

## **The measurement and valuation of public security: From health economics to criminal justice economics**

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### **1. Introduction**

This paper is an initial attempt at exploring the ways in which the conceptual tools and methodologies of health economics are applicable to criminal justice. Our starting point is that all policy interventions need to be evaluated and prioritised, regardless of whether they are in the area of population health or in public security, or in any other area of public policy for that matter.

The paper is organised as follows. Section 2 compares the areas of health and security. Against this background, Section 3 considers how we might develop a preference-based measure of outcomes related to public security. Section 4 considers how we might deal with the fear of crime (when, interestingly, public policy seems much less concerned about the fear of ill health). Section 5 suggests a tentative research agenda.

### **2. A comparison of health and security**

There are many similarities between the nature of health and the nature of security. Both ill health and criminal victimisation adversely affect an individual's well-being. They can do this in a variety of ways, by affecting an individual's physical and/or mental functioning. Ill health and criminal victimisation are often unexpected chance events, although often individuals have some control over the incidence, and even the consequences, of an adverse event. When health and/or security are compromised, the individual will often benefit from professional intervention, which (at least in many developed countries) is paid for out of the public purse.

However, there are also some obvious dissimilarities between health and security. Most of the time ill health is an unintended consequence – even when the ill health is caused by one's own unhealthy lifestyle, it was intended that way. Criminal victimisation, on the other hand, requires a culpable agent behind the offence, and in some cases the culpability is based on a deliberate intent to harm. Perhaps as a result, criminal victimisation can affect not just an individual's body and mind but, unlike falling ill, is usually accompanied by a violation of that individual's property rights and/or other rights such as his autonomy.

These differences have consequences for the ways in which outcomes can be described. Many health economists have argued that health outcomes can

meaningfully be described on their own, without reference to their cause, diagnosis or prognosis. But it is doubtful whether criminal outcomes could be meaningfully described on their own, without any reference to the circumstances, causes and pathways that lead up to the outcomes in question. In other words, the causes of, and the consequences from, criminal victimisation do not seem so readily separable from one another as they are for ill health.

The ways in which interventions are delivered to deal with ill health and criminal victimisation also differ. In health, there are two main parties: the patient and the health care supplier (though in some systems, there is the insurer as well). The recipient of health care interventions is primarily the patient, and a large part of health care is about treatment. The recipient of preventive health care (which has traditionally been devoted a smaller share of resources than treatment) is the potential patient. So the recipients of curative and preventive care come from the same pool of people. In criminal justice, there are more parties: the victim, the offender, and the criminal justice system, which in turn consists of police, prosecution, courts, and various correctional and rehabilitative institutions. Criminal justice interventions are also curative (e.g. offender rehabilitation, victim support) and preventive (e.g. police presence in crime hot spots), but a major difference from health is that the offender is a major recipient of interventions and services, often much more than the victim.

### **3. An outcome measure for public security**

Taking due account of the issues raised above, we now consider the extent to which the evaluation methods developed by health economists, particularly the methods devised in order to value outcomes, are transferable to the field of criminal justice. There are at least three important questions when developing an outcome measure for use in an economic evaluation: 1) what are the outcomes?; 2) how are they to be valued?; and 3) who is to value them?

In order to evaluate the extent to which resource allocation decisions promote public security – or a sense of public security (which we will discuss in the next section) – we need to consider what the attributes of public security are. An empirical assessment of this would require a preference-based measure of the seriousness of crime. This (like the EQ-5D used to determine the severity of health states) might classify offences in terms of attributes such as whether there was personal harm, physical violence, or a violation of property rights, and it might consider the location of the offence and the relationship between the victim and the offender.

Whether and how the criminal harm came about should be included in any outcome measure requires some thought. An outcome measure that is purely consequentialist would facilitate generalisability, just as valuations for EQ-5D health states can be used across different contexts but what caused our criminal victimisation seems inextricably linked to our valuation of its consequences. To our knowledge, none of the respondents in the York MVH study asked how they came to be in any of the EQ-5D states they were asked to value, but were similar or different losses in health or well-being to be the result of criminal victimisation, we suspect that many people would ask how they came to suffer the losses so described, and this might affect their resultant valuations.

Indeed, respondents might even ask whether those losses were greater or less than the perpetrator intended, and adjust their valuations accordingly (at this stage, we leave it to others to think about how their valuations might be affected by knowledge of the fact that the perpetrator intended to do more or less than harm that actually resulted). In some ways, this discussion is related to a classic tension within the criminology literature between objectivism, which holds that criminal judgement should be based solely on outcomes (e.g. the fact that Smith did not die, even though Jones shot him with the intent to kill) and subjectivism, which holds that criminal judgement should be based on the mental states that brought about the incidence (e.g. the fact that Jones intended to kill Smith).

Once the attributes and levels of any outcome (and possible process) measure have been decided upon – once the ‘what’ question has been answered – attention can then turn to the ‘how’ question, and to those methods from health and elsewhere that might be suitable for determining the weights attached to the different levels of the various attributes of crime. An important issue here will be the currency that those weights are expressed in, and whether all values have to ultimately be expressed in monetary terms so that they can be fed into a full cost-benefit analysis.

If the outcome measure is to be a QALY-type non-monetary one, the obvious challenge is what the anchors (analogous to death and full health in the health area) should be. There seems to be no straightforward parallels to these in the area of public security. Death seems a reasonable choice of lower anchor here, yet, the pathways by which one ended up being dead may be relevant for a seriousness of crime measure. As for the upper anchor, a year of life with no victimisation seems a reasonable candidate but, as we will see below, the fear of victimisation (as well as actual victimisation) plays an important role in security, and this may need to be reflected in the upper anchor.

In relation to the ‘who’ question, preferences could be elicited from professionals, from the victims of crime, from ex-offenders, and from the general population. It may well turn out that the victims of crime have different values to the general public, in much the same way as people with direct personal experience of particular health states often have different values to those with no such experience. There are also important questions relating to differences that might exist between people’s stated preferences in a survey or questionnaire and the preferences they reveal in their market behaviour (e.g. whether or not they purchase burglar alarms) or in their daily lives (e.g. whether or not they leave their house unattended for long periods).

Resource allocation decisions in health care are increasingly being made on the basis of the attributes of particular conditions, rather than according to the labels of the conditions themselves (where terms such as ‘cancer’ evoke particular emotional – and often irrational – responses). It would be a great advance if decision-makers in criminal justice could be provided with information to allow them to think about allocation decisions in similar ways. Questions about whether to try and prevent a burglary or a mugging, say, could then be made in relation to the attributes of those crimes that people value most highly, rather than in relation to responses to the labels of the crimes.

The development of such a measure would also allow for a fresh approach to sentencing policy. Since sentences are partly determined by the perceived seriousness of different crimes, a preference-based measure of the seriousness of crime would allow sentences to be designed so that punishment could fit the attributes of the crime. In the very least, it would be possible to compare current sentencing policy with that implied by the measure.

#### **4. Dealing with the fear of crime**

The two main policy objectives in the health sector are to maximise population health and to reduce inequalities in health. The two main policy objectives in the criminal justice sector are to reduce crime and to reduce the fear of crime. We might consider whether these objectives are the appropriate ones and whether there should be consistency across areas. However, under current policy objectives, a full economic evaluation in the area of criminal justice should include not just the success of policy decisions in terms of objective changes in public security, but also in terms of the public's subjective sense of security.

Strictly speaking, the "fear" of crime is a misnomer. As a concept, it involves all kinds of negative emotions evoked by hearing about, worrying about, and trying to avoid crime. Having said this, some empirical data that purports to measure the fear of crime (e.g. "Are you afraid of going out at night?") are known to reflect concerns that are unrelated to a fear of crime (e.g. "Because I am afraid of falling and hurting myself in the dark"). A more suitable concept may be the "intangible effects on non-victims of crime" but, in this paper, we shall continue to use the established term.

To us, there are three main reasons for taking account of the fear of crime. First, the fear of crime has a very real effect on an individual's subjective sense of well-being – and behaviour, including her consumption. Therefore, public policy aimed at improving an individual's well-being should take account of the losses she experiences from her fear of crime. Second, if we ignore the fear of crime, then the value of crime reduction will be small relative to health promotion and other public policy concerns. One characteristic of actual victimisation (at least in the UK) is that, compared to the number of people directly affected by ill health, the number of people directly affected by criminal victimisation is very small. It is only when the fear of crime is taken into account that crime becomes a major public issue. Third, reducing an individual's fear of crime might represent a very cost-effective means of improving their well-being through public policy.

We also have three main reasons for disregarding, or at least playing down, the fear of crime insofar as public policy is concerned. First, while fear of crime does affect peoples' sense of well-being, it is often based on a misrepresentation of the associated risks. Often an individual's level of fear will overstate his true risks and/or the real consequences should he be victimised and, arguably, public policy should not be based on such misconceptions. Second, and related, the fear of crime can be higher amongst more affluent people whose risk of victimisation is lower than amongst less affluent inner city people whose risk is much higher. It would seem inappropriate to divert resources to ameliorate the fear of crime of the former group at the cost of real security for the latter group. Third, it is quite possible that people have some equilibrium (and perhaps optimal) level of "fear" that which is insensitive to policy.

Whatever the normative status of the fear of crime from a policy perspective, the fact remains that the fear of crime is an important part of criminological research, in a way that the 'fear of poor health' is not much of an issue in the health domain (although there are emerging topics such as the value of reassurance provided by screening). Perhaps we are more concerned about crime because we feel we have more control over whether it happens to us than ill health, where we might adopt a relatively more fatalistic attitude. And it is certainly true that most of us will get ill whilst many will avoid criminal victimisation their whole lives.

In any event, it is interesting that the object of enquiry should be an emotion, and that the focus should be on one emotion in particular. Perhaps we are concerned about fear because, unlike other emotions like anger or shock, it has such a direct effect over relatively long periods of time on how we behave (e.g. in relation to going out at night). If this is the reason, then research efforts should perhaps be directed towards looking into how the fear of crime manifests itself, rather than towards a better understanding of the emotion. Paying attention to the attributes of crime will be illuminating in this regard too, since we will then have a better idea about precisely what fears people change their behaviour in relation to.

Understanding more about the importance attached to different attributes of crime might also provide fresh insights into the 'fear-risk' paradox – that those least at risk are the most fearful. It's not really such a paradox since it is entirely rational to take measures to reduce your risks of something if you are scared of that something happening. And so what is required here is more economic and psychological analysis (to complement the existing sociological analysis) of the complex relationships between objective risks, perceived risks, fear and behaviour – and their relationships with the measure of the seriousness of crime.

Interestingly, we cannot assume that being a victim of crime increases the fear of crime. The fear of crime is affected by the perceived probability of being a victim and by the perceived seriousness of the crime. Victims tend to increase the former and decrease the latter, which roughly cancel one another out. This has parallels to the evidence on health states values, which shows that those in a particular health state often adapt to it and hence do not consider that state to be as bad as other people do.

## **5. The way forward**

The foregoing discussion alludes to a number of possible avenues for future research, and these are set out a little more clearly here. At the heart of a future research agenda lays the development of a preference-based measure of the seriousness of crime. This should begin with the identification of the salient attributes of crime. This would involve a literature review, followed by empirical investigation into which attributes matter most to members of the public. This study of 'lay' concepts of crime would have many parallels to the study of lay concepts of health that resulted in the development of the EQ-5D.

Once the attributes of crime – and the levels within each attribute – have been determined, we can embark upon empirical investigation into the relative weights that

people (professionals, victims, ex-offenders and the public) attach to each level of each attribute. Some of the valuation methods used by health economists might be suitable in this regard, and we will need to explore the feasibility of expressing the relative weights in monetary terms. These studies will generate a population-based measure of the seriousness of the important attributes of crime. While this would be a novel enterprise in criminology, the relevant methodology for this is well established in health economics.

We could then consider whether there are certain characteristics of offenders (their social class, say) that make us feel differently about what punishment best fits their crime. Much here will depend on the extent to which someone is considered to be *responsible* for her actions – we might all be blamed for committing a crime but it might be judged fair that some of us are blamed (and then punished) more than others. Again this has strong parallels to our current work in health, which is showing that people generally want to discriminate against those who are to some extent considered to be responsible for their ill health (e.g. smokers). The issue of individual culpability is the bread and butter of criminology, while it is fairly new in health economics. The challenge will be the application of analytical quantitative tools to an old art.

Along with developing a measure of the seriousness of crime, we will need to consider the public's fear of crime. To us as economists, the fear of crime is relevant insofar as it affects people's behaviour, which in turn affects their fear, which in turn affects their subsequent behaviour, and so on. We suggest that how people behave in response to their fear of crime has no consumption benefits; that is, people behave in ways they would rather not have to e.g. they buy burglar alarms, they do not go out at night etc. This contrasts with health where people may gain other benefits from behaviour that reduces their real risks of health losses (e.g. by enjoying healthy food). If we can provide a better understanding of what determines our fear of crime, then we will have a better understanding of what affects our behaviour in relation to that fear. Again, this is a topic well researched in criminology, but not with the analytical approaches available in economics.

Since not all fear will lead to changes in behaviour, we need to develop a behavioural model of how fear translates itself into security-enhancing behaviour. Our behaviour will then be a function of the fear of crime plus the costs associated with changing our behaviour. For example, all else equal, an increase in the price of burglar alarms will mean that fewer people buy them, even though the degree of fear may be unchanged. Further research on security-enhancing behaviour will offer important insights into the descriptive topic of the fear of crime.

In this paper, we have begun to show how the measurement and valuation of health could be translated into a research agenda that measured and valued the outcomes of the criminal justice system. It is a research agenda that we intend to embark on ourselves and hope that others might join us – or at least offer us their insights into how we might best proceed.