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Crime Reporting Decisions and the Costs of Crime

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Abstract The paper develops a model of crime reporting based on an economic approach. It identifies the principal costs and benefits of reporting from the victim's perspective, taking account of insurance provision and the risk of intimidation by an offender. It shows how a victim might use backward induction to infer a rational reporting strategy. The recording of crime by the police is a process that relies on victim reports, and is thus influenced by the reporting decisions made by victims. The paper uses empirical evidence from the British Crime Survey and from the International Crime Victims Survey to explore the hypotheses generated by the model. It finds support for the suggestion that the propensity to report a crime increases with the size of the loss entailed. The paper also explores the implications of the findings for the estimation of the costs of crime. Reporting and intimidation costs are generally excluded from bottom-up estimates of costs, an omission that may be quite serious in the context of offences such as domestic violence.

Keywords Costs of crime · Crime reporting · Intimidation · Victim loss

Introduction

It is well known from victim surveys that many crimes are not reported to the police and that some incidents that are reported are not recorded by the police as crimes[1].

Under-recording is known to vary in degree by offence type, victim characteristics, area and country. It impedes estimation of the aggregate volume of crime, the direction of crime trends, the composition of crime and the costs of crime: Carcach (1997). But the surveys also provide raw material against which hypotheses to explain under-reporting or under-recording can be tested.

[1]The under-reporting in British crime data is noted at: http://www.homeoffice.gov.uk/rds/bcs1.html

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The purpose of this paper is to explore crime reporting by witnesses and victims and to consider the implications for measuring the costs of crime. The paper uses an economics-based cost-benefit framework to generate hypotheses about circumstances likely to be more or less conducive to reporting. It is shown that the incentive structures facing crime victims when they make choices about whether to report crime offer an alternative explanation of reporting rates to more widely used models which rely on interpersonal differences or socio-demographic characteristics: Akers and Kaukinen (2009), Bachman (1998), Baumer (2006), Bickman and Rosenbaum (1977). The decisions made by victims likely reflect judgments they make about the various possible outcomes from reporting, including the subjective costs they stand to incur from giving evidence in court, the possibility of being intimidated by offenders or their families or friends and other influences. Previous economic literature has modelled the decision to report in a simple framework where victims might need some monetary compensation to overcome some of these costs: Garoupa (2001). In this paper we provide a more detailed account of benefits and costs, and analyse the interaction of the different kinds of relevant variables that explain reporting and recording.

The paper uses empirical evidence from two leading crime victimisation surveys to explore reporting behaviour in practice. Data from the British Crime Survey are used to explore the reasons given by victims of burglary for whether they reported the offence to the police. The internationally standardised survey, ICVS, is used to make comparisons across countries of the reporting decisions of burglary victims in relation to the value of the property stolen.

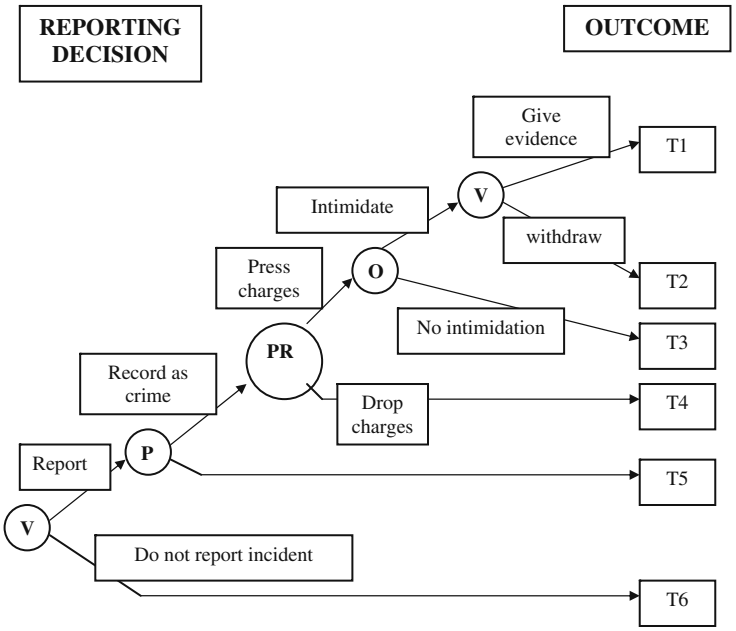
The Reporting and Recording Processes

The volume of crime recorded by the police is the product of a process in which various agents with different incentive structures make decisions sequentially. A central objective of the research is to identify these motivations and to exploit the findings for purposes of improving our understanding of the process. If successful the result should be a more solid foundation for making comparisons of crime rates (and the costs of crime) across countries, areas and offence types. The idea that reporting decisions reflect rational calculations by victims is not of course a new one. Skogan (1984) in a review of research on the topic 25 years ago expresses such a conclusion, as noted by Gottfredson and Gottfredson (1987) at p.42. More recently, Garoupa (2001) develops an economic model where victims are explicitly assumed to be rational players. However, it should be noted that most economic literature takes the victim to play a passive role which is inconsistent with the realities of reporting.

Individual Reporting Decisions

The citizen who is victim of, or witness to, a crime decides whether to report it. For simplicity we confine ourselves to the decisions made by victims, although the model can be easily extended to witnesses even if the incentive structure confronting witnesses is somewhat different. They have no direct stake in the outcome of intervention by the Criminal Justice System although they may have an interest in events. If a defendant is put on trial then the witness will likely be called to give evidence and possibly to be cross-examined by a hostile defence lawyer.

There are private and social costs and benefits to the citizen associated with the reporting decision. Figure 1 summarises the key decisions involved and the payoffs in each case from



Notes: Players in the game are:

V	**victim**
P	**police**
PR	**public prosecutor**
O	**offender**

Terminal nodes T1..T6 represent possible outcomes

Fig. 1 The victim's reporting decision

the perspectives of the victim and the offender. The victim is the 'first mover' in the game as characterised here. Obviously we are neglecting instances in which police witness an offence first hand, in which case there is no reporting decision to be made by a victim.

When reporting an offence an economically-rational victim will try to anticipate possible developments at later stages in the game. The victim can be expected to reason through whether, for example, it is likely to be optimal from the offender's perspective to engage in intimidation at a later stage. The likelihood is that if intimidation is anticipated later, the best policy is to refrain from reporting in the first place. This proposition relies on standard backward induction methods as used to analyse games in economics: Dutta (1999).

Private Costs

The private costs to the victim (and/or witness) of reporting an offence can include a number of components. It can, for example, take time and effort to assemble evidence and contact the police. Unless there is a 'pay off' of some kind from this time and effort, victims may not bother to report. Experiments have shown, for example, that

reducing the costs of reporting by giving victims the option to report incidents to the police on the web can increase reporting rates relative to those achieved when telephone reporting is used: Lasley and Palombo (1995).

In some instances a victim may avoid reporting for fear of shame or embarrassment about having demonstrated a 'personal weakness' or 'poor judgment' in relation to an incident. Related to this is reluctance to report where a victim fears they may incriminate themselves (e.g. in an assault) and incur fresh charges by the police or counter-charges from the other party.

In somewhat similar vein there may be social stigma attached to breaking conventions about reporting to the police, especially if friends, neighbours or relatives are involved: Young (2006). Fear of being ostracised may, at the margin, disincline a victim to report.

In some instances there may be fear of retaliation by the offender, particularly if a victim is seeking immediate police help.

In addition to worry about retaliation there may be an awareness of the possibility of intimidation by offenders and pressure to drop charges or not to give evidence in court. A victim with such concerns may try to avoid intimidation by failing to report the incident. A significant proportion of criminal trials break down because victims or witnesses withdraw their willingness to appear in court as the event of a hearing gets closer. Of course this can be for various reasons, but intimidation by offenders is likely the cause in some of these instances. Interventions to improve witness protection have been shown to reduce the incidence of trial collapse: Avail Consulting (2004).

At a more mundane level there is the opportunity cost of time spent on case preparation and attending court hearings plus the stress of having to spend time as a witness in court and being cross-examined

Intrinsic Benefits

To set against these costs there may also be both 'intrinsic' and 'extrinsic' benefits.

An example of an intrinsic benefit is a neighbourhood or 'solidarity' effect resulting from altruistic motives encouraging victims to report offences. This will occur if victims believe such action may encourage others to report offences and thereby bring about greater commitment of police patrols and resources to their home area, making it safer. For an analysis of the role of neighbourhood social cohesion and other factors encouraging reporting see Goudriaan et al. (2006) and Starrett et al. (1988).

'Incapacitation' effects may result from reporting offences to the extent that greater reporting may reduce the number of offenders living in the locality who are at liberty, and thus reduce the probability of being victimised again in the future.

There may be 'psychic' benefits including those deriving from retribution. Some victims are anxious to see those who have offended against them punished. Such a feeling of a wrong to oneself having been righted clearly entails reporting the offence.

Extrinsic Benefits

Benefits flowing from a decision to report might include collecting the evidence necessary to support an insurance claim. Many policies providing insurance against the effects of crime will require evidence of the offence in the form of a formal police report. Reporting the offence to the police will normally be a pre-requisite of obtaining a formal report or reference number.

Another potential direct benefit to the victim is an improved prospect of recovering stolen property, or of qualifying for compensation through a criminal victim support scheme. These kinds of benefit require a degree of willingness to report.

Balancing Costs and Benefits

The final decision about reporting will depend on the relative strength of the costs and benefits. The relative size of these effects will depend on things such as a victim's income level, which determines the opportunity cost of their time. The value of any property at stake will influence the potential gain from an improved probability of recovering lost items. It is important to keep in mind that the loss victims suffer may sometimes greatly exceed the financial value of items. Family heirlooms or items with 'sentimental value' may be greatly treasured and thus be worth pursuing via a police report even if their market value is only small (that is, intrinsic motivation prevails over extrinsic motivation).

The characteristics of the local area, as captured by the degree of deprivation, the amount of crime, the presence of offenders and other indicators may also play a part. The degree of moral outrage stirred by an offence may also play a part. Victims who are outraged by an offence may be more likely to report it. These factors will be reflected to some degree in the cost-benefit model formalised below.

Model of Crime Reporting and Intimidation Decisions

Figure 1 depicts five possible 'pathways' (ending at terminal nodes T1 to T5 respectively) consequent on the decision to report. The outcome T6 corresponds to the decision not to report. The victim is making a reporting decision in light of their best estimate of the likely net pay-off to reporting, which will be based on how they expect other decision-makers to react.

Note that the loss to the victim (and the gain to the offender) from the offence have already been incurred for purposes of this analysis so they are omitted from the payoffs. For simplicity we denote the various costs and benefits to offenders and victims as follows:

INS	payoff to an insured victim provided the incident is recorded by the police
COMP	an award of compensation by the court or criminal injuries authority to the victim in respect of uninsured losses
CR	cost to victim of reporting the offence
CI	losses to the victim resulting from intimidation
F1	financial penalty or equivalent imposed on the offender if the case goes to court
F2	financial penalty or equivalent imposed on the offender if convicted of intimidation
p	probability of conviction if engaging in intimidation

Table 1 illustrates a possible structure of the various costs and benefits.

Intimidation (and thus whether the victim ends up at T1, T2 or T3) is a product of the offender's decision. Whether it occurs will depend on the expected costs and benefits to the offender of intimidating the victim prior to a court hearing. The offender will engage in intimidation if the expected return (a chance of remaining unconvicted) exceeds the cost (a chance of paying a 'double penalty').

The victim also has to anticipate how they will themselves respond in the face of intimidation should it occur. If they think it likely that they will, in the event, capitulate then

Table 1 Payoffs to victims and offenders

Node	Outcome	Payoff to offender	Payoff to victim
T1	Unsuccessful intimidation	-F1-pF2	INS+COMP-CR-CI
T2	Successful intimidation	-pF2	INS-CR-CI
T3	Regular hearing	-F1	INS+COMP-CR
T4	Charges dropped	0	INS-CR
T5	Incident remains unrecorded	0	-CR
T6	Incident is unreported	0	0

outcome T1 disappears. But in deciding to report the case initially they incur the costs of the **risk** of being intimidated later.

The extent of the original loss from the offence plays an important role, despite the fact that at the time of the reporting decision it has already been incurred. The value of any recovery expected, whether from an insurer of the loss or from the police (or the courts) restoring stolen property (or compensation) to the victim, is likely to be increasing in the scale of loss.

The victim has to make a guess about how long and onerous the reporting process is likely to be and how effective any detection work on the part of the police or others might be. This will be based on an estimate as to how busy the police are and on their reputation for speed, reliability and commitment in handling reports of crime.

The decision calculus of the victim can be illustrated for a straightforward instance of burglary. The householder has had some property stolen in the incident, and perhaps some damage has been done by the offender in gaining access to the property. Let us call the total loss X. Depending on the victim's wage rate, w, and the length of time they believe reporting the offence will tie up now and later, denoted t, they may judge it worthwhile to report. Ignoring other influences (including the possibility of intimidation later) and supposing that they think there is a probability p of the police recovering the lost items, the decision will be:

$$\text{Report offence if and only if : } pX > wt.$$

Thus, for a particular victim, there will be a critical point below which no report is made. This point will vary across individuals depending on income, since lost time imposes higher costs for those with higher wage rates. For an individual the decision can be characterised as in Fig. 2. The victim's wage and beliefs about the costs of reporting will determine the scale of loss at which reporting becomes worthwhile for them. Since wages and beliefs vary

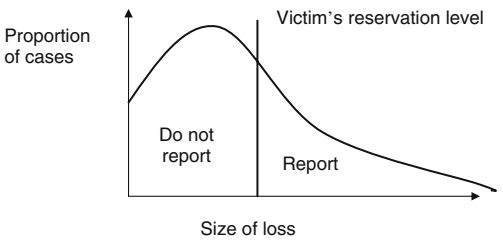


Fig. 2 Victim's reporting decision

across citizens, these 'tipping points' will be different. Some wealthy individuals may choose not to report quite large losses while poorer individuals would report offences involving considerably smaller sums.

The net result, as illustrated in Fig. 3, is that the distributions of losses that are reported and those that are not reported will tend to overlap. For individuals with insurance the decision looks a bit different but the net result is the same: small losses will likely be excluded so the rule will be report the offence if and only if the loss exceeds both the excess on the insurance policy and the costs of reporting.

An important implication is that the average costs of unreported crime may well be lower than those of reported crime, since high value crimes will more often be worth reporting. But note that intimidation will be more worthwhile for the offender to contemplate where the sum at stake is large, since that represents a greater threat of loss to an offender.

Crime Recording

For an incident to be recorded as a crime, reporting by a private citizen is neither necessary nor sufficient. Police witnessing an incident at first hand may record an offence even if no citizen reports it. Equally some incidents that are reported to the police will not be recorded as crimes. The police will normally have some degree of discretion as to whether an alleged incident should be recorded as a crime: Simmons et al. (2003). This discretion is essential to prevent malicious or poorly-informed reporting. However in many cases the discretion may be very narrowly defined, as legislatures try to impose requirements to record incidents meeting specified criteria[2].

The number of police employed will influence reporting decisions since it affects the length of time it will take on average for a victim or witness to report the matter and also the likelihood that resources will be committed to solving the crime and recovering property for the victim.

The decision about recording by the police, or other enforcement agencies, will balance the benefits and the costs. The costs of recording are essentially administrative. Depending on the structure of the bureaucracy these costs can be significantly high, in which case they may deter recording. Nevertheless, the administrative burden might be less of a disincentive to recording if it reduces the time the police have to spend on other potentially less pleasant enforcement activities.

Another possible cost of recording is to increase the likelihood of the police being perceived as incompetent or ineffective if the gap between recorded and prosecuted offences is significant. This gap becomes more relevant if the resources available to the police are based on 'clear up' rates or if judgments about police salaries or promotion prospects are based on them.

The benefits of recording for the police can also be intrinsic and extrinsic. Intrinsic motivation includes a sense of duty, sympathy towards the victim, or the overall payoff from fighting crime and promote criminal deterrence and incapacitation. Extrinsic motivation is relevant when monetary payoffs are obtained by recording because the salaries or the available resources vary with performance measures that are positively correlated with recording. In some cases, this could be quite detrimental; for example, if the

[2] In England and Wales, for example, a National Crime Recording Standard was introduced in April 2002 in an attempt to make crime recording more consistent. For a review of the impact of the change see Audit Commission (2004).

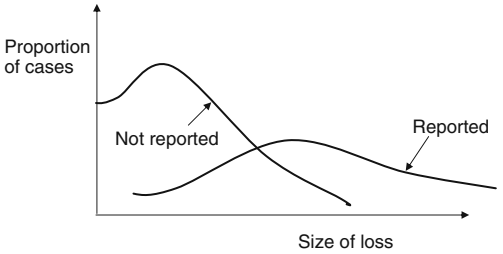


Fig. 3 Distribution of reported and unreported losses

police, or other enforcement agencies, anticipate that their budget increases with higher recording rates (because they will be interpreted as evidence of more crime), this might lead them to record incidents that otherwise would be ignored (for example, because they are thought to be poorly-informed or even malicious reports).

Empirical Evidence

Having argued that the victim will make a reporting decision based on a backward induction of the possible outcomes, the next step is to review empirical evidence as to whether such a characterisation is plausible.

Crime victimisation surveys provide plentiful evidence as to the decisions victims make and sometimes also ask about the reasoning underpinning the decisions made. The two principal sources to which we refer are the British Crime Survey (BCS) and the International Crime Victim Survey (ICVS) published by UNICRI. Both are victim surveys weighted so as to bring the samples in line with the distribution on age, gender and region within the country according to census data. The BCS is much larger than the typical national component of ICVS and its coverage considerably wider.

Table 2 Reporting rate and incident seriousness

Offence type	Reporting rate	Mean seriousness	
		Reported incidents	Incidents not reported
Theft of a vehicle	92%	8.88	6.19
Theft from a vehicle	50%	6.08	3.92
Damage to car	29%	6.72	4.22
Personal theft	54%	6.84	4.87
Burglary	72%	6.95	6.29
Deliberate damage	33%	7.47	4.27
Violence	45%	9.23	5.66
Threats	32%	8.53	5.37
Sexual attacks	38%	11.93	8.27
Household violence	26%	8.91	5.88

mean seriousness measured by victim on 1..20 scale

Source of data: British Crime Survey

It is a straightforward implication of the model that reporting rates will be higher where the value of what is at stake is greater, other things being equal. Table 2 demonstrates that this is the case for a wide range of offence types. The seriousness measure used in the BCS question from which responses are analysed is a subjective assessment by the victim. The Table demonstrates that incidents (of a particular type) taken more seriously by victims are more likely to be reported.

Incident Seriousness and the Reporting Rate

Table 2 demonstrates also that the reporting rate for an offence type is not related purely to the seriousness attached to it within an offence category. Analysis by offence type indicates that there are some lower-rated offences such as theft of a vehicle and burglary for which reporting rates are much higher than is the case for more serious incidents such as household violence and sexual attacks. From the victim's perspective this can be rationalised in part by insurance driving up reporting rates for property offences and partly by the role of stigma and intimidation inhibiting reporting in areas such as domestic violence.

Reporting Decisions and the Value of Property Loss in Burglaries

Further evidence as to the role of property value in influencing reporting decisions is derived by contrasting the property values in cases where victims did report the incident and those where the victim did not report. Table 3 uses ICVS data for ten countries to demonstrate that, with the exception of Portugal, the mean value of property lost in reported burglaries is much higher than for burglaries that were not reported. Differences in the currency in which losses are denominated inhibit direct comparison of losses across countries. There is a degree of consistency in the pattern, however, and the majority of countries have ratios in the range ten to 20.

Reasons for not Reporting Incidents

Some crime victimisation surveys ask respondents identifying themselves as victims about their reasons for not reporting incidents. The reasons may include intimidation by an

Table 3 Reporting of domestic burglary

	Mean value of loss in reported burglaries	Mean value of loss in non-reported burglaries	% burglaries reported	Ratio of mean value for reported to non-reported burglaries	Number of households interviewed
England & Wales	1,662	179	94	9.5	156
Scotland	1,580	46	95	34.1	79
Northern Ireland	1,571	62	87	15.0	71
France	18,413	739	88	24.9	41
Finland	10,500	1,809	87	5.8	23
Sweden	19,274	1,297	81	14.9	84
Portugal	7,595	8,868	62	0.9	98
Denmark	24,788	2,371	93	10.5	230
USA	7,938	597	70	13.3	50
Canada	4,889	297	85	16.5	152

Losses expressed in local currencies (pre-Euro)

Source of data: ICVS, 2000: http://www.unicri.it/wwd/analysis/icvs/data.php

offender, a police report being a requirement of claiming for losses via an insurance policy and the size of loss.

From the BCS responses documented in Table 4 it can be seen that many of the reasons have a resonance with the components in our economic model. The opportunity cost of time appears in the guise of 'inconvenient to report'. The scale of loss appears, although its role is more complex than the role it plays in our model. It makes the likelihood of property (or compensation) recovery contingent on the size of the loss. This could be incorporated into our model but would make it more complicated. We note also that 'fear of reprisal' is cited as a reason for not reporting by 4% of respondents in relation to burglaries and 7% in the event of violence.

Domestic Burglary Reporting in England and Wales

An additional method of exploring the influences on the reporting decisions of victims is to analyse individual level data from survey respondents. The dependent variable for such a model is dichotomous, since it can take values 'yes, reported' (coded as 1) and 'no, did not report' (coded as zero). The data are taken from the

Table 4 Reasons for not reporting incidents

Percentages:

	Burglary	Thefts from vehicles & attempts[a]	Other personal theft	BCS violence[b]	Comparable Subset[c]	All BCS
Trivial/no loss/police would not/could not do anything[d]	70	84	66	46	71	72
Private/dealt with ourselves	17	10	13	34	17	16
Inconvenient to report	6	7	6	4	6	6
Reported to other authorities	2	1	14	8	4	5
Common occurrence	2	2	3	4	3	3
Fear of reprisal	4	0	1	7	3	3
Other[e]	11	6	10	12	8	8
Unweighted base	362	1,323	604	933	6,234	8,252

Adapted from Table 2.11 Reasons for not reporting crime to the police, British Crime Survey 2006/07

[a] Thefts of vehicles excluded because very few such instances were not reported

[b] Comparable BCS violence includes wounding, robbery, assault with minor injury and assault with no injury.

[c] The comparable crime subset includes vandalism, burglary, vehicle theft, bicycle theft, wounding, assault with and without minor injury and robbery.

[d] Too trivial/no loss/would not have been interested/police could not do anything/attempt at offence was unsuccessful are merged due to the similarity in their definition, for example: A respondent who thinks the incident was too trivial may code the incident as 'too trivial, no loss' or 'the police would not be interested' as these two codes may be understood as meaning the same.

[e] This category includes: something that happens as part of job; partly my/friend's/relative's fault; offender not responsible for actions; thought someone else had reported incident/similar incidents; tried to report but was not able to contact the police/police not interested; other.

British Crime Survey (BCS). The formulation for testing the model of reporting behaviour for domestic burglary in England and Wales is:

$$RB_i = \alpha + \beta_1 INS_i + \beta_2 VALUE_i$$

where:

i:1,2,...,407	Households who responded positively in the BCS to a question about being a victim of domestic burglary
RB_i	1 if household i reported the incident 0 if household i did not report it
INS_i	1 if household i was insured 0 if household i was not insured
$VALUE_i$	the total replacement value of what was stolen (£).

The evidence from the BCS shows that indeed reporting is influenced by whether the victim's loss is insured (INS) and the total value of replacement of the property (VALUE). The estimate of the logistic regression model is:

$$RB_i = -0.028 + 0.878.INS_i + 0.002.VALUE_i$$
$$(0.152) \quad (0.230) \quad (0.000)$$
$$n = 407 : \text{standard errors in parenthesis}$$
$$\text{Pseudo } R^2 = 0.288$$

The slope parameters are significant but the intercept is not. The evidence shown by the sample allows us to say that the reporting of domestic burglary is in part explained by whether individuals are insured and by the value of the property stolen. But the overall significance of the model is limited, revealing that there are missing variables that contribute to the decision of whether or not individuals report.

Implications for Estimating the Costs of Crime

Estimates of the costs of crime rely usually on measuring various cost components in aggregate and then deriving an average cost figure for a single offence by dividing the total costs by an estimate of the total number of incidents: Brand and Price (2000), Dubourg et al. (2005). The model developed in this paper shows that the costs of reporting offences and of intimidation may have a significant influence on the behaviour of victims and witnesses, albeit one that is missing from the standard estimates. This section of the paper explores how these cost components can be incorporated into standard methodology.

One of the three principal categories of the costs of crime, based on the standard cost of crime methodology (Brand and Price 2000; Cohen 2005; Cohen and Bowles 2009) is the cost for the victim of the consequences of an offence. Given that the mean loss per incident is likely to vary significantly between recorded and unrecorded offences, it is important to ensure consistency between the base used for estimates of mean loss and estimates of the volume of offences. In the context of making use of findings from a victim survey it is critical to use the *mean loss from all incidents referred to by victims*, not just those incidents which were reported to the police.

To illustrate the potential significance of this point suppose that in the police crime statistics 100 burglaries have been recorded in which victims lost an average of €300. A victim survey covering the same time and space generates an estimate that there were 200 burglaries (only half of which were reported to the police) with an average loss of €200. Two sets of estimates for the cost of crime can be made here. In the first, based on recorded

crime, the total (victim) cost of burglaries is €30,000 with an average cost per offence of €300. In the second estimate, based on victim data, the total (victim) cost is €40,000 with an average cost per offence of €200. The obvious danger is that an analyst receiving the news that there were 100 unrecorded burglaries might adjust cost of crime estimates by applying the average loss calculated from the reported offences to the unreported ones as well. The result would be an estimate of total costs of €60,000 (200 burglaries at €300 each). This overestimates both the aggregate and average costs of crime by a factor of 50%.

The second implication of the model developed in the paper is that the costs to victims and witnesses of reporting crime and bearing any intimidation should be included as part of the costs of responding to crime. The latter are usually estimated by focussing on the costs to agencies in the Criminal Justice System (CJS). But it is clear that victims and witnesses may incur significant costs to themselves from becoming involved in the CJS following an incident. Occasionally, as with the provision of witness protection programmes, some of these costs may fall explicitly on public sector budgets. But more often they will be incurred privately by the individuals affected.

This raises a third issue, namely estimation of the wider social costs associated with intimidation. In communities where intimidation becomes widespread criminal justice institutions become less effective and this may result in a weakening of the general deterrence power of the criminal law. The implication of this is that the social losses resulting from intimidation may be greater than the sum of the individual private losses. Capturing effects of this kind is argued by some to require greater use of 'top down' methods of estimating the costs of crime: Cohen et al. (2004).

Conclusions

The paper demonstrates that contemporary methods of economic analysis can be used to reinforce the argument that crime reporting and recording decisions can be thought of as posing a rational choice problem. A rational victim will weigh a number of costs and benefits and decide in favour of the most advantageous option. This private choice may not always be the outcome that would be socially preferred, since some of the costs and benefits impinge on third parties as well as on the victim or witness. The purpose of criminal justice policy is to provide support to victims and witnesses which helps internalise some of these third-party effects.

A rational enforcement agency will also weigh costs and benefits before recording a report by a victim as a crime. It may implement this through a set of "counting rules" or "recording standards or protocols" or it may delegate decisions to the discretion of a police officer. In either event cost/benefit calculations will be entailed. Public policy, in particular performance measures and allocation of resources, will inevitably influence the outcome of such decisions, not always in the socially optimal way.

Our model of reporting decisions is not a complete account of how victims decide but it is shown to be consistent with a number of empirical observations drawn from crime victim surveys covering a number of countries.

The findings have implications not just for the understanding of reporting and policy interventions but also for the analysis of the costs of crime. Models for estimating the costs of crime give a central role to the consequences of offences for victims and to responses to crime, and yet the costs of reporting crime and seeing a report through court hearings to a conclusion are normally ignored. This omission of the high personal costs of what can be a stressful and painful experience is to ignore a potentially important source of costs. The

kind of modelling and empirical research reported here is offered as a first step towards developing estimates of the costs implied by witness intimidation and related phenomena as well as of reporting crimes in the first instance.

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