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SOFT NEGLIGENCE AND CAUSE IN FACT
A Comment on Ganuza and Gomez

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ABSTRACT

Lowering the standard of negligence below the first-best socially optimal level has been shown by Ganuza and Gomez (2004) to increase the level of care taken by judgment proof injurers. In this paper, I consider a more complex model of negligence in which cause in fact is taken into account, and I show that this conclusion holds when the injurer's care reduces the magnitude of the accidental harm but not when the injurer's care reduces the probability of the accident. Thus, such soft negligence strategies aimed at tackling the adverse effects of judgment proofness need to be conditioned to the accident prevention technology available to injurers.

Keywords: insolvency, judgment proof, liability, insolvency, cause in fact, soft negligence
JEL classification: K13, K32

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1 Introduction

Ganuza and Gomez (2004) have argued in favor of soft negligence standards for judgment proof injurers. They show that lowering the due care standard below the first-best socially optimal level[1] may actually increase the injurer's level of care. This counterintuitive result can be easily illustrated as follows. Judgment proof injurers may find it more convenient to be negligent than to take optimal care because they only pay a fraction of the expected damage award and externalize on victims the remaining part, which exceeds their assets. Therefore, being negligent costs judgment proof injurers less that it costs solvent injurers.

Reducing the due care level makes it less costly for the injurer to comply with the negligence standard and, thus, can counteract the adverse effects of judgment proofness. This policy turns out to enhance social welfare since the injurer's taken level of care ends up being closer to the socially optimal level than it would have been otherwise.

Ganuza and Gomez (2004) analyze the standard model of negligence, which does not take into account the issue of causation. In this comment, I will expand the analysis to encompass cause in fact and show that the outcome is different in this case. In particular, I will show that, when cause in fact is considered, there is an important difference between situations in which the injurer's precaution reduces the magnitude of the accidental loss – in which case softening the negligence standard is an effective policy measure – and situations in which the injurer's precaution reduces the probability of the accident – in which case, contrary to the previous one, softening negligence does not increase the injurer's level of care.[2]

My results are different from those attained by Ganuza and Gomez because the implementation of cause in fact removes the traditionally claimed discontinuity in the injurer's cost function under a negligence rule. Grady (1983) and Kahan (1989) have shown that, under the doctrine of cause in fact, a negligent injurer does not necessarily pay damages to the victim. The latter must prove that the injurer's negligence *caused* the harm or, put differently, that the harm would not have occurred

[1] Soft negligence is in fact a form of gross negligence.

[2] For the different effects of judgment proofness under different precaution technologies and the distinction

but for the negligence of the injurer. In fact, even if the injurer had been non-negligent, some accidents could have nevertheless occurred since the due care level is generally not the level of care that yields a probability of accidents equal to zero.

Therefore, those accidents that occur even if the injurer is non-negligent need to be discounted from the injurer's expected liability. As a result, the injurer does not expect to pay full damages but only incremental damages, that is, the damages caused by his negligence.

Graphical analysis helps illustrating this point. Figure 1 (a) concerns the negligence rule without cause in fact.[3] The graph depicts a discontinuity in correspondence to the due care level x^*, which is due to the fact that to the left of x^* the injurer pays full damages and his precaution cost and to the right of x^* he only pays his precaution cost. The magnitude of the discontinuity is precisely equal to the expected harm that occurs when the injurer takes x^*.

Figure 1 (b) depicts the negligence rule with cause in fact. In this case, there is no discontinuity because the damages that would have occurred anyway even at x^* need to be discounted from the injurer's liability.[4] The expected cost for the negligent injurer shifts downward maintaining the original shape and hence its minimization point since the subtraction does not affect the cost in marginal terms.

With solvent injurers, the two rules induce the same levels of precaution; however, their outcomes differ in the presence of judgment proofness. While precaution under the standard negligence rule can be invariably enhanced by soft negligence standards, I will show that the effect of soft negligence in the model with cause in fact depends on the precaution technology.

The standard model assumes that the injurer's care reduces the probability of accidents while the magnitude is exogenously determined – the *probability model*. In reality, however, the injurer's precaution also has some effects on the magnitude of the accidental loss. Reducing the speed, for example, a motorist curbs both the

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between probability and magnitude models, see Dari Mattiacci and De Geest (forthcoming).

[3] See Brown (1973) for the standard economic formalization of tort liability. The straight line represents increasing precaution costs, while the decreasing curve represents the expected accident costs (probability of the accident times magnitude of the harm), which decrease at a decreasing rate when precaution increases. Their sum gives the U shaped curve above the other, only half of which is depicted because the injurer does not pay damages when he is non-negligent – that is, to the right of x^*.

[4] Those damages are represented by the segment *CD*, which is equal to the segment *AB* by construction. In fact the segment *AD* represents the total expected accident costs at x^* and is the sum of precaution costs *BD* and expected accident loss *CD*. Thus, *AB* = *CD*.

probability of hitting another car and the magnitude of the resulting harm. For the sake of the argument to be made, we will consider a very simple case in which the injurer's care only reduces the magnitude of the harm, while the probability of the accident is exogenous – the *magnitude model* – and compare it with the diametrically opposed probability model.

In the standard negligence model, judgment proofness causes underprecaution only if the injurer's assets are below a certain threshold.[5] Figure 2, instead, shows the effect of judgment proofness under negligence with cause in fact. Figure 2 (a) depicts the probability model, where the dashed line depicts the cost of being negligent for a solvent injurer and the continuous line depicts the cost for a judgment proof injurer. As the figure shows (the point E is lower than B), it is convenient for the injurer to take a level of care below the due socially optimal level as soon as the injurer's assets are below the harm, that is, also for those levels of the injurer's assets that do not lead to underprecaution under the standard model of negligence.[6] This is due to the fact that injurers only pay incremental damages and hence the cost of violating the due care standard is lower than under the traditional negligence rule where they pay full damages. Thus, violating is more often convenient than under the standard model of negligence.

If the negligence standard is lowered below x^*, then the amount of the damages that are to be discounted from the injurer's liability increases as well since at the new level of due care the damages that would have occurred anyway are greater than at the optimal level of due care. As a result, the dashed curve moves downward (see the gray-bounded line), while maintaining the same shape. Therefore, while the point B – the cost of being non-negligent – decreases and moves to the left to become the new point B', the point E – the cost of being negligent – simply moves downwards and becomes the new point E'. Again, the injurer's cost is lower at E' than at B'. Thus, by reducing due care it is impossible to make complying with due care relatively less expensive than violating due care.

In the magnitude model of figure 2 (b) instead, judgment proofness has a different effect. Since the probability of the accident is exogenous and the injurer's

[5] See Summers (1983) and Shavell (1986) for this result.

[6] This result is analogous to that derived by Kahan (1989), who does not discuss the issue at stake here but studies the effect of an erroneous determination of the damage award when cause in fact is applied in a probability model.

care only affects the magnitude of the harm, the injurer is judgment proof only if he takes such a low level of precaution that the resulting damages are greater than his assets. Thus, as shown in the figure, judgment proofness only affects the left-hand region in the graph, corresponding to low levels of *x*.

If the injurer takes no precaution, then he pays all his assets only if an accident occurs – an expected liability cost depicted by the point F. As he raises his level of precaution, the injurer initially bears the same expected liability cost – because, despite the fact that precaution reduces the magnitude of the harm, such a harm is so large that the injurer still pays all his assets anyway[7] – and increasing precaution costs. At the point at which the injurer's precaution is enough to lower the expected damages below the value of his assets, his total cost starts decreasing since precaution now also reduces his expected liability by reducing the magnitude of the harm.

It is easy to see that soft negligence affects the point B in the same way as in the previous case, but it does not affect the point F, which is independent of the standard of due care. Therefore, soft negligence lowers the cost of compliance relative to the cost of violating due care and may indeed enhance social welfare. In fact, as in the figure, non-negligent behavior at B' triggers a lower cost than negligent behavior at F.

This paper is organized as follows. Section 2 analyzes the probability model. Section 3 analyzes the magnitude model. Section 4 concludes.

2 The probability model

In this section, we will analyze situations in which precaution reduces the probability of accidents but does not affect the magnitude of the harm. We will formally prove the following claims:

1. In the probability model, under negligence with cause in fact, the injurer *always* takes less than socially optimal precaution if the injurer's assets are less than the harm (while, under negligence without cause in fact, this result only obtains if the injurer assets are below a certain threshold);
2. In the probability model, under negligence with cause in fact, soft negligence standards for judgment proof injurers *never* induce greater precaution (while they may do so under negligence without cause in fact).

2.1. Judgment proofness under simple negligence with cause in fact in the probability model

Let us examine the behavior of a risk-neutral, wealth-constrained injurer who decides his level of precaution in order to minimize the sum of precaution cost and the expected liability cost. Accidents are assumed to be of the unilateral-care type; that is, only the injurer may take precaution while the victim is passive. Let:

x = the injurer's precaution cost, $x \geq 0$;
$p(x)$ = probability of an accident, $0 < p(x) < 1$, $p' < 0$, $p'' > 0$;
h = magnitude of the harm, $h > 0$;
t = the injurer's assets, $t > 0$.

Let us define the social cost as the sum between the expected accident loss and the precaution cost, $p(x)h + x$, and the socially optimal level of precaution x^* as the level of x that minimizes the social cost and thus solves $p'h + 1 = 0$. Let us first assume that the level of due care is set equal to x^*.

Under simple negligence with cause in fact, the injurer only pays his precaution cost if he takes $x \geq x^*$, and he pays precaution cost and damages if $x < x^*$. In the latter case, there are two limitations to his liability. First, if his assets are only $t < h$, he only pays damages up to t if an accident occurs. Second, since cause in fact applies, he does not pay damages in those cases in which an accident would have occurred even if he had been non-negligent. At x^* – when the injurer is non-negligent – a portion $p(x^*)$ of the accidents occur; thus, those accidents are discounted from the injurer's liability. As a result, the injurer's cost function is as follows:

$$J(x) = \begin{cases} [p(x) - p(x^*)]t + x & if \quad x < x^* \\ x & if \quad x \geq x^* \end{cases} \tag{1}$$

The first expression in (1) is minimized by $x^{JP}(t)$, which solves $p't + 1 = 0$. Comparing this expression with the first order condition for the social optimum, $x^{JP}(t)$ is clearly less than x^* if t is less than h. Moreover, contrary to what happens under simple negligence without cause in fact, the injurer always finds it advantageous to take $x^{JP}(t)$ and pay damages rather than to take x^* and be free of liability – that is, $[p(x^{JP}) - p(x^*)]t + x^{JP} < x^*$. In fact, this expression can be rewritten as $p(x^{JP})t + x^{JP} < p(x^*)t + x^*$, which is always true because $p(x)t + x$ is minimized by x^{JP}. Therefore, the injurer takes a level of precaution $x^{JP}(t) < x^*$ for any $t < h$.

[7] Recall that the probability of accidents is exogenous in a magnitude model.

2.2. Soft negligence standards with cause in fact in the probability model

Let us now imagine that the judge can soften the negligence standard below x^* in order to induce a judgment proof injurer to increase his level of precaution above x^{JP}. Let x^{SN} denote such lower level of due care; by construction, the following relationship must hold, $x^{JP} < x^{SN} < x^*$ (the *welfare-enhancing condition*). It is easy to see that there exist no x^{SN} that obeys the above relationship and that would be chosen by a judgment proof injurer. In fact, an injurer would take x^{SN} instead of x^{JP} only if his cost at x^{SN} is less than his cost at x^{JP} (the *injurer's participation condition*), that is, if $[p(x^{JP}) - p(x^{SN})]t + x^{JP} \geq x^{SN}$, which can be rewritten as $p(x^{JP})t + x^{JP} \geq p(x^{SN})t + x^{SN}$. As we noticed above, since $p(x)t + x$ is minimized by x^{JP}, there exist no $x^{SN} \neq x^{JP}$, which satisfies this inequality. Therefore, lowering the negligence standard does not induce greater injurer's precaution.

3 The magnitude model

In this section, we will analyze accidents in which precaution has no effects on the probability of accidents but reduces the magnitude of the harm. We will formally prove the following claims:

1. In the magnitude model, under negligence with cause in fact, if the injurer's assets are below a certain threshold, the injurer takes no precaution; he takes due care otherwise (under negligence without cause in fact, the same result obtains);
2. In the magnitude model, under negligence with cause in fact, soft negligence standards for judgment proof injurers may induce greater precaution (under negligence without cause in fact, the same result obtains).

3.1. Judgment proofness under simple negligence with cause in fact in the magnitude model

Modifying the previous setting, let:

p = probability of an accident, $0<p<1$;
$h(x)$ = magnitude of the harm, $h(x)>0$, $h'<0$, $h''>0$; $h(0)>t$.

The social cost becomes $ph(x) + x$, and, keeping the same notation as before, the

socially optimal level of precaution x^* is the level of x that solves $ph' + 1 = 0$.

Under simple negligence with cause in fact, the injurer only pays his precaution cost if he takes $x \geq x^*$, and he pays precaution cost and damages, if $x < x^*$. In the latter case, the amount of damages that the injurer pays in the magnitude model differs from the probability model. In fact, in a magnitude model, the injurer controls the magnitude of the harm and thus runs into insolvency only if he takes such a low level of precaution that the resulting damage award overcomes his assets – thus, he pays t. Otherwise, if his level of precaution is sufficiently high (although less than x^*), the damages will be less than his assets, and he will be able to pay for them. As a result, the injurer's cost function is as follows:

$$J(x) = \begin{cases} p \min[t, h(x) - h(x^*)] + x & if \quad x < x^* \\ x & if \quad x \geq x^* \end{cases} \tag{2}$$

The first expression in (2) has two extrema: $x^{JP} = 0$ in the left-hand region of the graph, when x is such that $t < h(x)$, and x^* in the right-hand region of the graph, when x is such that $t \geq h(x)$. According to the negligence rule, if the injurer takes x^*, he is non-negligent and thus only bears a cost equal to x^*. If he takes $x^{JP} = 0$, he instead bears a precaution cost equal to zero and an expected liability cost equal to pt. Therefore, the injurer will choose x^* only if $pt > x^*$ and $x^{JP} = 0$, otherwise. Consequently, the critical threshold for the injurer's assets below which a potentially judgment proof injurer takes less than optimal care – more precisely, he takes no care at all – is $t = x^*/p$, which is clearly greater than x^*. The same result obtains in the case of negligence without cause in fact.[8]

3.2. Soft negligence standards with cause in fact in the magnitude model

Unlike in the probability model, judgment proofness reduces the injurer's care only if $t < x^*/p$, and, thus, only in this case may soft negligence be desirable. As above, let us now consider the softening of the negligence standard at a level x^{SN} such that the injurer, who would otherwise take $x^{JP} = 0$, takes the new due care level. The soft negligence standard x^{SN} hence obeys the following *welfare enhancing condition* $x^{JP} < x^{SN} < x^*$. The injurer will take x^{SN} instead of $x^{JP} = 0$ only if his cost at x^{JP} is less than his compliance cost, that is, if the *injurer's participation condition* $pt \geq x^{SN}$ is

[8] For a formal proof of the latter statement, see Dari Mattiacci and De Geest (forthcoming).

satisfied. Combining the two conditions and substituting, we obtain $0 < x^{SN} \leq pt$. It is easy to see that there always exist such a level of soft negligence x^{SN} as long as $t > 0$ – that is, as long as the injurer has positive assets. Thus, in the magnitude model, softening the negligence standard may reduce the social cost.

4 Conclusion

Soft negligence is a way to make the due care level dependent on the injurer's wealth: poorer injurers are subject to lower negligence standard in order to counteract the adverse effects of judgment proofness. I have shown that, when cause in fact is taken into account, the success of soft negligence strategies in increasing the injurer's level of precaution and, hence, enhancing social welfare crucially depends on the precaution technology available to the injurer. In a simple model that takes into account two opposite stereotypical situations, it has been demonstrated that soft negligence does not improve social welfare if the injurer can only reduce the probability that an accident occurs – a pure *probability* model – while it does so if the injurer can only reduce the magnitude of the harm – a pure *magnitude* model.

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Figures

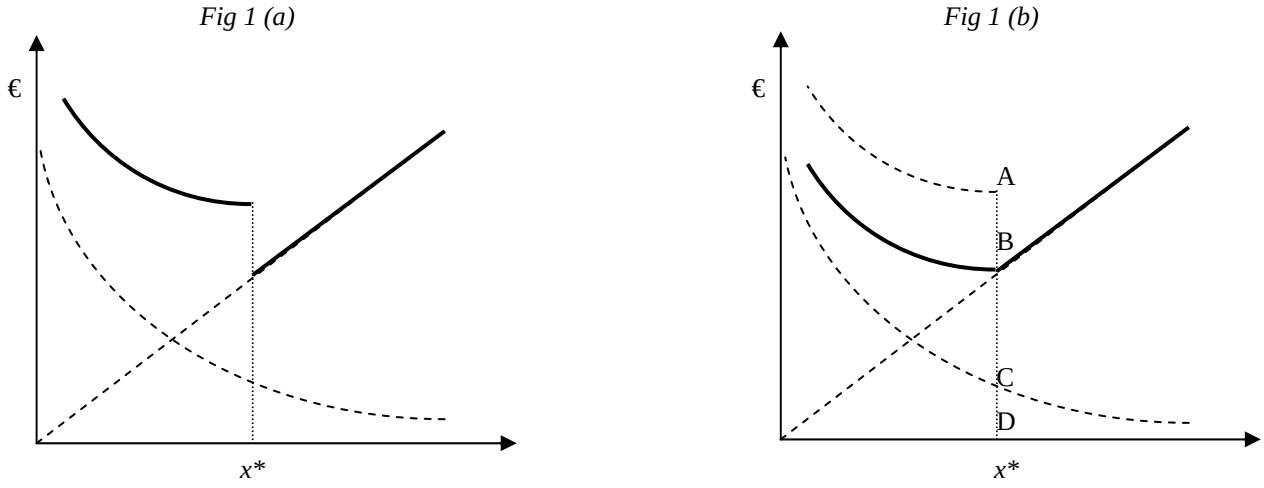

FIGURE 1: *Negligence rule without cause in fact (a) and negligence rule with cause in fact (b)*

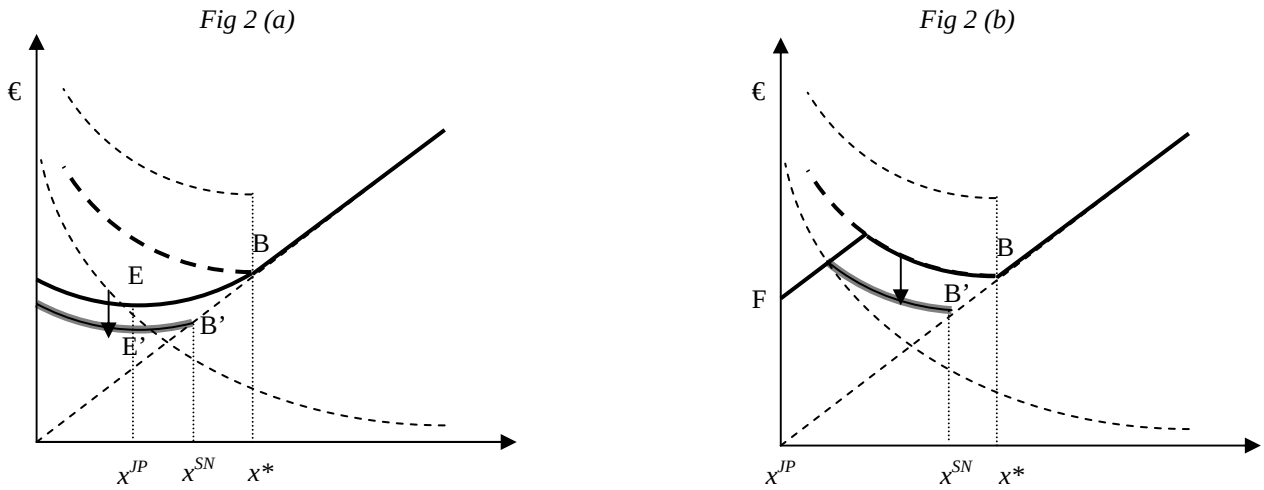

FIGURE 2: *Soft negligence with cause in fact in the probability model (a) and in the magnitude model (b)*