cost of dropping the case,
- ▶ c_T is the cost of trial,
- ▶ c_C is the cost of direct conviction (i.e., alternative procedure).
- ▶ $c_T > c_C > 0$ (required).

The model setup: information

- ▶ p is the inferred probability that a defendant is guilty, given the evidence.
- ▶ The decision to drop the case, convict directly, or proceed to trial is made upon observing p .

Model 1: Le Grand Optimum

Assumptions

- ▶ Benevolent adjudicator.
- ▶ Perfect court (i.e. we learn the truth).
- ▶ One offense type.
- ▶ Unlimited budget (i.e. socially optimal budget determined endogenously).

Benevolent adjudicator aims to minimize the sum of social costs of the criminal process.

- ▶ Drop charges: $SC_D = pw_a$
- ▶ Go to trial: $SC_T = c_T$
- ▶ Convict directly: $SC_C = (1 - p)w_c + c_C$

Thus, her objective function is simply

$$\begin{aligned}\min SC &= \min\{SC_D, SC_T, SC_C\} \\ &= \min\{pw_a, c_T, (1 - p)w_c + c_C\}\end{aligned}$$

The optimal decision rule

There are p_T and p_C , such that

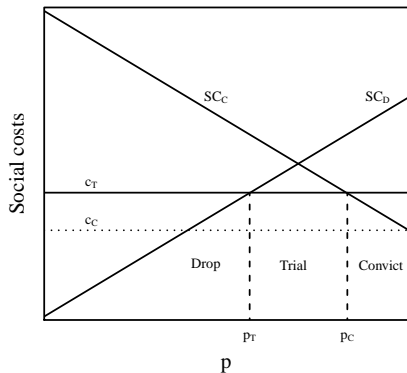
$$p_T w_a = c_T \quad \text{and}$$

$$(1 - p_C) w_c = c_T - c_C.$$

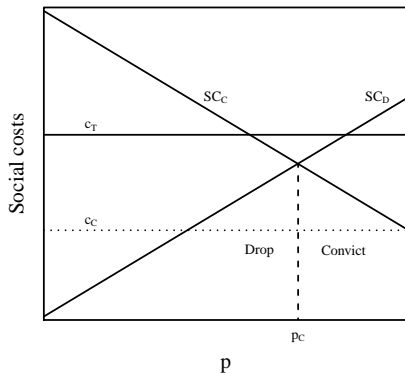
- ▶ If $p < p_T$, drop the case.
- ▶ If $p \in (p_T, p_C)$, go to trial.
- ▶ If $p > p_C$, convict directly.

The optimal allocation of cases across criminal procedures depends upon the cost of trial

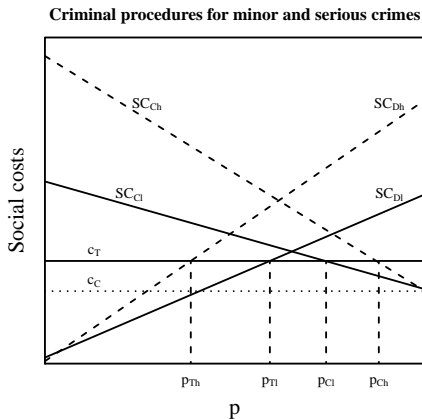
Intermediate cases go through trial
(C_T low enough)



No cases go through trial
(C_T too high)



The optimal allocation of cases across criminal procedures—and the evidence standards—depend upon crime severity.



Implications

- ▶ If trials were costless, all cases would go to trial.
- ▶ Introducing simpler procedures increases the cost of wrongful convictions, but may be cost-justified.
- ▶ The more severe the offense (high w_a, w_c):
 - ▶ the fewer cases are dropped (lower p_T),
 - ▶ the more cases go to trial.
 - ▶ the fewer cases with direct conviction (higher p_C),

Model 2: the constrained optimum

Additional assumptions

- ▶ Two crime types: low and high, indexed by $j = l, h$.
- ▶ And we assume $w_{al} < w_{ah}, w_{cl} < w_{ch}$.
- ▶ R is the budget of the adjudicator (exogenous).
- ▶ For each offense type j , p_j has a CDF $F_j(p)$

The objective of the adjudicator is to

$$\min_{p_{Tj}, p_{Cj}} \sum_{j=l,h} \left[w_{aj} \int_0^{p_{Tj}} p_j f_j(p_j) dp_j + w_{cj} \int_{p_{Cj}}^1 (1 - p_j) f_j(p_j) dp_j \right],$$

subject to the resource constraint

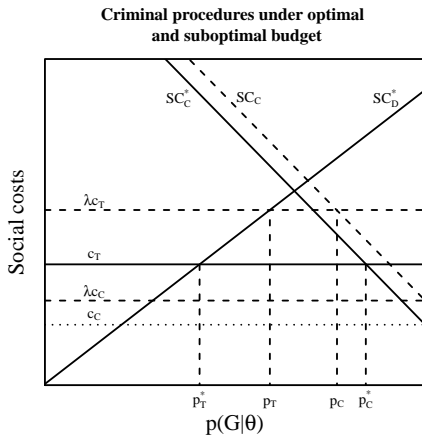
$$R - \sum_{j=l,h} [F(p_{Cj}) - F(p_{Tj})] c_T + [1 - F(p_{Cj})] c_C = 0.$$

The FOCs are

$$\begin{aligned} p_{Tj} w_{aj} &= \lambda c_T \quad \text{and} \\ (1 - p_{Cj}) w_{cj} &= \lambda (c_T - c_C), \\ \text{for } j &= \{l, h\}. \end{aligned}$$

- ▶ Similar to the benchmark case, but
- ▶ the adjudicator acts “as if” the cost of trial or direct conviction were greater than they nominally are ($\lambda > 1$).

The optimal allocation of cases across criminal procedures—and the evidence standards—depend upon the budget constraint.



Implications of a binding resource constraint

- ▶ Too many cases are dropped, too many convicted directly, too few trials.
- ▶ Higher costs of errors and total social costs.
- ▶ Yes, rights cost money (Holmes and Sunstein 2002).
- ▶ Interpretation of λ : $1/\lambda$ is 'the marginal cost of justice', i.e. how much does it cost to avoid a one-dollar worth of judicial errors.
- ▶ Note, $\lambda = 1$ implies socially optimal budget.
- ▶ A change in any parameter affects both margins for both offense types through λ .

Intuition

- ▶ Constraints imply compromises.
- ▶ In the unconstrained case, each case was decided by the procedure implied by the very case itself.
- ▶ In the constrained case, the adjudicator has to consider the opportunity costs of deciding each case.
- ▶ I.e. cases “compete” for the budget resources.
- ▶ Introducing simpler procedures increases the cost of wrongful convictions, but may be cost-justified as it releases resources to adjudicate more cases.

FOCs imply an important rule

$$\begin{aligned} p_{Th}w_{ah} &= p_{Tl}w_{al} \quad \text{and} \\ (1 - p_{Ch})w_{ch} &= (1 - p_{Cl})w_{cl}. \end{aligned} \tag{1}$$

That is, the cost of error for the marginal defendants must be equalized across offense types.

Predictions

- ▶ Reduction in c_C : reduce p_{CI} , p_{Ch} (substitution effect), reduce p_{TI} , p_{Th} (income effect): fewer cases are dropped, more direct convictions, lower sum of errors.
- ▶ Increase in w_{ch} : increase p_{Ch} , reduce p_{CI} : fewer high-severity direct convictions but more low-severity direct convictions.
- ▶ Low-severity offenses are more responsive to changes in any parameter than high-severity offenses.

Model 3: two-stage criminal process

Additional assumptions

- ▶ Defendants may appeal the decision and get a trial.
- ▶ The private cost of the appeal is zero.
- ▶ No 'discount' in the sentence.
- ▶ As a result all innocent appeal if convicted; and
- ▶ there are no wrongful convictions.

The expected social costs of direct conviction thus are

$$pc_C + (1 - p)(c_C + c_T) = c_C + (1 - p)c_T. \quad (2)$$

The objective of the adjudicator is to

$$\min_{p_{Tj}, p_{Cj}} \sum_{j=l, h} w_{aj} \int_0^{p_{Tj}} p_j f_j(p_j) dp_j,$$

subject to the resource constraint

$$R - \sum_{j=l, h} \left\{ [F(p_{Cj}) - F(p_{Tj})] c_T + [1 - F(p_{Cj})] c_C + c_T \int_{p_{Cj}}^1 (1 - p_j) f_j(p_j) dp_j \right\} = 0.$$

The first order conditions are then

$$p_{Tj}w_{aj} = \lambda c_T, \quad \text{and}$$
$$(1 - p_{Cj})c_T = c_T - c_C,$$

implying

$$p_{Tj} = \frac{\lambda c_T}{w_{aj}}, \quad \text{and}$$
$$p_{Cj} = \frac{c_C}{c_T}.$$

Two-stage process summary

- ▶ Lower information requirements of the optimal standards of evidence.
- ▶ More uniformity in standards of evidence across offense types.
- ▶ A combination with simplified procedure with the possibility to appeal is a very robust policy mix.
 - ▶ Saves resources that can be used elsewhere.
 - ▶ No (or much lower) costs of wrongful convictions.

Explaining real-world criminal justice

- ▶ Consequences of introducing the alternative procedures.
- ▶ Wider scope of plea bargaining.
- ▶ Proliferation of alternative procedures in Europe.

Consequences of introducing the alternative procedure

- ▶ Official justification: release resources such that enforcers can concentrate on the serious crimes.
- ▶ Our model: yes, the number of serious crimes that are enforced will increase (lower p_T), but
- ▶ the number of petty crimes that are enforced will increase even more!
- ▶ Intuition:
 - ▶ As $w_{ch} > w_{cl}$, resources are already primarily allocated to the more serious cases.
 - ▶ Releasing the resource constraint reduces the $p_{Tj}w_{cj}$ for the marginal defendant, for all case types.
 - ▶ But to keep $p_{Th}w_{ch} = p_{Tl}w_{cl}$, p_{Tl} must fall more than p_{Th} .

Wider scope of plea bargaining

- ▶ European alternative procedures limited in terms of offense severity and maximum sentence (unlike the U.S. plea bargaining).
- ▶ Within Europe, the scope of plea bargaining is greater than the scope of penal order or accelerated proceedings.
- ▶ Explanation 1: More information (pleading guilty is an informative signal about true guilt).
- ▶ Explanation 2: Trials are more costly in the U.S.

Spread of alternative procedures in Europe in the 1990s and 2000s

- ▶ Tighter budget constraints (higher λ).
- ▶ Wider scope of criminal law (administrative crimes, petty offenses).
- ▶ Greater social cost of wrongful conviction, as long as these are disproportionately greater for high-severity crimes.
- ▶ More informative signal of guilt upon arrest (administrative offenses).

Conclusions

- ▶ Criminal cases can be adjudicated via court trials or alternative criminal procedures.
- ▶ We develop a model of optimal allocation of cases across these alternatives.
- ▶ The model predicts that the allocation—and thus the number of wrongful convictions and wrongful acquittals—fundamentally depend upon
 - ▶ the cost structure of the criminal process and
 - ▶ on the budget resources allocated to the criminal justice system.
- ▶ The model can explain various features of the real-world criminal justice systems.