

FROM PREFERENCES TO EXPERIENCES: VALUING THE INTANGIBLE VICTIM COSTS OF CRIME

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ABSTRACT

An important part of the costs of crime are intangible victim costs; that is, the effects on individual well-being. Economists tend to value such costs by asking people what they would be willing to pay to avoid them (either in money terms or by giving up something else of value, like life expectancy). However, psychological research has shown that such preferences are not a very good guide to how various events impact on well-being. Recent developments in the measurement of well-being as it is experienced provide promising alternatives to preference-based methods and we discuss how these methods could be developed further to provide more robust estimates of intangible costs of crime.

Keywords: preferences – utility – experiences – crime – hedonics

INTRODUCTION

When economists talk about value – including the value of reducing crime – they usually talk in terms of utility. In general, utility can be interpreted in one of two ways: either in terms of the hedonic experience of an outcome or in terms of the preference or desire for that outcome. These have been labelled experienced utility and decision utility, respectively (Kahneman *et al.*, 1997). In the former interpretation, Bentham (1789) defined utility in hedonic terms, as a measure of pleasure and pain. By and large, economists followed this definition up until the twentieth century. Economists over the last hundred years have interpreted utility in the second way, as a representation of preferences. A person's preferences are the mental entities that explain his choices, and they are revealed in his choices. Utility is thus defined in terms of 'wantability' (Fisher, 1918). The two definitions of utility have the same extension if people want what they will eventually enjoy, and this is a common assumption in discussions of utility in economics (Loewenstein *et al.*, 2003).

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A decision-based interpretation of utility lies at the heart of the methods that economists have developed to value non-market goods, such as changes in the environment or health brought about by the actions of individuals, firms or governments. The contingent valuation method (CVM) involves constructing hypothetical markets and asking individuals for their willingness to pay for a given benefit. It is 'contingent' because respondents are required to state their willingness to pay contingent upon a specific hypothetical scenario. For example, people may be asked how much they would be willing to pay for the opportunity to visit a place of natural beauty (Loomes, 2004). Similarly, the utility of health states is commonly measured by hypothetical choices over future profiles of health that differ in their quality of life and risk of death or length of life; utilities which are then used to calculate quality-adjusted life years (QALYs; Brazier, 2004). We have begun to consider how these methods might be used to value the losses from criminal victimisation (Dolan *et al.*, 2005).

Ideally, the choices that respondents make in CVM and QALY-type valuation studies should be guided by accurate assessments of the utility loss associated with different types of criminal victimisation (Kahneman, 1997). Hypothetical choices about future states involving victimisation can be elicited from representatives of the general public asked to imagine what it would be like to face the prospects of victimisation, or from victims of crime who will have good knowledge of the consequences of victimisation. In the next section, we consider evidence relating to the accuracy with which people predict future utility, which suggests that members of the public are likely to overestimate the utility loss associated with different kinds of victimisation because of an inability to appreciate how they will adapt to changed circumstances (people should, of course, take due account of sensitisation too, but there is less evidence relating to this matter).

In the third section, we discuss some of the problems associated with eliciting decision utilities from victims of crime. These preferences may be free of some of the biases associated with public values but, as decision utilities, they will still reflect the focus of the respondent's attention at the time of the assessment, rather than what they will attend to in their future experiences. In order to generate meaningful responses, victims will also need to forecast what life would be like in the absence of being victimised, which may be subject to its own biases. Moreover, victims' decision utilities do not take account of any losses that may have already taken place and, whilst victims could be asked to consider their previous experiences when making choices about the future, there is also evidence that people are not very much better at remembering past experiences than they are at predicting future ones.

The fourth section considers how we might develop measures that focus more directly on experienced utility. The methods we propose in place of the standard valuation methods are still very much in their infancy, but have potential to provide data that are useful to policy-makers. The fifth section considers three of the main arguments against the use of experienced utility, which all relate to

problems with interpersonal comparisons of utility. The first is response shift, which might mean that a victim's assessment of their utility may not be comparable with a non-victim's rating. The second concerns the fact that different experiences of crime will affect how much impact a given crime has on experienced utility. The third concerns the fact that victims who have adapted to their changed circumstances, perhaps through hard work and much effort, will obtain less priority in the competition for resources than those who have not adapted. Whilst both issues need to be given due consideration, we suggest that they have been overstated.

HOW WELL CAN THE PUBLIC BE EXPECTED TO FORECAST LOSSES FROM VICTIMISATION?

We are not aware of direct evidence that addresses this question and it is hard to find any studies that compare decision utilities with the utility that follows from those decisions. However, there are a number of studies that have compared predicted utility with experienced utility and the results suggest that we are not very good at predicting future utilities. In many experiments, it seems that people generally expect both good and bad feelings to last a lot longer than they really do. For example, people waiting for a kidney transplant predicted that their well-being would be much more affected by whether they received a kidney or not than turned out to be the case (Jepson *et al.*, 2001). Similar longitudinal results have been found for people testing for HIV (Sieff *et al.*, 1999).

These and other results suggest that people generally overestimate the intensity and especially the duration of their reactions to those events. Furthermore, the evidence across a range of contexts suggests that we adapt quickly to many events, like winning the lottery, getting married, or even becoming paraplegic (Brickman *et al.*, 1978; Lucas *et al.*, 2003). Wilson and Gilbert (2005) suggest that one important reason for this is that we fail to appreciate our ability to 'make sense' of the things that happen to us. Gilbert *et al.* (2004) show that people predict a monotonic relationship between intensity and duration, but their evidence suggests that adaptive processes might only arise with more serious harms. Of course, some events, like rape, may result in permanent losses in utility, but those losses would be much worse if we did not possess psychological defences that hasten our recovery from them.

There are some data on decision utilities in health that suggest that members of the general public overestimate the losses associated with a range of health states (De Wit *et al.*, 2000). In fact, we find in the sorts of studies that are being used to calculate QALYs for use in policy settings that many states are, on average, considered to be worse than dead (Dolan, 1997). Moreover, not only does it appear that respondents fail to anticipate how they will eventually adapt to many adverse health states, it seems that they think many states will become worse the longer they last (Tsuchiya and Dolan, 2005). In some cases, a health

state that is considered to be better than dead for a shorter duration is seen as being worse than dead when it lasts for a longer duration (Dolan and Stalmeier, 2003).

There are at least three factors that tend to reduce the public's assessments of health (and possibly criminal victimisation) states that are different to their own, all of which draw respondents' attention away from the possibility of adaptation. First, attention is drawn to the transition from one health state to another and the transitory change in well-being that will result. So, if respondents are asked to value being mugged, they will tend to focus on the immediate aftermath of the mugging, which will initially be the focus of much attention: they will be a victim 'full-time'. But after this transitional period, a crime victim will only be a victim 'part-time', as they attend to other things in their life. So valuations are likely to be affected by a 'Peak-Start Rule' (Dolan and White, 2006), where respondents focus on the peak loss and the immediate loss (which in many cases, of course, will coincide with one another).

Second, and even allowing for the transition phase, attention is focused on the domains that are adversely affected by the victimisation rather than on other domains (such as close personal relationships), which may be unaffected, or even enhanced, by the victimisation. Third, it is possible that responses will reflect immediate affective reactions to the question (Wilson *et al.*, 2002). So, not only might respondents be channelled to consider a limited number of (possibly relatively unimportant) aspects of the future, they might even be channelled away from thinking about the future at all, and towards focusing on current feelings.

Of course, policy makers may wish to devote resources to the crimes that people fear most, but accounting for fear is a separate issue from accounting for losses in utility from a given crime, and decision utilities conflate fears that people have about experiencing crime with their assessments of how their lives will be affected by it. In any event, we are unaware of any economists arguing for decision utilities on the grounds that they pick up people's legitimate affective responses. Indeed, health economists have described health in terms of dimensions (mobility etc.) rather than in terms of conditions, like cancer, in order to avoid introducing too much emotion into the responses. Respondents themselves may think that they are giving a considered response to the utility assessment question, but may in fact be using their immediate fear as a proxy for their future assessment of a state (Gilbert and Wilson, 2000).

Having said all of this, there is evidence that we do not adapt to unemployment (Clark *et al.*, 2004) and that there is increased sensitisation to noise (Weinstein, 1982) and to pain (Peters *et al.*, 2000). Therefore, we may not adapt so well to some kinds of criminal victimisation, and there is some evidence to support this (Shapland *et al.*, 1985). Adaptation to any single event takes time and, in cases of repeat victimisation which occur in relatively quick succession, victims may not have sufficient time to adjust to their baseline level of well-being, which may mean that subsequent adverse events have a greater

(rather than a lessened) effect on their well-being. Moreover, when adverse events happen to us, we often want to come up with explanations that maintain our view that the world is a just place, but this may prove difficult with crime, which involves intent on the part of a fellow citizen.

In addition, many of the examples used to show that we overestimate intensity and duration involve future events that are expected to happen, yet there is some evidence to suggest that the intensity of events is enhanced if there is an element of surprise (Scitovsky, 1976). Interestingly, anticipated events elicit emotion. Notably, an expected crime elicits fear (c.f. Warr, 2000). However, some research seems to indicate that anticipated emotions are negatively correlated with experienced emotions (Fiorillo *et al.*, 2003). If this generalises to criminal victimisation, then the losses in well-being from crime may depend on the degree to which the crime has been predicted (a predicted crime can either be avoided or, if this is not feasible, psychological coping mechanisms can be made ready in anticipation of the crime). The element of surprise associated with many crimes might actually lead to more accurate predictions of the losses in well-being associated with those crimes. Of course, we can only speculate about how well the public will accurately forecast losses from criminal victimisation because we have so very little evidence on what the losses in experienced utility look like.

HOW WELL CAN VICTIMS BE EXPECTED TO REMEMBER THEIR LIFE BEFORE VICTIMISATION AND ANY PREVIOUS LOSSES?

Eliciting decision utilities from those with experience of victimisation will avoid some of the problems associated with eliciting utilities from the general public. However, the fundamental problem with utilities elicited in a decision context remains: namely, that the responses will reflect whatever the respondent's attention is drawn to at the time of the assessment rather than what it will be drawn to in future experiences. Victims may well have experience of the state they are being asked to value but they can be expected to consider only a limited sub-set of possible future experiences in the utility elicitation task. Victims are also required to consider how their future experiences would be different were they to be in a state that is a better state than the one they are experiencing or have experienced. Here too, victims are likely to focus on – or recall – only a limited number of ways in which their lives would be different from now.

Moreover, to be of use in a policy setting, decision utilities from victims will need to reflect how being in that state impacts on the average victim's life, as it will be experienced in the future by that victim. Most victims will experience some initial utility loss even if they fully adapt to their victimisation. Victims who have adapted, even if only slightly, do not have their attention drawn to how the state impacted upon them in the past and so, to fully capture this, decision

utilities would need to be elicited from victims at every stage of the recovery process (Dolan, 1999). So, even if victims were able to accurately forecast how their current health would affect them in the future, their decision utilities would not fully reflect how that state had affected them in the past.

It might be possible to ask victims to give due consideration to how the crime impacted upon them in the past when considering their decision utilities about the future. Victims might well be able to reconstruct the time course of their condition but their decision utilities will be affected by how they recall the victimisation impacting upon their life. Victims are likely to use their current preferences to rationalise a previous change (Wilson and Gilbert, 2003), so they may well remember the transition into their current state as being less intense than it was felt to be at the time. As possible evidence of this, Barsky (2002) found that retrospective recall of health is highly correlated with individuals' current health state and not so well correlated with their initial state.

More generally, there is now plenty of evidence to suggest that our memories do not recall past utilities and their duration particularly well. For example, Redelmeier and Kahneman (1996) asked patients undergoing a colonoscopy to report their level of pain every sixty seconds throughout the procedure and to subsequently rate the 'total amount of pain experienced' on a similar scale. The correlations between the 'on-line' and global ratings suggested that respondents' memories of the experience were influenced primarily by the most painful instance during the procedure and the level of pain at the very end of the procedure: the duration of the procedure was largely ignored. Therefore, it appears that patients use a 'Peak-End Rule', which ignores the full set of experiences and how long these experiences last (Kahneman *et al.*, 1997).

Importantly, these biases in remembered utility transfer to decision utility. Kahneman *et al.* (1993) asked respondents to immerse a hand in very cold water in two trials. For both trials, they immersed a hand in water at 14°C for sixty seconds and on one occasion this was followed by an additional thirty seconds during which time the temperature increased from 14° to 15°. The order of the trials was randomised and they were separated by seven minutes. When asked after the second trial which trial they would like to repeat, 69% chose to repeat the long trial. If the 'peak' effect of victimisation on a victim's utility was some time ago, victims may focus on the 'end' in their utility assessment, which is experienced after adaptation has taken place. Victims are therefore likely to underestimate the full loss, including any transitional loss, associated with a given type of criminal victimisation.

Furthermore, although the experience and recall of emotive events are subject to attenuation by time and biases in how past events are recalled, under extreme conditions the act of recalling past events can in and of itself elicit considerable feelings of anxiety. This is most apparent in post-traumatic stress disorder (PTSD), whereby anxiety attacks, as well as other symptoms, are triggered by events that cause the intrusive recollection of past emotive events. But even the

recollection of seemingly trivial, but emotionally charged, events can elicit emotions. Thus, measuring experienced utility through prompting recollection of past crimes may itself entail a loss of utility.

MEASURING EXPERIENCED UTILITY

There is an expanding literature in economics that is focusing on the determinants of life satisfaction (Ferrer-i-Carbonell and Frijters, 2004) and the impact of different crimes is yet to be fully exploited. Powdthavee (2005) provides one of the first attempts to relate life satisfaction to experience of crime but his results are somewhat counterintuitive: for example, family members experience a greater loss in life satisfaction from being burgled than from having a household member murdered (although some of you that are married may not find this so surprising). There are many problems with using life satisfaction as a measure of experienced utility (for a review, see Schwarz and Strack, 1999), and, as with decision utilities, satisfaction ratings are likely to be based on whatever the respondent's attention is drawn to at the time of the assessment (such as reminding the divorced that they are divorced).

Recent developments in the measurement of utility moment-by-moment provide promising alternatives to decision utility and life satisfaction. Rather than measuring the utility loss from crime victimisation by asking people to make decisions involving future lives with and without victimisation, and rather than asking crime victims to rate how satisfied they are with their lives overall, techniques such as experience sampling (ESM; Stone *et al.*, 1999) and the day reconstruction method (DRM; Kahneman *et al.*, 2004) could measure the quality of the hedonic experience that victims of crime are having, moment-by-moment.

ESM typically involves using palm pilots that beep at random times during the day and ask respondents to state what they are doing, who they are with and to rate different elements of affect (happiness, frustration, worry etc.). This enables the mean affect over the course of a whole day and over a range of activities to be calculated. It is, however, quite an invasive method. The DRM has been developed to overcome this problem, and it has been found to correlate well with on-line assessments. The DRM asks respondents to divide the previous day into a number of episodes and then to rate different elements of affect during those activities on a 1–6 scale. Using the DRM, Kahneman *et al.* (2004) show that one of the biggest determinants of positive affect is sleep quality, whereas marital status and income have tiny effects.

In future studies, it would seem entirely possible to look at the effect of being a victim of different types of crime (as compared to not being a victim at all) on a moment-to-moment basis, as well as to consider whether different types of victimisation also have an effect on the activities that people engage in. Since victims may experience different emotions to the general public (e.g. guilt) some of the emotions from the original DRM may need to be modified to account for

this. By gathering subjective data on people's perceptions of crime, how they feel about their neighbourhood etc., as well as objective data on age, sex, area they live in etc., it may also be possible to show how moment-to-moment utility is affected by the fear of crime, by symbols of crime and, importantly, by how victims are dealt with by the criminal justice system itself.

In principle, the great advantage of data of this kind is that it shows what affects people on a moment-to-moment basis rather than reflecting what respondents think affects them at the time a decision utility or life satisfaction rating is elicited. By collecting relevant background information from enough respondents, it is possible to show how anything affects well-being (including fear of crime) without the respondent having to attribute well-being to any factor. In practice, a study of experienced utility in victims would need to ensure that the reason for their inclusion in the study (because they are a victim) is not at the forefront of their attention when they are completing the ESM or DRM. If the respondent's attention is focused on the crime, then the effect of the crime will appear to be larger than is really the case. If there are strong focusing effects, then one of the main advantages of measuring utility directly is lost.

One of the problems with the ESM and DRM is that respondents do not provide overall cardinal assessments of the episodes. The reported levels of affect across the different elements can be aggregated in different ways, which may produce different results. One simple rule that Kahneman and Krueger (2006) have proposed is to look at the element that has the highest score: if this is a negative emotion, score the time in that activity as one; otherwise score it as zero. It is then possible to calculate the 'fraction of bad time' (which Kahneman and Krueger refer to as the 'U-Index') for each individual. If, having controlled for all other relevant differences between two groups, being a victim of crime X results in a greater fraction of bad time than being a victim of crime Y, then this suggests that the losses from X are greater than those from Y. Moreover, because time is expressed on a cardinal scale, we can also say something about how many times worse it is.

A further problem with the ESM and DRM is that they might not be sensitive enough to pick up small differences in well-being between different groups. For example, a group of people who have previously been burgled might not report any lower levels of affect than a group who had not been burgled, or a group with high levels of fear may show differences to a group with low levels of fear, yet there may be moments when thinking about the burglary or thinking about being victimised results in real losses in well-being that are not covered by assessments of a whole episode. Therefore, additional questions may be needed to pick up important things that 'pop up' but that do not affect how an episode is rated overall. Ideally, we would like respondents to complete the ESM or DRM before, during and after being victimised, i.e. a longitudinal study in which a crime event happens at some point during the study. Whilst this may prove difficult, it may be possible to sample groups that are at high risk of particular

crimes at various times. Students, who face relatively high risks of burglary and mugging, might be a good place to start.

The results from ESM and DRM studies can be used to interpret the relationship between crime and physiological measures such as cortisol. Cortisol is a hormone released in response to stress, and it suppresses the immune system and increases blood pressure. Salivary cortisol levels (acquired through a simple mouth swab) are easily measured and research clearly indicates that an increase in stress corresponds with an increase in cortisol levels and thus cortisol levels are regarded as the best physiological indicator for stress (Lundberg and Frankenhaeuser, 1980). Verbal stress reports may be open to systematic biases and lack generalisability due to variations in the questions used. Cortisol, on the other hand, is less open to such obvious biases (e.g. some respondents may report greater levels of happiness if they believe the experimenter is interested in their happiness and, conversely, victims may report greater misery if they want to show how serious the crime was). To date, the relationship between day-to-day affective states, crime and physiological measures has not been fully investigated. Whilst cortisol in itself has no interpretable affective label, it does offer an opportunity to develop a cardinal measure through examining changes in cortisol levels against self-report data from the ESM or DRM.

It might also be worthwhile considering the use of psychophysiological methods to assess the emotional intensity of victimisation. In particular, skin conductance is regarded as an indication of emotional arousal: the more emotionally arousing an event, the more easily the skin will conduct a small current (Lang *et al.*, 1993). Despite the problems of recall discussed above, we could assume that the process of recall serves as a means of measuring the distress suffered during a crime. For example, a replication of Kahneman's study of colonoscopy patients (see above), where skin conductance also monitors participants' point of recall, might provide insight into how the galvanic skin response (GSR) relates remembered to experienced utility. The GSR might not be biased in the same way as subjective self-report.

There is some evidence suggesting psychophysiological responses are not biased in the same way as self-report data. Grossman and Wood (1993) elicited emotion in participants using pictorial stimuli (scenes of mutilation). The researchers established normative pressures to enhance or to attenuate self-reported emotion through telling participants that previous research had shown a positive correlation between psychological adjustment and emotion responsiveness. Self-report data indicated that participants attenuated or enhanced their self-reported emotional ratings consistent with the manipulations they were subject to. However, psychophysiological data indicated that men did not enhance their physiological responses when encouraged to and that women did not attenuate their physiological responses when instructed to. Response biases are discussed further below.

There is a long tradition relating the GSR with human affect (Watson and Raynor, 1920). Techniques such as exposure therapy present individuals with stimuli that elicit anxieties (e.g. in the case of crime such stimuli might be pictures of the stolen car, environment where they were attacked etc.) and over the course of repeated exposures these anxieties are extinguished (adaptation; Lovibond, 2004). GSR measures can provide a more objective measure of adaptation: as extinction develops, the GSR level attenuates. Thus, a longitudinal study might also involve psychophysiological methods to examine emotional intensity during recall and how it changes as time from victimisation increases. Assuming adaptation occurs, and that well-being returns to baseline and it follows a negatively decelerating function of time, then extrapolation back to the moment of victimisation may provide an indication of the severity of that event. Furthermore, comparing psychophysiological responses with known and quantifiable emotive events (e.g. losing money) might allow the pricing of the emotional costs of crime by comparing the skin conductance responses across the different events.

The goal of providing a plausible measure of utility has two hurdles to overcome: a useful measure *and* a reliable methodology. Available methodologies are limited in scope due to the nature of crime itself; we cannot take full control of the independent variable and manipulate the incidence of criminal victimisation. However, a within subjects design where the incidence of crime-type is manipulated would be the ideal design. Although researchers cannot manipulate real world crime, it is conceivable that a more ethically viable crime analogue could be used. Studies by Kahneman and colleagues (see above) monitored participants as they endured aversive experiences, such as placing their hand into a bucket of freezing water, in order to assess characteristics of experienced utility. While crime and icy water are qualitatively different, these experiments set the precedent of abstracting characteristics of real world affective experience to investigate these phenomena in the laboratory.

PROBLEMS WITH EXPERIENCED UTILITY

One problem with assessments of experienced utility is that response shifts may mask some genuine differences between victims and non-victims (Ubel *et al.*, 2003). Victims of crime might compare their happiness to other victims, elevate their current ratings to reflect the contrast with the loss in utility immediately following the victimisation, or adopt lower standards for the intensity of positive affect (Sprangers and Schwartz, 1999), all of which would lead to underestimation of the difference between victims and non-victims. As possible evidence of this, accident victims remembered their happiness as having been much higher in the past than did a control group (Brickman *et al.*, 1978), and kidney-pancreas transplant patients remembered their pre-transplant quality of life to be lower than they reported at the time (Postular and Adang, 2000).

However, it is also entirely possible that people, when asked to imagine their life before an adverse change in their health, may focus on those things that made their life different to now, rather than on those many things that have been unaffected by their changed health. Baron *et al.* (2003) found that making the response scales more precise with well-defined demarcations served only to increase the discrepancy between the health state valuations of patients and the public. Moreover, response shifts cannot explain all changes in preferences that take place. For example, there is strong evidence of adaptation even when physiological or behavioural measures are used, both of which should be less prone to response shift. Krupat (1974) found that that prior exposure to threat reduced galvanic skin conductance (a physiological measure of threat). Dar *et al.* (1995) found that war veterans with more severe past injuries could hold their finger in hot water for longer before classifying it as painful than veterans with less severe past injuries.

It is still possible for assessments of experienced utility to be influenced by reference norms and comparison standards, particularly in relation to crime itself. For example, how a crime impacts on experienced utility may be affected by how serious that crime is perceived to be in relation to other crimes (Parducci, 1995; Diener and Biswas-Diener, 2002). An individual reporting experienced utility for robbery who has direct or indirect experience of rape may provide different valuations to a person who has only experienced car theft. Some of these differences might be randomly distributed across different crimes or respondent characteristics, but some might not. For example, theft may have less of an effect on the experienced utility of those living in an area where the rate of more serious crimes is relatively high.

However, respondents not being asked to focus on the effect of particular crimes on their experienced utility, but rather to rate their overall experienced utility without attributing it to anything in particular, reduces the likelihood of this happening. The removal of any focusing effects from the assessment of experienced utility is one of its great advantages but we should not be naïve enough to think that all focusing effects are removed by assessments of experienced utility, particularly in those studies where respondents are told that they are being asked such questions precisely because they have been a victim of crime.

Adaptation itself represents another potential problem with using measures of experienced utility. All else being equal, the more a victim adapts to her condition, the less priority she will receive in the competition for resources that improve quality of life. In the extreme case, where there is complete adaptation to a state, there can be no increase in utility from its treatment or cure. The opposite is true, of course, for life-saving or life-extending interventions, where complete adaptation to a state would mean that the benefit from saving someone's life in that state would, all else equal, be the same as the benefit from saving the life of someone in full health. The increased priority given to adapted persons that comes from the use of 'adapted utilities' in life-extending contexts is

often ignored by those who argue against the use of such utilities, but it is in the context of life-enhancing treatments that the issue of adaptation presents us with a potential problem.

The real problem with using adapted values comes when genuinely successful achievements, such as when people adjust their activities or their goals in line with their changed circumstances, result in less priority being given to the states that brought about the need for achievement in the first place (Menzel *et al.*, 2002). A crime victim who is afraid to go out at night may develop an interest in music to replace a previous interest in physical activity. It is unfortunate that some people may need to expend effort to adapt in order to redress changes in well-being following victimisation through, for example, substituting outdoor with indoor recreational activities. In light of the additional victim costs associated with adaptation, it may be unjust if victims additionally lost competitive advantage in the race for scarce resources because their effort diminished the estimated value of treatments for them compared to someone who, for example, resorted to alcohol. Thus, in the case of effort-driven adaptation, resource allocation may require weighting such that victims are not exposed to both the costs of victimisation and loss of resources.

However, we need to be careful here. If this argument is accepted, then an advantage gets created for those who have adapted. Treatments for such people will get greater priority than are warranted by the size of the actual utility gain from them. Resource allocation decisions will then be made as if an adapted person's gains in experienced utility count for more than another less-well adapted person's gains. This also seems unfair. So, for the most part, it seems legitimate to give greater priority to those conditions for which the adaptation process is long and/or incomplete – precisely because the adaptation process is long and/or incomplete. The fact that we appear not to adapt to noise or to unemployment, or to some forms of criminal victimisation, would seem to strengthen the case for policy interventions in these areas.

CONCLUDING REMARKS

Modern welfare economics interprets a person's utility in terms of her preferences. Economists involved in the elicitation of the utility associated with a range of non-market goods have followed the same approach, such as by asking people to choose between different combinations of wealth and safety in CVM studies, and different health prospects in the valuation of QALYs. The choices that respondents make in such studies should be guided by accurate assessments of the utility associated with the future prospects they are being asked to consider. By and large, it seems that people often fail to appreciate that they will adapt to changed circumstances, although there are grounds for thinking that we may find it difficult to adapt to some kinds of criminal victimisation. Modern economics has largely ignored all consideration of adaptation – and sensitisation – by focusing on 'wantability' when a decision is

made rather than on the experienced utility that flows from those decisions. To the extent that our wants, as captured by our decisions, are based on predictions of what we will subsequently enjoy, we are often guilty of 'miswanting', i.e. we want things that do not make us happier or we do not want things that would make us happier (Gilbert and Wilson, 2000).

It may be possible to develop more sophisticated measures of decision utility and to provide respondents with more information and context about the experiences associated with the states they are asked to value. We certainly do not want to suggest that the approach developed by Dolan *et al.* (2005) is without its merits, particularly as valuation work in crime is in its infancy. However, we must be aware that decision utilities will reflect what the respondent's attention is focused upon at the time of the assessment. Adam Smith (1759) argued that 'The great source of both the misery and disorders of human life seems to arise from over-rating the difference between one permanent situation and another'. To more accurately represent the effect of different types and degrees of criminal victimisation on people's well-being as they experience it, we need to devote some of our research efforts to the measurement of experienced utility. Techniques such as experience sampling and the day reconstruction method offer exciting prospects for taking the challenging empirical work forwards.

REFERENCES

- Baron, J., Asch, D.A., Fagerlin, A., Jepson, C., Loewenstein, G., Riis, J., Stineman, M.G. and Ubel, P.A. (2003). Effect of Assessment Method on the Discrepancy between Judgments of Health Disorders People Have and do not Have: A Web Study. *Medical Decision Making*, **23**, 422–434.
- Barsky, A. (2002). Forgetting, Fabricating and Telescoping: the Instability of Medical History. *Archives of Internal Medicine*, **162**, 981–984.
- Bentham, J. (1948). *An Introduction to the Principle of Morals and Legislation*. Blackwell; Oxford. (Originally published in 1789.)
- Brazier, J. (2004). Non-monetary Methods for Valuing Health: Quality Adjusted Life Years. Paper presented at First ESRC Seminar on Crime, insecurity, and well-being: an economic approach, Sheffield; UK.
- Brickman, P., Coates, D. and Janoff-Bulman, R. (1978). Lottery Winners and Accident Victims: Is Happiness Relative? *Journal of Personality and Social Psychology*, **36**, 917–927.
- Clark, A., Diener, E., Georgellis, Y. and Lucas, R.L. (2004). Lags and Leads in Life Satisfaction: a Test of the Baseline Hypothesis. *German Institute for Economic Research*, Discussion Paper 317; Berlin.
- Dar, R., Ariely, D. and Frenk, H. (1995). The Effect of Past Injury on Pain Threshold and Tolerance. *Pain*, **60**, 189–93.
- De Wit, G.A., Busschbach, J. and De Charro, F. (2000). Sensitivity and Perspective in the Valuation of Health Status: Whose Values Count? *Health Economics*, **9** (2), 109–126.

- Diener, E. and Biswas-Diener, R. (2002). Will Money Increase Subjective Well-being? A Literature Review and Guide to Needed Research. *Social Indicators Research*, **57**, 119–169.
- Dolan, P. (1997). Modelling Valuations for EuroQol Health States. *Medical Care*, **11**, 1095–1108.
- Dolan, P. (1999). Whose Preferences Count? *Medical Decision Making*, **19**, 482–486.
- Dolan, P., Netten, A., Tsuchiya, A. and Shapland, J. (2005). Developing a Preference-based Measure of Public Security. Paper presented at ESRC-funded conference on 'Crime, insecurity, and well-being: an economic approach', Sheffield; UK.
- Dolan, P. and Stalmeier, P. (2003). The Validity of Time Trade-off Values in Calculating QALYs: Constant Proportional Trade-off Versus the Proportional Heuristic. *Journal of Health Economics*, **22**, 445–458.
- Dolan, P. and White, M. (2006). Dynamic Well-being: Connecting what we Anticipate with What we Experience. *Social Indicators Research*, **75** (2), 303–333.
- Ferrer-i-Carbonell, A. and Fijters, P. (2004). How Important is Methodology for the Estimates of the Determinants of Happiness? *The Economic Journal*, **114**, 641–659.
- Fiorello, C.D., Tobler, P.N. and Schultz, W. (2003). Discrete Coding of Reward Probability and Uncertainty by Dopamine Neurons. *Science*, **299**, 1898–1902.
- Fisher, I. (1918). Is 'Utility' the Most Suitable Term for the Concept it is Used to Denote? *American Economic Review*, **8**, 335.
- Gilbert, D.T. and Wilson, T.D. (2000). Miswanting: Some Problems in the Forecasting of Future Affective States. In *Thinking and Feeling: The Role of Affect in Social Cognition* (J. Forgas, ed.). Cambridge University Press; Cambridge. PAGE NOS PLEASE.
- Gilbert, D.T., Lieberman, M.D., Morewedge, C. and Wilson, T.D. (2004). The Peculiar Longevity of Things not so Bad. *Psychological Science*, **15**, 14–19.
- Grossman, M. and Wood, W. (1993). Sex Differences in Intensity of Emotional Experience: a Social Role Interpretation. *Journal of Personality and Social Psychology*, **65**, 1010–1022.
- Jepson, C., Loewenstein, G. and Ubel, P.A. (2001). Actual versus Estimated Differences in Quality of Life before and after Renal Transplant. Working Paper, Department of Social and Decision Sciences. Carnegie Mellon University; USA.
- Kahneman, D. (1997). New Challenges to the Rationality Assumption. *Legal Theory*, **3**, 105–124.
- Kahneman, D., Fredrickson, B.L., Schreiber, C.A. and Redelmeier, D.A. (1993). When More Pain is Preferred to Less: Adding a Better End. *Psychological Science*, **4**, 401–5.
- Kahneman, D. and Krueger, A.B. (2006). Developments in the Measurement of Subjective Well-being. *Journal of Economic Perspectives*, in press.
- Kahneman, D., Krueger, A.B., Schkade, D.A., Schwarz, N. and Stone, A.A. (2004). Toward National Well-being Accounts. *American Economic Review*, **94** (2), 429–434.
- Kahneman, D., Wakker, P. and Sarin, R. (1997). Back to Bentham? Explorations of Experienced Utility. *Quarterly Journal of Economics*, **112**, 375–405.

- Krupat, E. (1974). Context as a Determinant of Perceived Threat. *Journal of Personality and Social Psychology*, **29** (6), 731–736.
- Lang, P.J., Greenwald, M.K. and Bradley, M.M. (1993). Looking at Pictures: Affective, Racial, Visceral, and Behavioral Reactions. *Psychophysiology*, **30**, 261–273.
- Loewenstein, G., O'Donoghue, T. and Rabin, M. (2003). Projection Bias in Predicting Future Utility. *Quarterly Journal of Economics*, November, 1209–1248.
- Loomes, G. (2004). Valuing Reductions in the Risk of Being a Victim of Crime: the 'Willingness to Pay' Approach to Valuing the 'Intangible Costs' of Crime. Paper presented at First ESRC Seminar on Crime, Insecurity, and Well-being: an Economic Approach, Sheffield; UK.
- Lovibond, P.F. (2004). Cognitive Processes in Extinction. *Learning and Memory*, **11**, 495–500.
- Lucas, R.E., Clark, A.E., Georgellis, Y. and Diener, E. (2003). Re-examining Adaptation and the Set Point Model of Happiness: Reactions to Changes in Marital Status. *Journal of Personality and Social Psychology*, **84** (3), 527–539.
- Lundberg, U. and Frankenhaeuser, M. (1980). Pituitary-adrenal and Sympathetic-adrenal Correlates of Distress and Effort. *Journal of Psychosomatic Research*, **24**, 125–130.
- Menzel, P., Dolan, P., Richardson, J. and Olsen, J.A. (2002). The Role of Adaptation to Disability and Disease in Health State Valuation: a Preliminary Normative Analysis. *Social Science and Medicine*, **55**, 2149–2158.
- Parducci, A. (1995). *Happiness, Pleasure, and Judgment: The Contextual Theory and its Applications*. Erlbaum; Mahwah, NJ.
- Peters, M.L., Sorbi, M.J., Kruiise, D.A., Kerssens, J.J., Verhaak, P.F. and Bensing, J.M. (2000). Electronic Diary Assessment of Pain Disability and Psychological Adaptation in Patients Differing in Duration of Pain. *Pain*, **84**, 181–192.
- Postulart, D. and Adang, E. (2000). Response, Shift and Adaptation in Chronically Ill Patients. *Medical Decision Making*, **20**, 186–193.
- Powdthavee, N. (2005). Unhappiness and Crime: Evidence from South Africa. *Economica*, **72**, 531–547.
- Redelmeier, D. and Kahneman, D. (1996). Patient's Memories of Painful Treatment Medical Treatments: Real Time and Retrospective Evaluations of Two Minimally Invasive Procedures. *Pain*, **116**, 3–8.
- Schwarz, N. and Strack, F. (1999). Reports of Subjective Well-being: Judgemental Processes and their Methodological Implications. In *Well-being. The Foundations of Hedonic Psychology* (D. Kahneman, E. Diener and N. Schwarz, eds). Russell Sage Foundation; New York.
- Scitovsky, T. (1976). *The Joyless Economy*. Oxford University Press; New York.
- Shapland, J., Willmore, J. and Duff, P. (1985). *Victims in the Criminal Justice System*. Gower; Aldershot.
- Sieff, E., Dawes, R. and Loewenstein, G. (1999). Anticipated versus Actual Responses to HIV Test Results. *American Journal of Psychology*, **CXII**, 297–311.
- Smith, A. (1759). *The Theory of Moral Sentiments*. Edinburgh.
- Sprangers, M.A.G. and Schwartz, C.E. (1999). Integrating Response Shift into Health-related Quality of Life Research: a Theoretical Model. *Social Science & Medicine*, **48** (11), 1507–1515.

- Stone, A.A., Shiffman, S.S. and De Vries, M.W. (1999). Ecological Momentary Analysis. In *Well-being. The Foundations of Hedonic Psychology* (D. Kahneman, E. Diener and N. Schwarz, eds). Russell Sage Foundation; New York.
- Tsuchiya, A. and Dolan, P. (2005). The QALY Model and Individual Preferences: A Systematic Review of the Literature. *Medical Decision Making*, **25** (4), 460–467.
- Ubel, P.A., Loewenstein, G. and Jepson, C. (2003). Whose Quality of Life? A Commentary Exploring Discrepancies between Health State Evaluations of Patients and the General Public. *Quality of Life Research*, **12**, 599–607.
- Warr, M. (2000). Fear of Crime in the United States: Avenues for Research and Policy. *Measurement and Analysis of Crime and Justice*, **4**, 451–489.
- Watson, J.B. and Raynor, R. (1920). Conditioned Emotional Reactions. *Psychological Review*, **3** (1), 1–14.
- Weinstein, N.D. (1982). Community Noise Problems: Evidence Against Adaptation. *Journal of Environmental Psychology*, **2**, 87–97.
- Wilson, T.D., Centerbar, D.B. and Brekke, N. (2002). Mental Contamination and the Debiasing Problem. In *Heuristics and Biases: The Psychology of Intuitive Judgement* (T. Gilovich, D. Griffin and D. Kahneman, eds). Cambridge University Press; Cambridge.
- Wilson, T.D. and Gilbert, D.T. (2003). Affective Forecasting. *Advances in Experimental Social Psychology*, **35**, 345–411.
- Wilson, T.D. and Gilbert, D.T. (2005). Making Sense: a Model of Affective Adaptation. Mimeo, University of Virginia.
- Wilson, T.D., Meyers, J. and Gilbert, D.T. (2003). How Happy was I, Anyway? A Retrospective Impact Bias. *Social Cognition*, **21**, 407–432.