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The Downsides of Liability Reforms in Healthcare

A game theoretical model of defensive medicine

We approach the discussion on defensive medicine – and recent proposals for a "scudo penale" (criminal liability exemption) for doctors – from a law and economics perspective. The proposed reform, which narrows doctors' liability to cases of gross negligence, is often hailed as a solution for all for the problems caused by defensive medicine. The main argument points to information asymmetries: doctors know medicine but not a patient's litigiousness and judges lack information about the adequate clinical standards.

We argue that limiting the threat of criminal liability is not enough to eliminate the incentives for defensive medical practices. Drawing on a game-theoretical model that places less emphasis on information asymmetries between doctors, patients, and judges, we show that defensive medicine can stem from contractual incompleteness - specifically, the uncertainty that exists before all possible circumstances are known. As a result, we recommend that policy responses go beyond liability rules, and should instead reinforce shared pro-social intentions among all stakeholders through strong guidelines and an emphasis on fiduciary duties.

0. INTRODUCTION

On September 4th, 2025, the Italian Council of Ministers made an important step towards the "criminal liability exemption" for medical doctors. The new legislation would *shield* medical doctors from most lawsuits, limiting the liability of physicians to cases of gross negligence (in italian "*colpa grave*") of professional guidelines and good practices.

We observe that law (*rectius*, a reform of doctors liability) is hailed as the silver bullet against "defensive medicine". A relatively straightforward legal reform is projected to save around €11 billion annually and to avoid a pernicious overprovision of care that *"strains public health budgets, and delays treatments"* (Italian Ministry of Justice, 2025).

An explanation of the "criminal liability exemption" based on information asymmetries between judges, physicians, and patients might seem intuitive. A *prima facie* assessment of the situation seems to confirm this: indeed, only doctors have the knowledge to treat patient, they do not know

if patients are of the litigious type; meanwhile judges do not know what are the adequate medical standards, nor whether a physician respected said standards in a particular situation.

According to the rhetoric that is guiding the Italian reform, under the new law medical professionals will be able to be more serene and to not waste energies but rather focus on urgent needs. This article aims to falsify the theory according to which limiting physicians liability is enough to control defensive medicine.

In order to do so, the article will provide a game theoretical model on how defensive medicine functions. Under this model, defensive medicine does not arise because of the principal- agent relationship (that is, not only due to asymmetries of information in healthcare). Rather, it is a consequence of contractual incompleteness (i.e., ex ante uncertainty on the possible contingencies of a "contract").

We argue that proposed solutions should account for the role of fiduciary duties to tackle incompleteness, by recognizing other-regarding preferences and by entrenching the belief that all the stakeholders involved equally share a pro-social intention.

The paper is structured as follows, the first part – that stands as a long abstract – outlines the political and legal debate on defensive medicine criminal liability for doctors. The second part will expand the economic acquis on principal-agent relationships in asymmetry of information, introducing the model by Sacconi (2011). The third part concludes the two parts together.

1. DEFENSIVE MEDICINE IN LAW AND ECONOMICS

In its narrowest sense, defensive medicine is directly connected to the legal provisions regarding criminal liability for healthcare providers (Baungaard et al., 2022). If we accept this perspective, defensive medicine would simply not occur if doctors were never held liable for their actions. Building on these premises, if physicians were held to a regime of strict liability, they would likely choose to treat only the most straightforward cases. Such a scenario would provide a clear illustration of what is commonly referred to as *negative* defensive medicine (Garattini & Padula, 2019). Any *limitation* of criminal liability falls in between these two exotic cases, and might bring about "*positive* defensive medicine" – where doctors provide extra care to some patients in order to avoid malpractice litigation (Garattini &Padula, 2019).

Legal measures are used reduce the threat of liability faced by physicians: one example is the embedding in positive law the precautionary rules of specialistic communities limits the liability of doctors (Terrosi Vagnoli, 1999). Since these precautionary rules are made by doctors themselves in order to counter the fear of uninformed decisions by the judge, this can be seen as *epistemic* self-governance for medical professional. (Brusco, 2013; Piergallini, 2015).

However, in recent years, a growing number of theoretical and empirical works have shown that legal limitations are not the only reason behind defensive medicine. These limitations are one of

the factors why defensive medicine appears (Delpini & Russo, 2022), alongside clinical uncertainty and deontological norms (Antoci et al., 2021).

Defensive medicine can be seen as a reaction to the information advantage enjoyed – counterintuitively – *by the patient*: only the patient knows if they belong to the litigious type. In Antoci et al. (2021), if physicians fear a litigation they *might* exercise their "clinical freedom" (Williams, 1988) and provide extra care that is useless at the margin.

Nevertheless, doctors alone have the technical and scientific knowledge to say which practice is a good practice: hence, the judge would have to rely on doctors themselves to evaluate the adequacy of the extra care. So the question is: do these two[1] asymmetries of information "cancel out" each other? Abundant empirical data confirm that defensive medicine is still widespread, suggesting that indeed other factors play a role (Ramella et al., 2015; Ortashi et al., 2013; Yan et al., 2017; Baungaard et al., 2022).

In their paper Delpini & Russo (2022) emphasize the role of the law as "rules of the game" setting – *inter alia* – the pay-off structure and the simultaneous moves of the game[2] (Sacconi, 2023). Their model is implicitly based on the asymmetry of information between physicians and patients: in fact, the latter cannot observe quality but rather choose on the basis of reputation.

However, the situations just described can be captured also – and we argue, to a better extent – by focusing on the authority of the doctor under incompleteness of the principal-agent (i.e., patient-physician) relation. This approach, presented for the first time in Sacconi (2011), will be now considered in relation to the literature in health economics.

Plenty of literature has discussed the peculiar nature of healthcare systems. Medical care is "unpredictable" and associated with a "considerable risk of impaired functioning". Moreover the physician tasked to *provide* medical care are characterized by a special relationship with patients[3] (Arrow, 1963).

This relation with the patient has been defined over time as a principal-agent relationship where the agent – the physician – is intrinsically altruistic since the beginning of its education (Attema, 2023). However, any application of the principal agent model to medical care relations seems shaky at best. The problem is explained by Williams (1988), with this vignette that should capture principal-agent model at work between doctors and patients:

[1] Doctors lack information about how litigious is a patient, but should they be brought before a court of law their information advantage on diagnoses and treatments would extend to judges.
[2] The game looks simultaneous because the second player to move is in an information set and is unable to
[3] Doctors do not advertise their price to compete with each others, they do not induce demand to earn money, they act as experts pursuant to the law, and – in 1963 – they do not make financial considerations

> "*the DOCTOR is there to give the PATIENT all the information the PATIENT needs in order that the PATIENT can make a decision. The DOCTOR should then implement the decision once the PATIENT has made it*"

As a matter of fact, Williams (1988) notes that in our everyday interactions we are more likely to observe the opposite situation[4], that is to have the patient disclosing information and the doctor making the decisions. We argue that the role of the doctor can be thus characterized as a role of *authority*.

In other words, patients do something because the doctors "say so". Hence, doctors exercise an authority *à la* Raz (1985), and provide "preemptive reasons (not) to do something" (Sacconi, 2011). Under the model of information asymmetry this "authority" is easily explained as "epistemic", since it is based on a better knowledge of the medical science. This epistemic authority puts the doctor in the position of "making decisions" or "giving orders"[5]

However, Sacconi (2011) explains that these "orders" will be accepted by rational patients only *as long as* these orders are aligned with patients' goals (e.g., improving the health status). The reasoning is that patients follow scrupulously the doctor's advice on a treatment – no matter how discomfortable – because they accept that the doctor is trying to benefit them; but they might disregard the doctor's advice on blood transfusion if they believe in certain religions, as it no longer aligns with their overarching goals.

While it is clear that medical expertise plays a role (nobody would feel compelled to follow the doctor's *financial* advice), the doctor-patient relation is grounded on the prior acceptance of the physicians authority, that in turn depends on the overarching goals of patients.

As a guarantee that the patient's goal will be respected by the physician, there is the concept physician's "altruism" – also known as "pro-social behavior" (Brock et al., 2016), "other-regarding preferences" (Hennig-Schmidt & Wiesen, 2013), or collectivity-orientation (Arrow, 1963). All these concepts resemble a *fiduciary duty* to act in the patient's best interest, rather than an *intrinsic disposition* of physicians

Interestingly Sacconi (2011) argues that fiduciary duties, structured around vague and general principles, are necessary in cases of *contractual incompleteness*. With "incompleteness" we mean the occurrence of events not accounted for in the agreement regulating a relationship (Hart, 2017), in this case between a patient and a physician.

But is it possible to have *contractual* incompleteness in the field of medical care? Since medical services "often involve an assault on bodily integrity" (Arrow, 1963) which falls within tort law, it

[4] The PATIENT is there to give the DOCTOR all the information the DOCTOR needs in order that the DOCTOR can make a decision. The PATIENT should then implement the decision once the DOCTOR has made it.
[5] It can also be noted that several idioms across many languages see the physician *giving orders*: in English "that's what the doctor *ordered*"; in Italian "non te l'ha mica *ordinato* il dottore"; in French "Sur *ordre* du médecin"

cannot be taken for granted that a contract exists to begin with. In fact, between patients and physicians there is not a contract listing, say, the diagnosable diseases – so that the one excluded could fall under the *remoteness* type of incompleteness. So the question remains: incompleteness of what?

We argue that it is still possible to talk about *contractual* incompleteness. In Italy, the problem of the "quasi-contractual" relationship between a patient and a physician (notwithstanding the cases of an actual contract) has been studied by jurists, originally in order to bestow some legal benefits specific of contractual relations onto patients (Cosio, 2020). This led to the doctrine of "social contact". Moreover, already in case 166/1973 the Italian Constitutional Court suggested the existence of contractual-like obligations even without a formal contract, extending by analogy article 2236 of the Italian Civil Code.

Moreover, consider the case of a surgeon who causes an injury. This case might be classified as a matter of extra-contractual liability, but the existence in principle of the requirement of "informed *consent*" – where consent is distinctive of contracts – hints at possibility of considering the situation through the lens of contractual incompleteness.

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