COMPENSATING ACQUITTED PRE-TRIAL DETAINEES

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Abstract: Western legal systems are far from having provided the same solution to the problem of whether acquitted pre-trial detainees should be compensated for the harm suffered as a result of detention on remand. Various arguments have been formulated in order to justify or criticize this compensation, but the possible incentive effects of this compensation on criminal behavior has not yet been considered. This paper analyzes these effects, focusing on the case where detention was lawfully and diligently carried out by State agents, and not having been caused by negligence on the part of the detainee. The paper shows that such compensation can either deter crime or encourage it, depending inter alia on the standard of evidence used to decide whether to compensate or not. Finally, the paper analyzes which standards of evidence maximize both deterrence and social welfare, and discusses some possible extensions.

Keywords: tort law, State liability, criminal procedure, pre-trial detention, judicial errors, optimal standard of evidence

JEL Classification: K13, K14, K42

1. Introduction

Suspects of having committed a crime may be detained and held on remand until they are tried and subsequently condemned or acquitted. This pre-trial detention can be justified on the ground of preventing some risks such as those of the suspects fleeing and avoiding prosecution or punishment, destroying evidence, influencing witnesses or committing any additional criminal offence.

If defendants are sentenced to imprisonment, pre-trial detention does not cause them additional harm, since the period spent on remand is deducted from prison time. The problem arises when they are acquitted. Although not proven guilty, detainees have then suffered egregious harm (the deprivation of their liberty, often for several years), that cannot be compensated in kind (i.e. through the aforementioned deduction). This poses the question whether they should receive the corresponding monetary compensation for such harm.

Various arguments have been put forward for justifying such compensation. The most frequently invoked is the takings analogy. Under the constitutions of several countries and the provisions of countless international treaties, Government may take property for a public purpose, in which case the affected owners are entitled to receive a just compensation for the loss. As the U.S. Supreme Court has stated, the takings clause is “designed to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole”. Similarly, the State may detain suspects of having committed a serious crime. It may

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1 See, for example: Article 33.3 of Spanish Constitution; Article 17.1 of Charter of Fundamental Rights of the European Union; Fifth Amendment of U.S.A. Constitution; and Article IV.1 U.S.A.-Argentina Investment Treaty.

thus temporarily take their liberty in the public interest, i.e. in order to deter criminal behavior and protect society. But it would be unfair to force innocent detainees alone to bear this public burden. They should consequently have a right to be compensated for this exceptional harm suffered for the benefit of the whole society.

It has been said that it would be incongruous to compensate (by deducting from his sentence the time spent in detention) the convicted accused but not the acquitted. It has also been argued that compensation may possibly: enhance the credibility and legitimacy of the criminal system by showing a willingness to admit mistakes and take the consequences of the application of forceful measures seriously; provide a sense of moral satisfaction to the acquitted defendants; shift the risk of wrongful detention to the party better suited to bear it (not the wrongfully detained person, but the community); and internalize, at least partially, the social costs of wrongfully detentions, thus encouraging State agents to prevent such detentions, by increasing the level of care taken when detaining people and/or by lowering the volume of detentions.

In order to determine whether compensating acquitted pre-trial detainees is socially desirable from an economic point of view, it is also important to analyze the incentive effects of this compensation on the behavior of people running the risk of detention. As FON and SCHÄFER have shown, compensating the wrongfully convicted induces some individuals not to commit crime, thereby lowering the level of criminal activity. Similarly, one might think that compensating detainees who have been acquitted makes crime relatively less attractive and deters criminal offences. But this would be a premature conclusion, because there are some relevant differences between making the State liable for wrongful convictions and making it liable for wrongful detentions. Compensating factually innocent acquitted detainees reduces indeed the cost of being a law-abiding citizen. However, we cannot neglect the possibility of factually guilty detainees being acquitted, in which case compensation increases the expected private benefits from crime.

This paper analyzes the aforementioned incentive effects, pointing out under what conditions compensating acquitted detainees deters crime, as well as which the standards of evidence for compensation that minimize crime and social costs are. The paper proceeds as follows. Section 2 describes, from a comparative law point of view, different conditions and legal rules under which acquitted could be compensated for the time spent on remand. Section 3 shows an important difference between paradigmatic cases of wrongful conviction and wrongful detention that calls into question State liability in this latter case. Section 4 presents the analytical framework of the model and analyzes the incentive effects of compensation. Section 5 specifies the standards of evidence for compensation that maximize either deterrence or social welfare. Section 6 extends the model by considering the reputation cost of being denied compensation.

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5. MICHELS (2010), at pp. 417-418.

6. MICHELS (2010), at p. 418.


8. See MANNS (2005), at pp. 1979 et seq., and, with regard to compensation for wrongful convictions, BOUCHER (2007), at pp. 1088 et seq.

analyzing its effects on deterrence and social costs. Section 7 suggests and discusses other possible extensions, and Section 8 concludes.

2. **The Law**

Different rules could be – and, in fact, are – laid down to determine whether acquitted pre-trial detainees are entitled to be compensated for the time spent on remand.

2.1. **Unlawfulness**

In some legal systems, acquitted detainees have a right to be compensated only if they were unlawfully held on remand. This is the solution prescribed, for example, in the European Convention of Human Rights. Under its Article 5 § 5, “Everyone who has been the victim of arrest or detention in contravention of the provisions of this Article shall have an enforceable right to compensation”. *A sensu contrario,* such a right is not granted to individuals detained according to the conditions laid down in the European Convention.

2.2. **Negligence**

Negligence, both of State agents and detainees, could also be a relevant circumstance. On the one hand, compensation might be granted only if these agents did not take due care when detaining the suspect. It must be highlighted that unlawful detentions are not necessarily negligent. It may happen that State agents contravened the law in spite of having acted diligently, for example as a consequence of the fact that the infringed legal provision was unclear, ambiguous or imprecise, and its meaning was clarified by the Courts after the detention was carried out. Let us remember that the European Union and its Member States are liable for breaches of European Union Law only if the breach is “sufficiently serious”¹⁰, and this expression can be understood as “negligent”. As European Union Courts have stated, even though “the concept of fault does not have the same content in the various legal systems”¹¹, “certain objective and subjective factors connected with the concept of fault under a national legal system may well be relevant for the purpose of determining whether or not a given breach of Community law is serious”¹². “Only the finding of an irregularity that an administrative authority, exercising ordinary care and diligence, would not have committed in similar circumstances can render the Community liable”¹³.

On the other hand, compensation could be denied if the acquitted detainee caused his own detention negligently, for example by making a false confession with the aim of protecting a third person. This rule, which obviously encourages potential victims to act with due diligence in order to prevent being wrongfully detained, is well established in a lot of countries¹⁴.

¹⁰ See the judgment of the Court of Justice of 5 March 1996 (*Brasserie du Pêcheur and Factortame and others*, C-46/93 and C-48/93, §§ 51 et seq.)
¹¹ Ibid., § 76.
¹² Ibid., § 78.
¹⁴ See, e.g., Article 294 of the Spanish Organic Act of the Judiciary Power of 1 July 1985 (*Ley Orgánica 6/1985, del Poder Judicial*), § 5 No 2 and No 3 of the German *Gesetz über die*
2.3. *Compensation if proven innocent*

In some legal systems, innocence has to be established for the right of compensation to arise. Acquitted detainees are entitled to be compensated only if the evidence indicating their innocence exceeds a certain threshold, which is higher than the amount of such evidence needed to avoid conviction. The existing evidence can be strong enough for the accused to be acquitted (insofar as the principle of the presumption of innocence requires that “any doubt should benefit the accused”; i.e. they may not be convicted unless their guilt is proven “beyond a reasonable doubt”), but at the same time it can be not strong enough for them to receive compensation. The standard of proof in cases of State liability for pre-trial detention (e.g. “preponderance of evidence” or “clear and convincing proof”) differs thus from the standard of proof in criminal cases (“beyond a reasonable doubt”).

This rule was applied, for example, in Austria, Norway and Spain. Under paragraph 2 (1) (b) of Austrian Compensation (Criminal Proceedings) Act of 1969 (*Strafrechtliches Entschädigungsgesetz* 1969), the right to compensation arose when the accused had “been placed in detention or remanded in custody by a domestic court on suspicion of having committed an offence making him liable to criminal prosecution in Austria… and [was] subsequently acquitted of the alleged offence or otherwise freed from prosecution and the suspicion that he committed the offence [had] been dispelled…” If the evidence produced at the trial was not sufficient to convict the accused (by virtue of the application of the principle *in dubio pro reo*), but the aforementioned suspicion had not been dispelled, there was no right to compensation.

Under Article 444 of the Norwegian Code of Criminal Procedure Act of 1981, «if a person charged [was] acquitted or the prosecution against him [was discontinued], he [could] claim compensation from the State for any damage that he [had] suffered through prosecution if it [was] shown to be probable that he did not carry out the act that formed the basis for the charge…”.

Under Article 294 of the Spanish Judiciary Power Act of 1985, the State is liable for the harms caused by detention on remand if detainees have been acquitted on the grounds that the alleged offence did not exist. This provision was interpreted by the Spanish Supreme Court as meaning that the State was liable if detainees managed to prove either that the alleged crime did not exist or that they had not committed it. The State was not deemed liable, by contrast, when detainees had been acquitted by virtue of the principle of the presumption of innocence but there was actually no certainty about their innocence.

An arguably similar rule has been applied in Germany and the Netherlands. In both countries, the law confers a broad discretion on the Courts to award compensation in some cases. Under Article 90.1 of the Dutch Code of Criminal Procedure, “compensation shall be awarded in each case if and to the extent that the court, taking all circumstances into account, is of the opinion that there are reasons in equity to do

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17 See, for example, judgments of the Spanish Supreme Court of 28 September 1999 (rec. 4712/1995) and 27 January 2003 (rec. 7928/1998).
so”. Under paragraph 2(1) of the German Criminal Proceeding (Compensation) Act of 8 March 1971, any person who has suffered harm by reason of having been detained on remand shall be indemnified by the Treasury in the event of one being acquitted or if the proceedings brought against one are discontinued. Nevertheless, this rule is subject to certain exceptions. Under paragraph 6(1)(2), for example, “compensation may be [discretionarily] refused wholly or in part where the defendant… is not convicted of an offence or proceedings are discontinued solely on account of a technical bar”. Within these legal frameworks, the existence of reasonable suspicions about the defendant’s guilt might and has been taken into account by German and Dutch Courts in order to discretionarily refuse compensation.

The European Court of Human Rights’ case law on these rules is still not very clear. Article 6 § 2 of the Convention (which provides that “everyone charged with a criminal offence shall be presumed innocent until proved guilty according to law”) does not guarantee a person charged with a criminal offence a right to compensation for detention on remand imposed in conformity with the requirements of the Convention. In spite of this, the Court considers that a decision whereby such compensation is refused may raise an issue under the aforementioned Article if supporting reasoning amounts in substance to a determination of the accused’s guilt without one having previously been proven guilty according to the law.

In this respect, the Court has used two criteria. On the one hand, it has made a distinction between “statements which reflect the opinion that the person concerned is guilty and statements which merely describe a state of suspicion. The former infringe the presumption of innocence, whereas the latter have been regarded as unobjectionable in various situations examined by the Court”18.

On the other hand, the Court has stated that “the voicing of suspicions regarding an accused’s innocence is conceivable as long as the conclusion of criminal proceedings has not resulted in a decision on the merits of the accusation. However, it is no longer admissible to rely on such suspicions once an acquittal has become final”19.

The Court has applied both criteria inconsistently. The Hibbert v. the Netherlands decision, for example, found no violation of Article 6 § 2 of the Convention in a case where the accused had been finally acquitted as a result of doubts concerning his role in the crime, and the compensation was refused because “there were witnesses having made incriminating statements as to the applicant’s involvement in the punishable facts as charged, which fully justified [his] detention” and “it [had]… not been established that [he had] not committed the fact, so that, all circumstances having been taken into account, there [were] no reasons in equity for any compensation”.

Furthermore, the Court accepts a quite hypocritical solution. Indeed, once the accused has been acquitted because there were reasonable doubts about his or her guilt, the State may take them into account in order to refuse to compensate him or her, but only if it does not express such doubts being the reason for the refusal. It suffices instead to declare, for example, that “there are no reasons in equity to award the applicants compensation”20.

18 Decision of 26 January 1999 (Hibbert v. the Netherlands, 38087/97).
19 Judgments of European Court of Human Rights of 25 August 1993 (Sekanina v. Austria, 13126/87, § 30) and 21 March 2000 (Asan Rushiti v. Austria, 28389/95, § 31).
2.4. Compensation if not proven guilty

Under Swedish law, detainees are entitled to compensation if they are not proven guilty of the crimes as charged, i.e. in the event of: acquittal; non-indictment; dropped charges; partially dropped charges if the detention would clearly not have been imposed for the remaining criminality; sentence under a more lenient provision than the indictment; and quashing or stay of the detention. Compensation is excluded if detainees have intentionally or negligently caused their detention or if for other reasons it would be unreasonable to compensate. It is specifically stated, however, that remaining suspicion after acquittal is not such a reason21.

Similar rules have been laid down in Austria and Norway. After the European Court of Human Rights had repeatedly ruled against these countries for violating the principle of the presumption of innocence22, they tried to adapt their legal systems to the case law of the Court, granting the acquitted individuals the right to compensation for the time spent on remand even in the case that there were reasonable suspicions about such persons having committed the crime as charged. Some exceptions are certainly provided. In both systems, compensation is in principle not to be paid if the detainee caused his or her detention negligently23. In Austrian law, compensation may also be reduced or even refused if it is inappropriate (unangemessen), taking into account: suspicions existing at the time of arrest or detention; the grounds for detention; and the grounds which led to acquittal or to discontinuing of the criminal proceedings. It is stated, however, that such suspicions may not be considered if the accused has been acquitted by a final decision on the merits24. Similarly, the Norwegian legislator has expressly established that “compensation cannot be reduced or cease to be payable because the person charged is suspected of having manifested signs of guilt”25.

Spanish law, by contrast, has moved in the opposite direction. After two judgments of the European Court of Human Rights condemned the Iberian State for violating the abovementioned principle26, and in the absence of any new legislation on the subject, the Spanish Supreme Court has changed its case law. Now it interprets Article 294 of the Judiciary Power Act of 1985 literally, i.e. as meaning that the State is liable for the harms caused by detention on remand only if detainees have been acquitted on the ground that the alleged offence did not exist. Compensation is therefore excluded if the crime existed, even though the accused has been found innocent (or not guilty)27. Such interpretation drastically reduces the number of cases in which the State has to compensate detainees.

21 Tiberg (2005), at pp. 479 et seq.
23 With regard to Norway, see Sections 444 et seq. of Criminal Procedure Act of 22 May 1981, with subsequent amendments, the latest made by Act of 30 June 2006 No. 53. Regarding Austria, see Compensation in Criminal Cases Act of 2005.
24 See § 3(2) of Compensation in Criminal Cases Act of 2005.
25 Section 446 paragraph 2 of Criminal Procedure Act of 1981.
26 See the judgments of the European Court of Human Rights of 25 April 2006 (Puig Panella v. Spain, 1483/02) and 13 July 2010 (Tendam v. Spain, 25720/05).
27 See, among others, the judgments of the Spanish Supreme Court of 23 November 2010 (rec. 1908/2006) and 24 May 2011 (rec. 1315/2007).
3. **The Wrongful Conviction Analogy**

Criminal courts may make mistakes when adjudicating. They can convict innocent people, who did not commit the crime as charged (type-I errors), or acquit guilty individuals, who actually did (type-II errors). In the law and economics literature it is well established that both types of errors lower deterrence. Wrongful acquittals obviously make criminal activity more attractive by reducing its expected cost, whereas wrongful convictions lessen the relative benefits of being honest, thus lowering the opportunity cost of committing such offences.\(^\text{28}\)

FON and SCHÄFER have shown that compensation for wrongfully convicted individuals can lower crime levels by diminishing the cost of remaining honest and, therefore, lessening the negative consequences of type-I errors on deterrence. One may possibly think that awarding compensation to acquitted detainees for the time spent on remand could have similar effects on the volume of crime, by the means of increasing the benefits of being a law-abiding citizen. This might be, however, a premature conclusion.

FON and SCHÄFER’s thesis is based on the key assumption that compensating for wrongful conviction reduces the effect of type I error on deterrence without affecting type II error.\(^\text{29}\) This is so because they, in turn, assume that “only the wrongfully convicted has a chance of getting a trial. This is justified on the grounds that usually a (successful) retrial is only possible if substantial new evidence in favor of the convicted shows up. This is unlikely if the criminal was rightfully convicted”.\(^\text{30}\) The authors consequently dismiss the possibility that any retrial concludes with wrongful exoneration, because exoneration “requires the convicted to prove his innocence beyond reasonable doubt, which makes the commitment of type I error low”.\(^\text{31}\)

Nevertheless, such assumptions are quite unrealistic when it comes to compensation for pre-trial detention. Compensating all acquitted defendants for the harm suffered as a consequence of their detention reduces indeed the negative impact of “wrongful detention” on deterrence, but also affects type II error, insofar as it makes crime less costly to detainees who have been wrongfully acquitted.\(^\text{32}\)

We cannot dismiss at all the possibility of the accused being wrongfully acquitted. On the contrary, the probability of type II errors is relatively high, insofar as conviction requires the prosecution to prove the accused’s guilt beyond a reasonable doubt. Let us assume, just for the sake of argument, that this standard of proof means that the accused cannot be convicted unless the likelihood of them being factually guilty reaches 90% or more.\(^\text{33}\) It implies that many accused—all those in the range of 51% to 89%—are going to be acquitted despite them being more likely guilty than innocent. The stricter the standard of proof, the more acute this problem will become.

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\(^{28}\) See among others PNG (1986); POLINSKY and SHAVELL (2000), at 60 et seqq. However, LANDO (2006) has questioned that wrongful conviction lowers deterrence.

\(^{29}\) FON and SCHÄFER (2007), at p. 279.

\(^{30}\) Ibid., at p. 278.

\(^{31}\) Ibid., at p. 279.

\(^{32}\) BRATHOLM (1961), at p. 843, has pointed out that “compensation regardless of the sufficiency of the evidence would make crime a less precarious venture in the eyes of many”.

\(^{33}\) MCCauliff (1982), at pp. 1324 et seq.
That is probably the reason why compensating all acquitted detainees could be at variance with popular feelings, especially where a serious suspicion as to their guilt remains\(^{34}\), and why some legal systems have not provided compensation in these latter cases.

4. **THE MODEL**

In order to analyze the effects of such compensation on social welfare, this paper focuses on the typical case where detention was lawfully and diligently carried out by State agents, and it was not caused by negligence on the part of the detainee.

4.1. **Private gains from crime**

Let us assume that individuals choose between committing an offence and obeying the law by comparing the private benefits and costs they expect to derive from crime\(^{35}\). Offenders derive some benefits from engaging in illegal activities. It must be noted that the private gain from crime is an assessment of subjective nature, which varies across individuals as a result of the existing differences between them in preferences, moral constraints, reputation concerns, etc. A significant share of the population would thus probably experience low utility from committing crime while some individuals place a higher value on it.

Let us assume that the private gain individuals obtain from crime is a continuous random variable distributed according to a probability distribution, being:

\[
\begin{align*}
&w_j = \text{private gain individual } j \text{ obtains from committing crime}, \\
&z(w) = \text{probability density function of private gain from crime} \\
&Z(w) = \text{cumulative probability distribution of private gain from crime}.
\end{align*}
\]

4.2. **Likelihood of detention**

Criminals as well as law-abiding citizens face the possibility of being arrested, held on remand and tried as suspects of having committed an offence. Let us denote:

\[
\begin{align*}
&p_g = \text{probability of a guilty individual being detained} \\
&p_i = \text{probability of an innocent individual being detained}.
\end{align*}
\]

It is realistic to assume that guilty individuals face a higher probability of suffering such prosecution than innocent ones \((p_g > p_i)\).

For the sake of simplicity, we suppose that all defendants are detained on remand.

4.3. **Standards of evidence for conviction and for compensation**

During the trial, a certain amount of net incriminating evidence is collected against the defendant. This amount depends on several factors such as the personal abilities of the defense attorney and the prosecutor, the resources invested by them in

\(^{34}\) See ROSEN (1976), at p. 719 (stating that “compensation for the entire group of defendants who have been acquitted or who have had charges against them dismissed would be politically unpalatable and socially unwise. Some members of this group are factually guilty, others could be factually and legally guilty, and others should be considered as if they were”); TIBERG (2005), at pp. 482 and 486.

\(^{35}\) See BECKER (1968), at p. 177.
the production of evidence, etc. Let us suppose, nevertheless, that this production is a costless activity and that such incriminating evidence only depends on whether or not the defendant committed the offence as charged.

The amount of net incriminating evidence can thus be modeled as an exogenous random variable distributed according to two generic probability distributions conditioned on whether the defendant being guilty or innocent. We denote:

\[ g(e) = \text{probability density function of incriminating evidence for guilty individuals,} \]
\[ i(e) = \text{probability density function of incriminating evidence for innocent individuals} \]
\[ G(e) = \text{cumulative probability distribution of incriminating evidence for guilty individuals,} \]
\[ I(e) = \text{cumulative probability distribution of incriminating evidence for innocent individuals.} \]

It is reasonable to assume that both density functions of incriminating evidence \( g(e) \) and \( i(e) \) are continuous and single maximum shaped and that the mean of incriminating evidence for innocent individuals is significantly lower than the mean for guilty ones and, therefore, \( I(e) > G(e) \forall e > 0 \)

Once the trial has concluded, accused persons are convicted and punished only if incriminating evidence exceeds certain standard. Otherwise, they are acquitted.

\[ \bar{e}_{\text{conv}} = \text{standard of evidence required for conviction} \]

In the case of having been acquitted, defendants are entitled to compensation if incriminating evidence stays below certain threshold.

\[ \bar{e}_{\text{comp}} = \text{standard of evidence for compensation} \]

If this standard of evidence for compensation equals zero (\( \bar{e}_{\text{comp}} = 0 \)) then nobody is to be compensated. If the standard for compensation is the same as the standard for conviction (\( \bar{e}_{\text{comp}} = \bar{e}_{\text{conv}} \)), all acquitted individuals have the right to be compensated. And if it lies between those two levels (\( 0 < \bar{e}_{\text{comp}} < \bar{e}_{\text{conv}} \)), then only some acquitted defendants shall be compensated. We assume that compensation eventually awarded to acquitted defendants is a socially costless transfer of money, whose amount equals the total private costs incurred by them as a result of their detention. It must be noted, nonetheless, that convicted defendants are always compensated in kind, as the period spent on remand is deducted from prison time.

Given a standard of conviction \( \bar{e}_{\text{conv}} \), the probability of a guilty individual being detained and convicted is \( p_g[1 - G(\bar{e}_{\text{conv}})] \), and that of him being detained and acquitted is \( p_g G(\bar{e}_{\text{comp}}) \), whereas his probability of remaining free is \( 1 - p_g \). Likewise, the probability of an innocent individual being detained and convicted is \( p_i[1 - I(\bar{e}_{\text{conv}})] \), and that of him being detained and acquitted is \( p_i I(\bar{e}_{\text{comp}}) \).

The probability of a guilty individual being detained, wrongfully acquitted and compensated is \( p_g G(\bar{e}_{\text{comp}}) \) and that of his request for compensation being denied is \( p_g[G(\bar{e}_{\text{conv}}) - G(\bar{e}_{\text{comp}})] \). See figure 1A. Analogously, the probability of a factually innocent being detained, acquitted and compensated is \( p_i I(\bar{e}_{\text{comp}}) \) and that of such request being wrongfully refused is \( p_i[I(\bar{e}_{\text{conv}}) - I(\bar{e}_{\text{comp}})] \). See figure 1B.
4.4. Costs of detention and conviction

Detention entails costs for both the detainees and the rest of society. The former arise from: loss of liberty, income, reputation and self-esteem; demoralization effects of being placed in alien surroundings; risk of being abused or attacked by other inmates; cut off from friends and family; dislocation costs in adjusting back to life in the outside, etc. The latter include negative psychological, stigmatizing and monetary impacts on family members of detainees, and financial costs incurred by the State in order to fund the detention system.

Punishment also implies costs for the convicted as well as for the rest of society. These costs are similar in nature to those of pre-trial detention, albeit much higher. On the one hand, because detention, if lawfully imposed, may not last longer than the imprisonment detainees can suffer if they are finally convicted and, on the other hand, because conviction has arguably more intense stigmatizing effects than detention.

Let us denote all these costs as follows:

\[ c_{dp} = \text{private cost of each detention (i.e. cost of detention for the detainee)} \]
\[ c_{ds} = \text{cost of each detention for the rest of society} \]
\[ C_D = c_{dp} + c_{ds} = \text{total social cost of each detention} \]
\[ c_{pp} = \text{private cost of each conviction (i.e. cost of detention for the detainee)} \]
\[ c_{ps} = \text{cost of each conviction for the rest of society} \]
\[ C_p = c_{pp} + c_{ps} = \text{total social cost of each conviction} \]

As the period spent on remand is deducted from prison time, it must be noted that the additional private cost caused by each conviction is not \( c_{pp} \), but instead \( c_{pp} - c_{dp} \). Analogously, the additional total social cost derived from each conviction, once such deduction is made, equals \( C_p - C_D \).

4.5. Decision to commit crime

Individuals, who are supposed to be rational and risk neutral, will commit an offence if the expected private gains from infringing the law exceed the private costs of obeying it. An individual \( j \) will hence engage in a criminal activity if:

\[ w_j - p_g[1 - G(\bar{e}_{conv})]c_{pp} - p_g[G(\bar{e}_{conv}) - G(\bar{e}_{comp})]c_{dp} > \]
\[ -p_l[1 - I(\bar{e}_{conv})]c_{pp} - p_l[I(\bar{e}_{conv}) - I(\bar{e}_{comp})]c_{dp} \]

The critical threshold from which those gains become higher than these costs can be denoted as \( \bar{w} \). Therefore, individuals commit crime if \( w_j > \bar{w} \) where:

\[ \bar{w} = [p_g[1 - G(\bar{e}_{conv})] - p_l[1 - I(\bar{e}_{conv})]]c_{pp} \]
\[ +[p_g[G(\bar{e}_{conv}) - G(\bar{e}_{comp})] - p_l[I(\bar{e}_{conv}) - I(\bar{e}_{comp})]]c_{dp} \]

**\[36\] MANNS (2005), at pp. 1971 et seq.
**\[37\] Ibid., at pp. 1974 and 1975.
The magnitude of \( \tilde{\omega} \) determines how many people perpetrate crimes. The higher \( \tilde{\omega} \), the lower the level of criminal activity. As private gains arising from crime are distributed according to a cumulative distribution \( Z(\tilde{\omega}) \), by normalizing the population to 1, the probability of an individual committing crime is then \( 1 - Z(\tilde{\omega}) \). This also corresponds to the crime rate for the entire population. We can denote this crime rate as a function of both the standards of conviction and compensation:

\[
O(\tilde{\epsilon}_{\text{conv}}, \tilde{\epsilon}_{\text{comp}}) = 1 - Z(\tilde{\omega}) \tag{3}
\]

From expression [2] follows that increases in the private costs of punishment \( c_{pp} \) always reduce the crime rate\(^{38}\), whereas increases in the private costs of detention \( c_{dp} \) can either augment or lower it, depending on the probabilities of guilty and innocent individuals being acquitted and not compensated. If the likelihood of acquittal and non-compensation is greater for the former than for the latter, \( p_g[1 - G(\tilde{\epsilon}_{\text{conv}})] > p_i[1 - G(\tilde{\epsilon}_{\text{comp}})] \), then increases in the private costs of detention deter crime. Otherwise, such increases have a negative impact on deterrence.

As the costs of detention are reduced to zero for those detainees who have been compensated, it also follows that this compensation deters crime whenever the probability of acquitted defendants being compensated is higher for innocent individuals than for factually guilty ones, \( p_i[1 - G(\tilde{\epsilon}_{\text{comp}})] > p_g G(\tilde{\epsilon}_{\text{comp}}) \). Otherwise, compensation encourages crime.

5. OPTIMAL STANDARDS

5.1. Standards that maximize deterrence

First order conditions to minimize the crime rate (i.e. maximize deterrence) are:

\[
\frac{d O(\tilde{\epsilon}_{\text{conv}}, \tilde{\epsilon}_{\text{comp}})}{d \tilde{\epsilon}_{\text{conv}}} = -Z(\tilde{\omega})[p_i i(\tilde{\epsilon}_{\text{conv}}) - p_g G(\tilde{\epsilon}_{\text{conv}})](c_{pp} - c_{dp}) = 0 \tag{4}
\]

and

\[
\frac{d O(\tilde{\epsilon}_{\text{conv}}, \tilde{\epsilon}_{\text{comp}})}{d \tilde{\epsilon}_{\text{comp}}} = -Z(\tilde{\omega})[p_i i(\tilde{\epsilon}_{\text{comp}}) - p_g G(\tilde{\epsilon}_{\text{comp}})]c_{dp} = 0 \tag{5}
\]

We can assume that there is at least one standard of evidence \( \tilde{\epsilon} \) that allows judges—or juries—to distinguish between innocent and guilty individuals more accurately after the trial (when deciding on their conviction and eventually on their compensation) than before (when deciding on their detention on remand). If it were not the case, the trial would be entirely pointless. This assumption implies that there exist at least a standard of evidence \( e > 0 \) such that \( p_i i(e) = p_g G(e) \).

Therefore, the standard of incriminating evidence for conviction which maximizes deterrence \( \tilde{\epsilon}_{\text{conv}} \) is such that the marginal probability of acquitting an innocent detainee equals the marginal probability of acquitting a factually guilty individual.

\[^{38}\text{Indeed, since we assume that } p_g > p_i \text{ and } G(e) < I(e) \forall e > 0, \text{ then } p_g[1 - G(\tilde{\epsilon}_{\text{conv}})] - p_i[1 - I(\tilde{\epsilon}_{\text{conv}})] > 0.\]
\[ p_i(\hat{e}_{\text{conv}}) = p_g g(\hat{e}_{\text{conv}}) \] \[ p_i(\hat{e}_{\text{comp}}) = p_g g(\hat{e}_{\text{comp}}) \]

In the same way, the standard of evidence for compensation which maximizes deterrence \( \hat{e}_{\text{comp}} \) is such that the marginal probability of compensating an innocent detainee equals the marginal probability of compensating a guilty one.

\[ p_i(\hat{e}_{\text{comp}}) = p_g g(\hat{e}_{\text{comp}}) \]

It can be easily seen, therefore, that the standard of evidence for conviction that produces the most deterrent effects on crime equals the standard of evidence for compensation that likewise maximizes deterrence.

\[ \hat{e}_{\text{conv}} = \hat{e}_{\text{comp}} \]

5.2. Standards that minimize total social cost

Criminal offences directly cause harm \( H \) to society. Let us suppose that such harm is always higher than the private gains \( w \) derived from infringing the law, \( H > w \), and that hence crime always implies a direct social cost \( h = H - w \). Let us also assume that total direct net harm crime causes on society is proportional to the number of offences committed. As population has been normalized to 1, the number of offenders equals the crime rate \( O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) \), and the number of innocent individuals is \( 1 - O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) \).

Besides the direct harm resulting from offences, crime makes it necessary to incur the costs of pre-trial detention \( C_D = c_{dp} + c_{ds} \) and punishment \( C_P = c_{pp} + c_{ps} \). Let us denote \( TC \) as the sum of all the social costs caused by crime and prevention of crime, which include:

- Direct costs of crime
  \[ O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) h \]
- Costs of detention on remand
  \[ \{p_g O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) + p_i[1 - O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})]\} C_D \]
- Costs of conviction
  \[ \{p_g O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})[1 - G(\hat{e}_{\text{conv}})] + p_i[1 - O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})][1 - I(\hat{e}_{\text{conv}})]\} (C_P - C_D) \]

Therefore, the total social cost derived from crime can be represented as follows:

\[ TC = O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) h + \{p_g O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) + p_i[1 - O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})]\} C_D + \{p_g O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})[1 - G(\hat{e}_{\text{conv}})] + p_i[1 - O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})][1 - I(\hat{e}_{\text{conv}})]\} (C_P - C_D) \]

By applying the first order condition, we find that the standard of incriminating evidence for conviction that minimizes social cost \( e_{\text{conv}}^* \) is the one such that
\[
\frac{d \text{TC}}{d \hat{e}_{\text{conv}}} = \frac{d \text{O}(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})}{d \hat{e}_{\text{conv}}} \left( \left\{ + \left[ p_g (1 - G(\hat{e}_{\text{conv}})) - p_i (1 - I(\hat{e}_{\text{conv}})) \right] \right\} \right) - \left\{ p_g g(\hat{e}_{\text{conv}}) O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) + \left[ p_i l(\hat{e}_{\text{conv}}) \right] \right\} \left( C_p - C_D \right) = 0
\]

[10]

It must be noticed that the standard for conviction that maximizes deterrence \( \hat{e}_{\text{conv}} \) does not satisfy this equation. Indeed, when the standard for conviction is this one, \( \hat{e}_{\text{conv}} = \hat{e}_{\text{comp}} \), then \( \frac{d \text{O}(\hat{e}_{\text{comp}})}{d \hat{e}_{\text{comp}}} = 0 \) as well as \( p_i l(\hat{e}_{\text{conv}}) - p_g g(\hat{e}_{\text{conv}}) = 0 \), so in such a case:

\[
\frac{d \text{TC}(\hat{e}_{\text{comp}} = \hat{e}_{\text{conv}})}{d \hat{e}_{\text{conv}}} = -p_i l(\hat{e}_{\text{conv}})(C_p - C_D) < 0
\]

[11]

The sign of [11] follows directly from the assumptions that \( p_i > 0 \), \( l(\hat{e}_{\text{conv}}) > 0 \), and \( C_p > C_D \). That means total social cost is still decreasing at the point where the standard of evidence for conviction minimizes crime rate. Consequently, \( TC \) can still be reduced if a standard higher than \( \hat{e}_{\text{conv}} \) is established.

Raising the standard of conviction from 0—where every detainee is convicted—up to \( \hat{e}_{\text{conv}} \) obviously reduces total social cost; as both the volume of criminal activity and the number of detained and convicted individuals decrease, both the direct cost of crime and the cost of detention and punishment diminish. Above \( \hat{e}_{\text{conv}} \), the cost of punishment continues diminishing, but both social harm resulting from crime and the cost of detention start to rise at an increasing rate, which will finally lead to an increase of \( TC \).

In conclusion, there exists a standard of evidence for conviction \( e_{\text{conv}}^* \) that minimizes social costs which is higher than the standard for conviction that maximizes crime deterrence \( 39 \),

\[
e_{\text{conv}}^* > \hat{e}_{\text{conv}}
\]

[13]

On the other hand, the standard of evidence for compensation that minimizes social cost \( e_{\text{comp}}^* \) is such that

\[
\frac{d \text{TC}}{d \hat{e}_{\text{comp}}} = \frac{d \text{O}(\hat{e}_{\text{comp}})}{d \hat{e}_{\text{comp}}} \left( \left\{ \left\{ h + (p_g - p_i) C_D \right\} \right\} \right) = 0
\]

[14]

As one can easily see, the standard of evidence for compensation that maximizes deterrence \( \hat{e}_{\text{comp}} \) is the only one that satisfies this equation. Indeed, when \( \hat{e}_{\text{comp}} = \hat{e}_{\text{comp}} \), then \( \frac{d \text{O}(\hat{e}_{\text{comp}})}{d \hat{e}_{\text{comp}}} = 0 \) and, obviously, \( \frac{d \text{TC}}{d \hat{e}_{\text{comp}}} = 0 \).

In conclusion, the standard of evidence for compensation that minimizes social costs \( e_{\text{comp}}^* \) is the same as the standard of evidence for compensation that minimizes crime rate,

\[
e_{\text{comp}}^* = \hat{e}_{\text{comp}}
\]

[15]

---

39 This result has already been established by RIZZOLI and SARACENO (2011), whom we follow.
Consequently, the standard of evidence that minimizes total social cost is lower than the standard of incriminating evidence for conviction. Indeed, since $e_{\text{conv}}^* = \hat{e}_{\text{comp}}$; $e_{\text{conv}}^* = \hat{e}_{\text{comp}}$; and $e_{\text{conv}}^* > \hat{e}_{\text{conv}}$, then

$$e_{\text{comp}}^* < e_{\text{conv}}^*$$

[16]

Thus, there is good reason for not indemnifying every acquitted defendant for the harm suffered as a consequence of having been detained, but only if the evidence indicating his guilt does not reach a certain threshold which is less than the amount of such incriminating evidence required to convict him. Given that raising the standard for compensation reduces social costs only to the extent that such raise deters crime, the optimal standard for compensating acquitted detainees is the one that maximizes deterrence. This standard should be lower than that for conviction, as it increases in this latter one still reduce total social costs at the level where deterrence is maximized.

6. **Taking Reputation Costs of Being Denied Compensation into Account**

As the European Court of Human Rights and some authors have suggested, the State imposes a reputational cost (which can be denoted by $r$) on acquitted individuals when it refuses to compensate them on the ground of the remaining suspicions as to their guilt[40].

This may well have a similar (although not so large) effect to that of the asymmetry between the costs of type I and type II errors committed when deciding whether to acquit or to convict accused individuals. The fact that wrongfully denying compensation is costlier than wrongfully granting it might push up the optimal standard of evidence for compensation, albeit not up to the point of the optimal standard of evidence for conviction, since it is quite realistic to assume that the abovementioned reputational cost is always much lower than the net social costs of conviction. Hence, the standard of evidence for compensation that maximizes social welfare could be higher than the standard of evidence that minimizes criminal activity, although lower than the standard of evidence for conviction that minimizes social costs.

It must to be noted, nevertheless, that if the standard of incriminating evidence established to deny detainees compensation is lower than that required to convict them, some people may obtain a reputational benefit as well. Since all acquitted individuals bear some reputation cost as a consequence of the fact that one can reasonably suspect that many of them are factually guilty, those able to meet the former standard can thus reduce such cost[41]. Compensating only some acquitted defendants, by laying down two different standards of proof, has a screening or redistributive effect[42]. It increases social stigma for detainees who are denied (or perhaps do not request) compensation on the ground of the probability of them being actually guilty is relatively high, but at the same time decreases that stigma for those who are compensated as a result of their innocence.

[40] See the authors cited by Gammeltoft-Hansen (1974), at p. 56; and also Michels (2010), at pp. 420 and 421.

[41] Bratholm (1961), at p. 843, has pointed out that indemnifying every acquitted pre-trial detainee, without regard to the sufficiency of the evidence of his or her innocence, “would become ill-suited as a vehicle of moral redress for those who are actually innocent, for the legal provisions compensating all who are not found guilty would soon become public knowledge”.

being more likely\textsuperscript{43}. It is not apparent which of these two effects can have a more intense impact on social welfare.

However, let us suppose, for the sake of simplicity, that the decision whether to compensate or not can create only a reputational cost and no reputational benefit. The State imposes an additional cost $r$ on acquitted detainees when it refuses to compensate them on the grounds of the remaining suspicions as to their guilt. But the reputation of acquitted detainees does not ameliorate if they are compensated as a result of their innocence being sufficiently established.

### 6.1. Decision to commit crime

Taking into account such reputational cost, expression [1] would be rewritten as follows:

$$w_j - p_g[1 - G(\bar{e}_{\text{conv}})]c_{pp} - p_g[G(\bar{e}_{\text{conv}}) - G(\bar{e}_{\text{comp}})](c_{dp} + r) >$$

$$- p_l[1 - I(\bar{e}_{\text{conv}})]c_{pp} - p_l[I(\bar{e}_{\text{conv}}) - I(\bar{e}_{\text{comp}})](c_{dp} + r)$$

That is, individuals commit crime if $w_j > \bar{w}$ where

$$\bar{w} = \{p_g[1 - G(\bar{e}_{\text{conv}})] - p_l[1 - I(\bar{e}_{\text{conv}})]\}c_{pp}$$

$$+ \{p_g[G(\bar{e}_{\text{comp}}) - G(\bar{e}_{\text{comp}})] - p_l[I(\bar{e}_{\text{comp}}) - I(\bar{e}_{\text{comp}})]\}(c_{dp} + r)$$

By contrasting expressions [2] and [18], one can see that $r$ affects the level of crime in the same way as an increase in the private costs of detention. Thus, to the extent that the probability of being detained and not compensated is greater for guilty individuals than for innocent ones, $r$ has a positive impact on deterrence. It can also be seen that the deterrence benefits derived from compensating only some acquitted detainees become lower when the reputational cost of denying compensation is taken into account, insofar as this cost only arises if only some acquitted detainees are compensated, but not when either all of them or none of them receive compensation.

### 6.2. Standards of evidence that maximize deterrence

Taking the reputational costs from being denied compensation into account does not change the standards for conviction and compensation that maximize deterrence. Indeed, by applying the first order conditions for maximizing deterrence in $\bar{e}_{\text{conv}}$ and $\bar{e}_{\text{comp}}$ we find the expressions [6] and [7], respectively. That is, the crime rate is minimized when the standard for conviction is such that the marginal probability of an innocent detainee being acquitted equals the marginal probability of a guilty one being acquitted and, moreover, the standard for compensation is established at the same level.

### 6.3. Standards of evidence that minimize social costs

Total social costs now include—thebesides the direct costs of crime, the costs of detention and the costs of conviction—the costs of denying compensation

\textsuperscript{43} It must be noted, however, that if no detainee is compensated (that is, if $\bar{e}_{\text{comp}} = 0$), there are neither such screening effect, nor reputational costs nor analogous benefits.
Total social cost derived from crime can thus be expressed as follows:

\[ TC = O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})h + \left\{ \begin{array}{l}
  p_g [G(\hat{e}_{\text{conv}}) - G(\hat{e}_{\text{comp}})] O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) \\
  + p_l [I(\hat{e}_{\text{conv}}) - I(\hat{e}_{\text{comp}})] (C_p - C_D) \end{array} \right\} r + p_l[I(\hat{e}_{\text{conv}}) - I(\hat{e}_{\text{comp}})][1 - O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})] (C_p - C_D) \]

The standard of incriminating evidence for conviction that minimizes social cost \( e_{\text{conv}}^* \) is such that

\[ \frac{d TC}{d \hat{e}_{\text{conv}}} = \frac{d O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})}{d \hat{e}_{\text{conv}}} \left\{ h + \left( p_g - p_l \right) C_p + \left[ p_l I(\hat{e}_{\text{conv}}) - p_g G(\hat{e}_{\text{comp}}) \right] (C_p - C_D - r) \right\} + \frac{d O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})}{d \hat{e}_{\text{conv}}} \left\{ p_l I(\hat{e}_{\text{comp}}) - p_g G(\hat{e}_{\text{conv}}) \right\} r + p_l I(\hat{e}_{\text{conv}}) (C_p - C_D - r) - p_l I(\hat{e}_{\text{conv}}) (C_p - C_D - r) < 0 \]

It can be seen that when the standard of evidence for conviction is the one that maximizes deterrence, \( \hat{e}_{\text{conv}} = \hat{e}_{\text{conv}} \), then \( \frac{d O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})}{d \hat{e}_{\text{conv}}} = 0 \) as well as \( p_l I(\hat{e}_{\text{conv}}) - p_g G(\hat{e}_{\text{conv}}) = 0 \). As a consequence, in this case,

\[ \frac{d TC}{d \hat{e}_{\text{conv}}} = -p_l I(\hat{e}_{\text{conv}}) (C_p - C_D - r) < 0 \]

That means that \( TC \) can still be reduced if a standard higher than \( \hat{e}_{\text{conv}} \) is established. Hence, when the reputational cost from being denied compensation is considered, the standard for conviction that minimizes total social costs \( e_{\text{conv}}^* \) is still higher than the standard for conviction that maximizes deterrence, \( e_{\text{conv}}^* > \hat{e}_{\text{conv}} \).

By comparing expressions [10] and [20], it can be seen that the standard for conviction that minimizes social cost is lower when such reputational cost is taken into account than if not. Indeed, if the standard for conviction meets the condition [10], that is when \( \hat{e}_{\text{conv}} = e_{\text{conv}}^* \), then

\[ \frac{d TC}{d \hat{e}_{\text{conv}}} = \left\{ \begin{array}{l}
  O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}}) \left[ p_g G(\hat{e}_{\text{conv}}) - p_l I(\hat{e}_{\text{conv}}) \right] \\
  + \frac{d O(\hat{e}_{\text{conv}}, \hat{e}_{\text{comp}})}{d \hat{e}_{\text{conv}}} \left[ p_g [G(\hat{e}_{\text{conv}}) - G(\hat{e}_{\text{comp}})] - p_l [I(\hat{e}_{\text{conv}}) - I(\hat{e}_{\text{comp}})] \right] r > 0 \end{array} \right\} \]

Given that \( e_{\text{conv}}^* > \hat{e}_{\text{conv}} \), the sign of expression [22] follows from the fact that if \( \hat{e}_{\text{conv}} = \hat{e}_{\text{conv}} \), then \( p_g G(\hat{e}_{\text{conv}}) - p_l I(\hat{e}_{\text{conv}}) = 0 \) and \( \forall \hat{e}_{\text{conv}} > \hat{e}_{\text{conv}} \) then \( p_g G(\hat{e}_{\text{conv}}) - p_l I(\hat{e}_{\text{conv}}) > 0 \) and \( p_g [G(\hat{e}_{\text{conv}}) - G(\hat{e}_{\text{comp}})] - p_l [I(\hat{e}_{\text{conv}}) - I(\hat{e}_{\text{comp}})] > 0 \).
It is also obvious that when $\tilde{\epsilon}_{\text{conv}} = \epsilon^*_{\text{conv}}$, then $\frac{d}{d \tilde{\epsilon}_{\text{comp}}} \left[ \frac{d \alpha(\tilde{\epsilon}_{\text{conv}}, \tilde{\epsilon}_{\text{comp}})}{d \tilde{\epsilon}_{\text{conv}}} \right] > 0$, and $p_l i(\tilde{\epsilon}_{\text{comp}}) > 0$.

The sign of expression [22] indicates that the total social cost function $TC$ is increasing when $\tilde{\epsilon}_{\text{conv}} = \epsilon^*_{\text{conv}}$ and, consequently, that it has its minimum at a lower standard of conviction. That is, the standard for conviction that minimizes total social cost is lower when the reputational cost from denying compensation is considered than when it is neglected.

$$\epsilon^*_r_{\text{conv}} < \epsilon^*_{\text{conv}}$$ [23]

Counterintuitive as it may seem at first, this result makes sense. When taking such reputational concerns into account, the expected social cost of acquittal becomes higher because some acquitted detainees suffer harm now as a result of being denied compensation. Therefore, if the expected cost of acquittals increases, the standard for conviction should be lowered in order to acquit less defendants.

Let us see now what happens with the standard of compensation that minimizes social cost. First order condition is:

$$\frac{d} {d \tilde{\epsilon}_{\text{comp}}} \left[ \frac{d \alpha(\tilde{\epsilon}_{\text{conv}}, \tilde{\epsilon}_{\text{comp}})}{d \tilde{\epsilon}_{\text{conv}}} \right] \left( h + (p_g - p_l)C_p + \left[ p_l i(\tilde{\epsilon}_{\text{conv}}) - p_g G(\tilde{\epsilon}_{\text{comp}}) \right] (C_p - C_D - r) \right)$$

$$+ O(\tilde{\epsilon}_{\text{conv}}, \tilde{\epsilon}_{\text{comp}}) \left[ \left[ p_l i(\tilde{\epsilon}_{\text{comp}}) - p_g G(\tilde{\epsilon}_{\text{comp}}) \right] r - p_l i(\tilde{\epsilon}_{\text{comp}}) r \right] = 0$$ [24]

As already known, when the standard for compensation maximizes deterrence $\tilde{\epsilon}_{\text{comp}} = \hat{\epsilon}_{\text{comp}}$, then $\frac{d \alpha(\tilde{\epsilon}_{\text{conv}}, \tilde{\epsilon}_{\text{comp}})}{d \tilde{\epsilon}_{\text{comp}}} = 0$ and $p_l i(\hat{\epsilon}_{\text{comp}}) - p_g i(\hat{\epsilon}_{\text{comp}}) = 0$. in which case

$$\frac{d} {d \hat{\epsilon}_{\text{comp}}} TC = -p_l i(\hat{\epsilon}_{\text{comp}}) r < 0$$ [25]

This means that $TC$ can be reduced if a standard for compensation higher than $\hat{\epsilon}_{\text{comp}}$ is established. The standard that minimizes social cost is thus higher than that minimizing crime rate.

$$\epsilon^*_r > \hat{\epsilon}_{\text{comp}}$$ [26]

The question now is whether this standard for compensation that minimizes social cost is the same or lower than the optimal standard for conviction. Let us analyze, to find the answer, how the function of total social cost $TC$ behaves when the standard for conviction is the one that minimizes such cost, $\epsilon^*_r{\text{conv}}$, and the standard for compensation reaches the same point, $\tilde{\epsilon}_{\text{comp}} = \epsilon^*_r{\text{conv}}$, which means that every acquitted detainee is compensated. Let us hypothesize that, in this case, $TC$ is increasing with respect to such
standard for compensation, whereas TC has, by definition, reached its minimum with respect to the standard of conviction. That is, \( \frac{d\ TC(\hat{e}_{\text{comp}} = e_{\text{conv}}^{*r})}{d\hat{e}_{\text{comp}}} = 0 \).

After substituting \( e_{\text{conv}}^{*r} \) for \( \hat{e}_{\text{comp}} \), differentiating and simplifying, we find that this inequality holds if the following three conditions are met:

\[
p_i i(e_{\text{conv}}^{*r}) > 0, \\
- O(e_{\text{conv}}^{*r}) [p_i i(e_{\text{conv}}^{*r}) - p_g g(e_{\text{conv}}^{*r})] > 0 \\
\text{and } C_p - C_D - r > r
\]

The first two conditions are met in every case, for \( i(e_{\text{conv}}^{*r}), O(e_{\text{conv}}^{*r}) > 0 \), and given that \( e_{\text{conv}}^{*r} > \hat{e}_{\text{conv}} \), then \( p_i i(e_{\text{conv}}^{*r}) - p_g g(e_{\text{conv}}^{*r}) < 0 \). The third condition could hypothetically be not, but it is quite reasonable to assume that the additional total social cost of each conviction (once the time spent on remand is deducted from prison time) is always greater than the reputational cost the State imposes on acquitted individuals when it refuses to indemnify them on the ground of the remaining doubts concerning their guilt, \( C_p - C_D - r > r \).

Under these circumstances, the TC function is increasing, but obviously not because \( e_{\text{conv}}^{*r} \) has been set at the wrong level, but as a result of \( \hat{e}_{\text{comp}} \) being too high. Total social costs can thus be reduced by lowering the amount of incriminating evidence required to deny acquitted individuals compensation for the harm suffered as a consequence of their detention. The standard for compensation that minimizes social costs \( e_{\text{comp}}^{*r} \) is, therefore, lower than the optimal standard for conviction \( e_{\text{conv}}^{*r} \).

Such reputational harm creates an asymmetry between type I and type II errors committed when deciding on compensating acquitted detainees, which pushes the standard for compensation up. The costs of punishment similarly generate an asymmetry between wrongful convictions and wrongful acquittals, which justifies the very high standard for reaching a guilty verdict. Nonetheless, since that harm is less serious than these latter costs, the standard for compensation is raised to a lower level than the one to which the standard for conviction is.

Summing up, if reputational costs of denying acquitted pre-trial detainees compensation are considered, the standard for compensation that allows minimizing total social cost is higher than the standards of evidence – both for conviction and compensation – that maximize deterrence, but lower than the standard of conviction that maximizes social welfare. It lies somewhere in between:

\[
\hat{e}_{\text{conv}} = \hat{e}_{\text{comp}} = e_{\text{conv}}^{*r} < e_{\text{comp}}^{*r} < e_{\text{conv}}^{*r} < e_{\text{conv}}^{*r}
\]

As a result, there is still a sound reason for not indemnifying all acquitted individuals for the damage suffered as a consequence of having been detained on remand, but only those whose innocence is sufficiently established. Nevertheless, given the reputational costs that the decision of not compensating implies for the acquitted detainees, if it is based on the remaining suspicions as to their guilt, the standard of incriminating evidence required for the State to refuse such compensation should be especially high (e. g. “clear and convincing proof”), or at least higher than the standard that would minimize the number of errors committed in making such decision (e. g. “preponderance of evidence”).

[18]
7. **POSSIBLE EXTENSIONS**

7.1. **Risk aversion and insurance benefits of State liability**

We have supposed that individuals are risk neutral, although it is realistic to assume that most of them are risk averse and, therefore, would pay a fair premium to be insured against the possibility of suffering wrongful detention. Since insurance companies, for obvious reasons, do not offer coverage for such risk, and the State can bear it more efficiently than detainees by means of spreading its cost among all taxpayers, one might think this is a compelling argument for compensating acquitted defendants for the harm suffered as a result of having been held on remand.

However, it does not mean that every acquitted detainee should receive compensation. Risk aversion can arguably push up the optimal standard for compensation, as it makes wrongful denials of compensation more costly than wrongful grants of compensation. But it must be noted that risk aversion raises the optimal standard for conviction as well, insofar as it makes wrongful convictions more costly than wrongful acquittals\(^{44}\). Furthermore, this latter effect could well be more intense than the former one, as the costs of wrongful convictions are usually much higher than those of wrongful detentions.

7.2. **Incentive effects of compensation on State agents**

This paper does not analyze the effects compensating acquitted pre-trial detainees might have on the behavior of public agents (legislatures, policemen, prosecutors and judges) who make (or can influence) the decision of detaining people on remand. Nonetheless, these possible effects should be considered in order to determine whether (and if so under which conditions) it is socially desirable to grant such compensation.

It has thus been argued, on the one hand, that this compensation internalizes the costs of pre-trial detention thereby deterring the overuse of this forceful measure and inducing socially optimal levels of detention\(^{45}\). However, it is not clear at all why, in the absence of such compensation, judges will tend to excessively exercise the power of detaining suspects, and why that compensation, which is paid by taxpayers, will lead judges to lower the volume of detentions to the point where social welfare is maximized\(^{46}\).

It has also been stated, on the other hand, that compensating every acquitted detainee can endanger the application of the principle of *in dubio pro reo*, by making a court hesitant to acquit likely criminals who would cash a compensation as a result of the acquittal\(^{47}\). Courts could thus convict some accused, even though there are reasonable doubts as to their guilt, in order to avoid them being “undeservedly”

\(^{44}\) This result has been established by RIZZOLI and STANCA (2012).
\(^{45}\) See, e.g., MANNS (2005), at pp. 1979 et seq.
\(^{46}\) In the view of ROSENTHAL (2010), we cannot expect that a regime of strict liability for wrongful convictions would reduce the risk of errors in the criminal process, thereby producing a socially optimal rate of such convictions.
\(^{47}\) BRATHOLM (1961), at p. 843 (stating that “in borderline cases the courts might be more inclined to convict”); GAMMELTOFT-HANSEN (1974), at p. 59; TIBERG (2005), at pp. 484 and 486 (stating that “a Court recognising the preponderant but legally insufficient likelihood of the defendant’s guilt may find it hard not to take account of the fact that in being acquitted he is simultaneously being awarding a sometimes considerable compensation”).
compensated. Nevertheless, it is not clear either why judges (or eventually juries) will tend to behave in this way, especially bearing in mind that compensation is not paid out of their pockets.

7.3. Related problems: fee-shifting, tort law, labour law

Some cases raise a problem similar to the one identified in this paper. It is relatively frequent indeed that the same conduct prohibited and punished under criminal law is to be evaluated under the rules of another branch of the law as well. For instance, any employee who takes the property of her employer without her consent may not only be charged and punished—or eventually acquitted— for committing theft, but also dismissed according to the labour legislation. Anyone who has had sexual intercourse with another person without her consent may well be convicted—or not—for having committing rape, while also being condemned to compensate the victim for the harm caused to her. In some legal systems, the individual who has been convicted for having committed a crime has not only to suffer some kind of punishment, but also pay the legal fees and the costs incurred by the prevailing party.

In such cases, either the same or different standards of evidence could be used in order to decide, first, on the conviction of the accused person and, second, on his dismissal, tort liability, fees and costs, etc. It would be interesting to analyze the inventive effects of both those rules.

8. Conclusions

In order to determine whether it is socially desirable to compensate acquitted defendants for the harm suffered as a result of their detention on remand, this paper analyzes the effects of this compensation on the behavior of people running the risk of detention and on the total social costs derived both from crime and the prevention of crime. The paper points out three main results.

Indemnifying acquitted pre-trial detainees who are factually innocent lowers crime levels by reducing the costs of being a law-abiding citizen. The problem is that criminal courts make mistakes when adjudicating. We cannot dismiss at all the possibility that they acquit individuals who actually committed the crime as charged. If such is the case, compensating them would foster crime by increasing the expected private benefits of infringing the law. Compensating every acquitted pre-trial detainee for the time spent on remand does not necessarily have, on aggregate, a deterrent effect on crime. This effect occurs only when the number of factually innocents who are indemnified exceeds the number of factually guilty individuals who receive compensation. This depends, in turn, on the probabilities of being detained that guilty and innocent individuals face, the accuracy of the judicial system and the standard of evidence established to compensate.

Leaving aside the possible incentive effects of compensating acquitted pre-trial detainees on State agents, and if we assume that both denying and awarding such compensation do not entail any social costs apart from those derived from their impact

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48 See the decision of the European Commission of Human Rights of 7 October 1987 (M.C. v. United Kingdom, 11882/85).
49 See the judgment of the European Court of Human Rights of 11 February 2003 (Ringvold v. Norway, 34964/97).
50 For an economic analysis, see ECHAZU and GAROUPA (2012).
on crime deterrence, the optimal (from a social welfare point of view) standard of incriminating evidence required to deny compensation is lower than the optimal standard of evidence established to convict defendants. The explanation is simple. There is an asymmetry between the costs of wrongful conviction and wrongful acquittal. Both types of errors have the same negative impact on deterrence, but the former are socially costlier because of the costs of punishment. By contrast, the social costs of wrongful compensation and wrongful denial of compensation are symmetric. They have the same negative impact on deterrence, and they do not produce other social costs different from those regarding deterrence.

There is thus good (although not definitive) reason for not indemnifying every acquitted defendant for the harm suffered as a consequence of having been held on remand, but only if the evidence indicating his guilt does not reach certain threshold lower than the amount of such incriminating evidence required to convict him.

The conclusion is similar, but not identical, if we take into account that denying acquitted pre-trial detainees compensation on the ground that their innocence has not been sufficiently established implies a reputational cost for them. This cost has a similar, albeit probably not so strong, effect to that of the asymmetry between the costs of type I and type II errors committed when deciding whether to acquit or to convict accused individuals. As a result, the standard of evidence for compensation that allows maximizing social welfare is higher than the standard of evidence that minimizes crime, although lower than the standard of evidence for conviction that minimizes social costs, which in turn is lower than the optimal standard for conviction when such reputational harm is not considered.

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