

The Fear of Plastic Card Fraud

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Summary of Thesis

The fear of crime is one of the most widely researched phenomena in criminology. Traditionally, researchers have relied upon the ‘sociological staples’ of sex, race, age and social class to explain the fear of crime. However, it has been shown that the relationships between fear and these factors are both uncertain and unreliable. In this thesis, I suggest by analysing the fear of crime within an explanatory framework of well-being, we move towards a better understanding of fear at an individual level. I demonstrate that, by interpreting crime as a violation of autonomy and well-being, individual levels of fear are more easily understood.

The thesis is driven by a critical analysis of the traditional approaches to the study of fear of crime. From a contextual perspective, I argue that, in order to understand fear in a modern, evolving society, one must look to the future and explore the changing nature of crime. Thus, I aim to force a reconsideration of the concept of ‘crime’ within the paradigm of the victimisation survey. In recognising the imminent increase in fraudulent crimes, I challenge the traditional exclusion of fraud from victimisation surveys. I demonstrate that the victims of plastic card fraud are worthy subjects for study.

The thesis is informed by empirical work carried out during the period of doctoral research. Having been commissioned by the Research Development and Statistics Directorate of the Home Office to review the survey measurement of the fear of crime, I was given the opportunity to design questions about plastic card fraud for the British Crime Survey 2000. Analysis of the data suggests that plastic card fraud prompts different reactions than do other crimes. I conclude that the harm suffered by the victims of card fraud may extend beyond pure financial loss to a violation of identity.

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Introduction

It has almost become inevitable that any academic piece on the fear of crime will begin with the restatement of two assertions. Firstly, that the fear of crime is one of the most widely researched phenomena in modern criminology. Secondly, and perhaps perversely, that the fear of crime is one of the least developed criminological constructs in terms of conceptualisation, operationalisation and theoretical explanation (Hale 1996, Ditton and Farrall 2000). I make no apologies for my lack of originality in adopting this ‘introductory habit’, indeed it was these two assertions which sparked off the research process which has culminated in this thesis.

Anyone who chooses to embark upon research in the field is, in my opinion, faced with two possible avenues to pursue. One can, on one hand, approach the concept of the fear of crime from the explanatory perspective, contributing to the seemingly endless search for explanatory variables in a plethora of complex combinations. Alternatively, one can adopt a ‘bottom-up’ approach and focus instead on the methodological weaknesses which we have inherited from nearly 30 years of policy-driven research. The latter option presents, for me, the most pressing challenge and it is that approach which drives the underlying research agenda in this thesis. In short, the broad aim of this research is to make a contribution to what is essentially a much larger academic challenge: the reconsideration of the measurement of the fear of crime.

Stated in its broadest terms, the central theme of this thesis is that an understanding of the fear of crime can only be achieved by widening the aperture through which we view it. I intend to show that this process of ‘widening’ requires two major shifts in approach. Firstly, I suggest it is necessary to reconsider the interpretation of victimisation of different crimes within a context of well-being and autonomy. Secondly, I argue that by adopting a forward-looking approach to the study of fear of crime, we can interpret it against the significant contextual backdrop of the contemporary characteristics of society.

Essentially, the development of these arguments has been propelled by the empirical element of my research, the introduction of plastic card fraud to the British Crime

Survey 2000. From the outset, the research process has been geared towards my making a significant contribution to the BCS questionnaire in 2000. I was given the opportunity to develop questions for the survey and undertake in depth analysis of the data, and this has allowed me to present a unique perspective on the fear of crime. Indeed, through the development of questions about the victimisation of and attitudes towards plastic card fraud, my major achievement has been to successfully challenge the assumption that the BCS cannot be used to measure fraudulent crimes. Thus, the analysis of the card fraud data, and the debates which are prompted by the major findings, form the original and innovative content of the overall thesis.

In this introductory section I intend to provide a detailed summary of the thesis as a whole by presenting an outline of the major themes and developments contained in each of the seven chapters which follow. For ease of interpretation, I have attempted to avoid a lengthy chapter-by-chapter account and instead present the thesis here in three stages; the identification and development of the research questions, the design of and results from the BCS and, finally, the discussion of the findings and final conclusions.

Development of the research questions

As we have seen, the starting point for the research process was the recognition of the major methodological weaknesses in survey-based fear of crime research. Chapter 1 contains a discussion of these weaknesses through a comprehensive analysis of previous literature on the fear of crime.

Two dominant propositions emerge from this discussion. The first is the assertion that, since crime does not take place in a vacuum, reactions to crime can only be understood in terms of the quality of life enjoyed by the victims (Mawby & Walklate 1997). The second is the need to question the assumption that there are no differences in the effects of individual crimes on fear (Rountree 1998). I argue that to focus on the effects of crime generally on fear is to fail to understand the fear of crime as a multi-factorial concept. Indeed, the case for conceptualising 'crime' is as strong as the case for 'fear', yet very little work has been developed from this perspective. Thus, the major question which drives the thesis is posed at the earliest stage: what makes one crime different from another?

I have approached this question from two perspectives, beginning in chapter three with Sutherland's attempt to distinguish between street crimes and white collar crimes and moving on, in chapter five, to the dichotomy of personal vs. property crime. However, before embarking upon development of the research question, it is necessary to pause and place the thesis in a clear context (chapter two). The context, I argue, is unusual in that it is forward looking. I consider the merits of looking to the future of crime, questioning the backward-looking trend in criminological thought. I consider the potential benefits of predicting changes in crime, focussing on the work of Leslie Wilkins (1973) and Foresight (2000) on the changing nature of crime.

Many of the ideas presented in this chapter inform the underlying themes of the thesis as a whole. I begin by discussing the changes in population, societal structure and day-to-day lifestyles that we are likely to experience in the next twenty years. Inevitably, when one discusses change in society, one finds oneself quickly immersed in an analysis of the effect of technology, in particular the internet. One only has to watch an hour of television or wander down the nearest high street to experience the growth of a service and information economy and the move towards 24 hour society. However, less easy to observe is the impact of the internet on crime. Whether the internet will change crime as a vehicle for communication, create new opportunities in a global environment or facilitate new forms of harmful activity remains to be seen (Wall 2001).

The most striking conclusion to be drawn from this discussion is that one of the major benefits of the internet, and yet at the same time one of the greatest challenges it presents, is the facilitation of access to information. Information is gaining increasing value as a commodity in a new climate of e-commerce and consumerism, a value which is as attractive to criminals as it is to legitimate parties. Paradoxically, as data processing techniques advance, so too does the threat to the control of personal information, perceived by many as a fundamental individual right. The result is a growing awareness of the need to protect one's privacy.

From the criminological perspective, I suggest that the impact of the increasing value of information is likely to be evident in the emergence of the 'new' crime of identity theft. Until very recently, identity theft was recognised as a problem in only a few countries (including the United States) but attention, both political and academic, is mounting in

the UK. In chapter two, I discuss a recent move by the Home Office to open consultation on the possibility of legislating against crimes involving the misuse of identity. This in itself is an indication of the growing importance of personal information on the policy agenda.

Having set the context, I then move on in chapter three to begin consideration of the question of what makes one crime different from another. The starting point for this part of the discussion was a stock-taking exercise to review which crimes are included in and excluded from the BCS. The key observation is that victimisation surveys tend to exclude white-collar crimes and offences of fraud. It is traditionally argued that the victims of these crimes are either unaware of or unaffected by the offence and thus are not worthy of criminological study. However, through an historical account of the development of the concept of white collar crime, I demonstrate that the assumption that all frauds are white-collar offences is not a helpful one. I raise the possibility that the victims of personal fraud may be the subjects of survey-based research and conclude the chapter by selecting plastic card fraud as the focus for further exploration.

Chapter four reviews the somewhat sparse literature on the problem of plastic card fraud. It becomes clear that card fraud presents us with problems in positioning risk, due in part to the number of parties involved in the processes of card application and payment transaction. It is usually the retailer or the card company rather than the card holder (the victim for our purposes) who is deceived. In terms of financial harm, it is usually the retailer or financial institution which suffers loss.

The data presented in chapter four suggests that fraud using this kind of information is relatively easy to commit and this kind of crime is on the increase. Not only are we seeing a marked rise in counterfeit production of fake cards, but we are also increasingly faced with the problem of fraud using stolen, or 'borrowed', card and card details. It seems that the problem of 'identity theft' is more complex than initial studies suggest, particularly in the context of plastic card fraud which involves an intricate set of exchanges of personal information. However, what becomes clear is that the existing data sources for card fraud are inadequate for studying these issues. Thus, I suggest that a great deal is to be gained from the collection of victimisation data.

The British Crime Survey: Methodological design and results

Having made the case for the inclusion of card fraud to the BCS, I move on in chapter five to describe the processes of question development and hypotheses design.

Returning to the question '*what makes one crime different from another?*' I consider the traditional distinction between property and personal crimes. I suggest that there are three determinants of crime type: the nature of the act, the nature of contact with the perpetrator and the nature of the harm. According to this framework, card fraud is classified as a property crime.

The most important finding in this study is that the operationalisation of card fraud as a BCS crime was successful. Previous fears of a lack of victims and uninteresting worry distribution were convincingly dispelled. The fact that the data was of sufficient quantity and quality for in depth analysis was both surprising and pleasing. In short, analysis of the BCS data showed that card fraud provokes different reactions than the other property crimes and that the victims of card fraud have different characteristics to victims of other crimes. Therefore, I have concluded that it is not meaningful to assume that all financial crimes are property crimes for the purposes of studying the fear of crime.

One of the challenges of working with the BCS is to develop valid fear measures whilst, at the same time, maintaining consistency with previous sweeps of the survey. Having carried out the analysis of BCS data in this study, I have been able to highlight two general principles which may go some of the way to addressing some previous weaknesses. Firstly, in the analysis of worry levels, I strongly recommend that we should look beyond the 'very worried'. Indeed, for card fraud and the personal crimes, which have more widely dispersed worry levels, I suggest that those who are 'not worried' are just as worthy of inquiry as 'the worried'. The second principle I hope to have established, or rather strengthened, is the importance of maintaining a crime specific approach to the study of the fear of crime. I have shown that, whilst personal and property crimes may have similarities, important differences can be missed by not treating each crime individually.

Discussion of the findings and final conclusions

In the final chapter of the thesis (chapter seven), I reflect on the empirical findings and explore what might be learned about the fear of crime from the successful inclusion of card fraud to the BCS. From the data, we are able to say how many respondents are worried about card fraud and we can, to an extent, describe their personal characteristics. What the data does not allow us to do is explain different worry levels. Thus, one is restricted to making suggestions for theoretical explanations for worry about card fraud. What becomes clear is that it is necessary to reconsider the conceptual framework of the fear of crime itself.

Worry about card fraud is shown to be different to worries about other crimes in terms of its distribution and correlates. I argue that in order to understand these differences, we must deconstruct the concept of vulnerability and the first step in this process is to develop the concept of seriousness. The key to identifying what makes one crime different from another is the concept of seriousness. I suggest that by focussing on what makes one crime *more serious* than another, we can move towards an understanding of fear at a crime specific level. I demonstrate that, if crime is interpreted as a violation of autonomy, seriousness can be determined by the different levels of value attached to different aspects of that autonomy. In this way, seriousness must be interpreted within the context of well-being.

In summary, then, I suggest that the concept of value is the key to understanding perceptions of crime seriousness, which, in turn, is the key to understanding the concept of vulnerability. Ultimately, then, this thesis forms the first stage of development of a value-based approach to fear.

For me, the most striking question to have emerged from this thesis is: why do so many people say they are worried about card fraud? The comparatively high worry levels, after all, were unexpected. In the final section of the chapter, I suggest that the most persuasive explanation is that respondents are actually more worried about having their identity or personal information stolen. I have discussed at some length the growing importance of information in today's society and have highlighted the impact of the harm which may be experienced by individual victims of identity related crimes. Moreover, placed within a framework of autonomy, the importance of privacy and

control of one's own information becomes all the more striking. I conclude that it may very well be the case that the key to understanding worry about card fraud can be found in the sphere of identity.

1. The Fear of Crime

Introduction

This chapter not only serves as a review of the vast literature on the fear of crime, but also as the starting block for the thesis as a whole. In providing a summary and critique of the work done to date, I highlight the major weaknesses in previous research which have prevented an understanding of the phenomenon itself. I conclude the chapter by selecting a path for my own research, identifying the modest aims that underpin subsequent chapters.

I begin with an introduction to the fear of crime, tracing its historical development in both a political and criminological context. We will see how the fear of crime evolved from being the driving force for the study of public attitudes towards crime into the very object of that study. Having established the fear of crime as an object for criminological enquiry, I go on to consider the various attempts at explaining fear, focusing on the major factors associated with fear (for example gender, age and socio-economic characteristics). Finally, I embark upon an examination of the methodological weaknesses of previous fear of crime research. This includes a discussion about the potential benefits of a qualitative approach to research. Particular emphasis will be placed on the criticism surrounding the use of the 'global measure' which provides the basis for so many of the findings on the fear of crime, and I argue strongly for a crime specific approach to the study of fear.

I finish by highlighting the serious conceptual weaknesses of the fear of crime and suggest that there are two avenues for conceptual development. The first is to clarify what is meant by the term 'fear', an approach which has been the focus of research in more recent years. The second, and perhaps the less trodden path, is to reconsider the concept of 'crime'. I conclude by selecting this second avenue for research and pose the question which threads through the thesis as a whole: what makes one crime different from another?

1.1 *The historical perspective*

'...the fear of crime has gradually been transformed from being a *reason* for conducting criminological enquiry into being the *object* of that enquiry, and from being a national concern about crime into a local fear of victimisation'. (Ditton and Farrall 2000,p. xvi).

The origins of the fear of crime are rarely taken into account by those attempting to explain it. It is arguable that it is negligent to attempt to study a social phenomenon without taking into account its history and, therefore, I begin by considering how the fear of crime as a phenomenon has developed over the last 30 years.

An examination of the history of the fear of crime reveals a firm rooting in the social politics of the USA in the late 20th Century. Very few authors have noted how the fear of crime began its life as the 'fear of blacks' (Ditton and Farrall 2000, Harris 1969). In the early 1960s the introduction of new civil rights for the poor and black marked the first attempt to remove injustice from the criminal justice system. The focus of the reforms was on *protecting* the criminal or suspected criminal, a shift in political philosophy which immediately posed a threat to the anxious right-wing - the white and powerful.

Faced with this threat, coupled with a rising crime rate and increasing violence problem, the response was to shift a sympathetic focus from the criminal onto the victim. Raising concern for the white victim was the route to reasserting power. The American administration became interested in counting crime and in 1967 the United States' President's Commission on Crime decided to use the victimisation survey for the first time to establish levels of unrecorded victimisation. Three pioneering crime surveys in 1967 (Biderman *et al.* 1967, Ennis 1967 and Reiss 1967) revealed an epidemic of public anxiety about crime, a new dimension to the crime problem, and paved the way for the development of a new branch of criminological study - the fear of crime.

In 1981, what had become the 'phenomenon of fear of crime' found its way onto the political agenda in the UK. The National Crime Survey had been running in the US for 10 years and many other countries had followed suit (Australia, the Netherlands and

Sweden to name a few). 1982 saw the birth of the British Crime Survey, the largest crime survey ever to be carried by the Home Office at that time. Today it continues to grow, developing alongside a plethora of smaller scale surveys from both the academic sphere and criminal justice agencies.

Fear, then, had originally driven the move to study victimisation, but soon it became the actual object of study. Williams *et al.* (2000) discuss that, as researchers became aware of fear of crime, they began to search for related independent variables. The usual 'sociological staples' of sex, race, age, and social class were quickly identified as explanatory factors of fear and, as we will see in the discussion that follows, continue to be prioritised as primary correlates despite having chequered empirical histories (Williams *et al.* 2000, p. 2).

1.2 Explaining the fear of crime

In this section I attempt to summarise the various explanations which have been put forward for the phenomenon of the fear of crime. The discussion in this section is heavily informed by the work done by Chris Hale in his extensive review of the literature (1996). It is not the intention here to re-work Hale's achievement: to do so would be fruitless. Instead, I aim to discuss the advances in the fear of crime field since his review and build on his recommendations for future research.

I begin with the factors which are most commonly cited as correlates of fear - gender, age, and socio-economic characteristics (including race). Next I consider the relationship between fear and experience of crime. Experience of crime may be direct, through personal victimisation, or indirect, through learning about other people's victimisation experiences via community networks or the media, and the effect experience has on fear has proven to be complex and hard to pinpoint. Finally, I discuss how environmental factors might affect fear levels and perceptions of crime.

1.2.1 Gender

Of all the covariates of the fear of crime, gender is consistently shown to have the most significant relationship with fear. Fear is generally accepted to be a female propensity.

However, feminist writers in particular have made a strong case for reconsidering what has been accepted as ‘the female fear’, a fear which so often is deemed irrational. Stanko, for example, writes,

‘Over this past decade, criminology has theorised about women’s fear of crime, suggesting that it can be understood as heightened social and physical vulnerability (Skogan and Maxfield 1982), as fear of rape (Warr 1985), as fear of men (Stanko 1987), as rational or irrational (Hanmer and Saunders 1984, Young 1992, Pain 1993, Painter 1993). ‘The female fear’ (Gordon and Riger 1988) is ultimately linked to femininity and women’s sexual vulnerabilities, but criminology all too often overlooked the crucial link with this and the way we as individual women understood our ‘selves’, our identities as women’ (Stanko 1997, p. 491).

Stanko illustrates how feminist researchers have worked towards a better conceptualisation of female fear. Women, she argues, deal with encounters of a sexual nature as part of their everyday lives, negotiating physical and sexual safety in private and public situations (Madriz 1997, Pain 1997a). For example, threatening phone calls, being followed, and sexual harassment are seen to be ordinary and private encounters which are not considered serious enough to contribute to a fear of crime.

Fundamentally, domestic violence and harassment at work¹ can fall into this category (Pain 1993). Importantly, these types of experiences are not included in standard surveys but are crucial in forming an understanding of women’s insecurities.

Madriz (1997) pursues the question of why these crimes are not seen as ‘serious’. Her research addresses how stereotypes of criminals and victims can affect women’s fear of crime. She argues that criminals are commonly seen as poor, minority men: out of control ‘monsters’ who randomly attack their stranger victims. Victims, on the other hand, are seen to be white, middle class women who are innocent, submissive and unable to protect themselves. She concludes that these stereotypes may go some of the way to explaining why domestic crimes and white-collar crimes are not considered as ‘serious’ as other crimes.

When women are asked about safety and fear of victimisation, it has been shown that they not only express concern for their own safety but also for the well being of their

¹ The 1988 BCS revealed that half of the threats which women received were job related.

children. Research from Israel suggests that more women express concerns about safety for their families than themselves (Fishman and Mesch 1996, Mesch and Fishman 1998). Vicarious fear, then, seems to be an essential element of the 'female fear'. Combined with the 'violation is a part of daily life' thesis, we come to question the assumption that women are irrationally fearful.

On the flipside, of course, it is arguable that men are irrationally unfearful. Recent work has highlighted the need for a study of men's crime. Walklate (1997) calls for a gendered, subjective approach to risk. Gilchrist *et al.* (1998) discuss some important findings which suggest that men and women should not be treated as separate homogenous groups. There are greater differences, they find, between high fear and low fear men, and high fear and low fear women, than between the two genders. Women talk similarly to men with similar fear levels, referring to a wide range of situations, people and factors which inform their fears. Men, it seems, are only more expansive in terms of car crime.

Therefore, we can conclude that, although gender is generally accepted as the most reliable indicator of fear of crime, the relationship between the two is far from clear. We must be mindful of the need to distinguish between fear and perceived risk in future research in an attempt to address the problem of irrationality. We must also recognise the potential value of incorporating measures of men's fears and fears for others into our methods.

1.2.2 Age

The research into the effect of age on fear has not been as consistent as that on gender, with evidence conflicting at various levels (see Hale 1996, Chadee and Ditton 2002). Yet the image of the elderly trembling behind locked doors is a common one. Traditionally, the elderly, like women, have been classed as an irrational fear group but many studies have shown that this is a tenuous assumption (Dowds and Ahrendt 1995, LaGrange and Ferraro 1989 and 1992, Hale *et al.* 1990, Greve 1998).

LaGrange and Ferraro blame the poor design of survey questions for the inconsistency in previous findings and conclude that '...older adults are probably less fearful of most

types of crime than younger adults' (1989, p. 715). Chadee and Ditton (2002) are particularly critical of research design and provide a comprehensive, well referenced discussion of the methodological weaknesses associated with previous research into age and fear. They observe that the majority of studies to date have failed to develop a clear concept of 'old' or 'aged' and, moreover, have neglected to make comparisons between older and younger age groups. The implications of this criticism are persuasively illustrated by Greve (1998), who found that the effect of age on fear can be eliminated by simply changing age group categories at the stage of analysis. He suggests that the age-fear paradox may not be as striking as we have previously thought.

Indeed, recent studies on the relationship between age and fear have increasingly found that the old are not unduly fearful or irrational. Ferraro (1995)² suggests that the impact of age on fear is mediated by perceived risk, i.e. older people were less fearful only to the extent that they saw themselves at lower risk. He proposes that it is the young who have the highest levels of perceived risk and fear of specific crimes. Australian research confirms this idea (Tulloch *et al.* 1999). Their findings reveal that the elderly do feel that they live in an increasingly dangerous society but they adopt lifestyles to protect themselves from risk. In contrast, young people live more active and risky lifestyles.

Pain (1997b), too, rejects the tendency to class the elderly as weak or vulnerable. She aims to explore the meanings of crime to respondents, the nature of their reactions, and how their concerns are situated in space and time³, using a biographical method of analysis. Her conclusion is that ageism, as opposed to old age, explains the risks and fears of older people. Thus, we should study the elderly as individuals who live in different social conditions and relations (see also McCoy *et al.* 1996):

'Treating people over the age of 60 or 65 as homogenous is to ignore the rapid economic and spatial polarisations taking place amongst elderly people; those on private and those on state pensions, the 'young' old and 'old' old, single and married women and so on' (Pain 1997b p. 126).

² Ferraro uses a complex model of cognitive and emotional processes related to crime assessment. He distinguishes between perceived risk, a judgement as to the likelihood of becoming a victim of a specific crime and the emotional aspects of fear.

³ Ferraro (1995) also uses a temporal measure of behavioural and avoidance changes over a year but this does not take into account long term adjustments.

Factors other than crime related issues may have an impact on risk assessment and this may be important in understanding age related differences in fear of crime. It is likely that future work on fear will develop further the significance of temporal and spatial effects on fear, concentrating on how individuals assess risk in their on-going everyday activities. Research by Tulloch *et al.* (1999), for example, involved a study of the use of public transport. One of their most interesting findings suggested that teenage girls interpret the threat of others differently from their male peers or older travellers when they are using public transport.

Indeed, it seems that research focusing on the young can prove to be as important as research focusing on the elderly. May (1998) found that adolescent fear, in relation to sexual and non-sexual victimisation, is influenced by several variables including race, perceived risk, perceived neighbourhood incivility and gender. However, in agreement with Ferraro's findings (1995), once fear of sexual victimisation is controlled for, females are no more likely than males to be fearful of victimisation. Fear amongst this age group, then, is increasingly becoming a topic of interest. Fisher (1995) discusses the recent attention (political and academic) given to the issue of campus crime, an area for increasing concern on this side of the Atlantic⁴.

In terms of future developments in this area of research, the emphasis seems to be a move towards a more rigid research design and significant improvements in conceptualisation. Chadee and Ditton (2002) warn strongly against the reliance on univariate analysis and demonstrate how the effect of age on fear can easily be 'washed out' using multivariate techniques. In addition, Greve (1998) concludes that future research into the age-fear paradox must include a component measure of fear (see also Rountree and Land 1996).

1.2.3 Socio-economic factors

'Based on empirical evidence from mainly American work, race, income and education appear as significant covariates of fear of crime. Ethnic minorities, the poor and the less well educated tend to be more fearful than the affluent, whites and the better educated' (Hale 1996 p. 105).

⁴ The Guardian newspaper recently reported on the implications of campus crime in the UK, focusing specifically on the Home office report 'Policing The Campus: Providing a safe and secure environment' and security policies laid down by Birmingham University. (Kingston, 1999a and 1999b).

Research on the relationship between fear and socio-economic factors is weak, especially in comparison to the growing body of work on age and gender. Will and McGrath (1995) note that this is a fundamental failing since all of these variables are linked under the concept of the 'underclass'. They argue that poverty, race, unemployment, education and marital status all contribute to one's quality of life. Since it is within this framework of 'quality of life' that we develop our fears, to exclude these elements is to narrow our conceptualisation of the fear of crime. Interestingly, their analysis of data from the General Social Survey reveals that, even when controlling for age and gender, fear among the 'underclass' is greater than among the non-poor.

The relationship between race and fear remains relatively unexplored. In a review of the literature, Skogan says that white fear is 'one of the most compelling political constructs of our time' (1995 p.60), yet there is a significantly limited number of studies on fear and race. Existing studies seem to indicate that race does have a significant effect on fear, but the extent to which this is the case remains unclear.

Skogan and Maxfield (1981) note that most of the research on race and fear has been focused on 'white fears', (i.e. the relationship between fear and white attitudes towards blacks) and the anxiety created by close residential proximity between the two groups,

'It is widely argued that among whites discussions of crime are in fact covert conversations about their fear of Black Americans' (p. 55).

However, using discriminant analysis, they go on to show that fear is independent of racial intolerance.

Goodey (1998) argues that there is a need for research to address the extent and impact of black-against-white and black-against-black racially motivated crime (black racism). Webster (1997) concurs, using some very interesting work on the Asian community to illustrate the importance of dispelling the white racist/minority victim stereotype. His findings show how the Asian community is evolving from its stereotype of the passive victim and, in reaction to aggressive behaviour from groups of white males, has turned back on itself to adopt a more fearless and protective stance. Goodey concludes that this illustrates how racial stereotypes evolve over time, a fundamental point when one

recalls that most of the research into race and fear was conducted in the 1970s and 1980s. Thus, future research should take account of the dynamics of race, crime and fear, in a time very different (both criminally and racially) from these earlier years (Chiricos *et al.* 1997).

As with the recent work on age and gender, researchers have recognised the importance of a subjective approach to race and fear. Bazargan (1994), for example, argues that black elderly individuals should be treated as a separate group for study and particular attention should be paid to studying the differences in fear inside and outside of the home (see also Joseph 1997). Similarly, Onyeozili (1994), arguing that the fear of crime literature is particularly thin where black population groups are concerned, investigates fear among sample of 'urban historically black college students'. His findings are particularly interesting since he finds no relationship between fear and national origin for this population group⁵.

Skogan (1995) discusses the relationship between whites' fear and residential proximity to black neighbourhoods, raising some interesting points about racial tensions,

'...the persistent links between fear, proximity, and whites' desire to retain their dominance of their most intimate institution are not likely to wane any time soon' (1995, p. 71).

It does indeed seem that residential integration has a key role to play in the race-fear relationship. Liska *et al.* (1982) found that racial segregation was directly related to lower levels of white fear. Stinchcombe *et al.* (1980) found that white fear was related to proximity to blacks and prejudice. Finally, more recently, Covington and Taylor (1991) found that blacks or whites, where they were different in terms of race from their neighbours, were more fearful. The picture is not entirely clear, a result perhaps of differences in methodology⁶, but we can say that for whites at least, residential proximity is related to fear.

⁵ However, he does note that this might be due to the fact that most foreign students in this sample lived off campus and thus were less exposed to campus crime.

⁶Chiricos *et al.* (1997) argue that these types of study have been based on cognitive assessments of safety and risk, as opposed to the affective state of fear. Their study uses a concrete and crime specific measure of fear and, interestingly, measures of actual and perceived racial composition. Their findings show that the fear of crime among whites is significantly linked to the perception that African-Americans live by in substantial numbers.

Not only is it unclear who is affected by the fear-race relationship, but research has neglected to ask why. An interesting article by Houts and Kassab (1997) describes how social learning theory (Rotter 1966) can provide a framework for test differences by race and ethnicity in fear of crime. The authors note that many researchers have used elements of the theory previously but failed to explore the issues far enough (for example, Baumer 1985). By incorporating measures of experience of crime, belief in external forces (belief in chance and the belief in others), belief in one's ability to control outcomes, and trust of neighbours, they found that the extent to which these variables were relevant predictors of crime were dependent on race.

More recent research, then, edges us away from the perspective of white attitudes towards blacks and towards a more complex understanding of fear within the context of a multi-cultural society.

1.2.4 Experience of crime

The link between fear of crime and experience of crime has long been debated and contradictory evidence has prompted calls for better conceptual and operational development of both 'fear' and 'victimisation' (for a good discussion see Bilsky and Wetzels 1997). Experience can take two forms, firstly direct experience through victimisation and, secondly, indirect experience.

Direct experience

The relationship between fear and victimisation is another of the much debated fear mysteries. Findings over the years have varied from a strong positive relationship (Liska *et al.* 1988, Skogan 1987, Yin 1980) to no relationship at all (Baker *et al.* 1983, Hill *et al.* 1985).

Kury and Ferdinand (1998), in their comparison of international findings, argue that the main reason for the contradictory findings on direct victimisation are due to the fact that previous studies have failed to take into account 'key background variables'. These may include, in addition to the number and severity of any criminal victimisations in a lifetime, the victim's living conditions and individual personality. For example, they found that although victimisation does effect avoidance reactions, gender and

community size have greater influence (see also Myers and Chung (1998) who found that racial composition of the area and the stability of the neighbourhood often have stronger effects on fear than victimisation). However, previous victimisation does affect the expectation of further victimisation regardless of gender, age, income and community size. Clearly, more advanced statistical methods allow for multi-factorial analysis and this can reveal a web of intricate relationships between victimisation, gender, age, income and community size.

Denkers and Winkel (1998) note that fear is not the only reaction to a criminal victimisation: such an experience can affect a person's well-being generally.

Longitudinal studies have shown that the most serious psychological damage occurs to the victims of the most severe crimes in the few months after the victimisation (Norris and Kaniasty 1994). In comparison, prospective studies have suggested that reactions to victimisation are related to 'pre-crime differences between victims and non-victims' (p. 143). Their prospective study reveals three important findings. Firstly, victims and non-victims differ in levels of fear and well-being, with victims reporting lower levels of well-being and, to some extent, higher levels of fear. Secondly, different types of crime inflict different levels of psychological damage (they found some evidence of increased psychological distress for violent crime over property crime). Finally, differences in fear and well-being levels were apparent both before and after the victimisation (victims were reported to be unhappier than non-victims after the victimisation, and to some extent before the victimisation).

Psychological work on reactions to criminal victimisation by Kilpatrick *et al.* (in various author combinations 1979a, 1979b, 1981, 1985, 1987) is in a class of its own and worth far more discussion than space here allows. Their work is scientific, methodical and well developed, although it is restricted to the study of rape. In a series of experiments comparing victims and non-victims, they find that post-victimisation fear patterns fluctuate with time. Reactions also tend to vary according to the type of victimisation. They find differences between reactions to different crimes (be they violent or sexual, for example) and differences between reactions to attempted and completed crimes. Importantly, their assessment of fear depends upon complex scales of mental health, post-traumatic stress and anxiety measures.

Mawby and Walklate (1997), in their study of the impact of burglary, found that fear was not the most common immediate reaction to victimisation, for adults at least. The most common reaction was anger, followed by shock and then fear. They suggest that experience as a victim and perceptions of victimisation are closely related to the living environment, concluding that,

‘Crime does not take place in a vacuum, and reactions to crime are more readily understood in terms of the quality of life ‘enjoyed’ by the victims’ (p. 293).

Interestingly, for children, the most common reaction was fear. Work by Goodey (1994) has illustrated the potential for studies of children’s fear. Dull and Wint (1997), in a study designed to test the effect of victimisation on the fear of crime and attitudes towards the criminal justice system⁷ on college students, explore some interesting ideas. They consider evidence that suggests our attitudes and feelings of well-being are shaped during our ‘education experience’ and seek to assess the role criminal victimisation might have in this education. Their findings suggest that those students who had been victimised became significantly more fearful of becoming a victim of property crime, but their fear of personal crime showed no increase. Non-victims, in comparison, became more fearful of becoming a victim of personal crime but showed no increase in the fear of property victimisation. In addition, they found that, over the four years of the study, non-victims showed greater change in attitudes towards the police whereas victims showed greater change in attitudes towards the court. Neither victims nor non-victims showed significant change in their attitudes towards the death penalty.

These differences in fear of property victimisation and the fear of personal victimisation raise an important issue. Rountree (1998) argues that previous studies examining the crime-fear linkage neglect to distinguish between individual and neighbourhood crime experiences, and property and violent crime experiences. Her study, then, aims to examine the effects of both individual and aggregate crime experiences on crime-specific, emotion-based fear, while controlling for the level of community disorder. This involved a comprehensive range of variables which merit more discussion than this review allows. In short, measures of violence specific fear, burglary specific fear, socio-demographic details, lifestyle patterns and routine activities, target attractiveness,

⁷ Such attitudes are significant when one considers that often there is ‘secondary victimisation’ as one progresses through the criminal justice system, see Tontodonato and Erez (1994).

guardianship, previous victimisation and perceived incivilities, formed her multi-dimensional model of fear.

The findings do suggest that individual and neighbourhood crime level experiences have differential effects on fear of violence in comparison to fear of burglary. Violent victimisation increases the fear of violence and burglary, but burglary victimisation only increases the fear of burglary. Neighbourhood levels of burglary have the same effect on fear of violence and fear of burglary as does individual level burglary victimisation. However, the neighbourhood rate of violent crime increases the fear of violence, but decreases the fear of burglary. Rountree suggests that residents living in violent neighbourhoods have more potentially serious concerns than worrying about burglary.

It is, however, not only the type of victimisation which is relevant to fear, but also the number of victimisations. Indeed, the effects of repeat victimisation on the fear of crime has attracted a significant amount of attention by researchers in the past decade. The emergent literature is particularly interesting since it seems to suggest that crime is not randomly distributed (Denkers and Winkel, 1998).

According to the 1998 British Crime Survey, the risks of repeat victimisation vary between crimes and between victim types. For example, a fifth of burgled households experienced more than one burglary in 1997, a quarter of victims of vehicle related thefts experienced two or more incidents, and almost a third of victims of violence experienced more than one violent incident (Mirrlees-Black *et al.*, 1998, pp. 40-41). Groups such as single-parent families and those in council estate areas were identified as most likely to be repeat victims for all three types of crime.

Research has shown that the risk of repeat victimisation is highest immediately after the original victimisation (Polvi *et al.*, 1990 and 1991⁸, Farrell and Pease, 1993⁹), thus emphasising the value of short term crime prevention policies. Hope and Walklate (1995) advocate a structuralist approach to studying repeat victimisation. They conclude that we should not only be asking why certain people are re-victimised, but also why others are not. This, they suggest, will help us to understand how behaviour and avoidance routines relate to fear and victimisation.

⁸ In relation to burglary.

⁹ In relation to burglary, vandalism in schools, racial attacks in a public housing project, and domestic violence.

The discussion so far has illustrated that we cannot assume that experience of crime actually increases fear. Agnew (1985) discusses how victimisation *can* prompt reactions to crime which actually mediate fear. Reid *et al.* (1998), for example, say that perceived risk and actual fear motivate different coping strategies. They find that those who have a high emotion-based fear are more likely to adopt collective coping strategies. Winkel (1998) shows that a victim's fear levels will be influenced by changes in two dimensions of vulnerability, the perception of personal risk and the perception of the seriousness of consequences resulting from that risk. When a person becomes a victim of crime, s/he goes through a coping process, and it is during this time of adaptation that perceptions of personal risk and seriousness of consequences tend to rise and fall.

Winkel's findings suggest that the former tend to rise and the latter tend to fall and the result is that they cancel each other out. Thus, the fear of crime level does not rise. But, in cases where both dimensions rise, where a person is 'susceptible' to this kind of response, the fear level is enhanced. It is possible, then, that victimisation is just as likely to reduce fear as it is to increase it. This is an important point and should be kept in mind as we move on to consider the effect of indirect victimisation on fear levels.

Hale writes,

'If neutralisation techniques are the explanation for weak relationships between victimisation and fear they may also provide an insight into the reasons for the stronger relationship sometimes found between fear and indirect victimisation' (1996, p. 107).

Indirect experience

Indirect victimisation refers to information about specific crimes which is received either via the media or through local 'gossip' networks. Research in this area is patchy (recent findings continue to find weak or no effects on fear, see Kuttschreuter and Wiegman 1998) and the link between fear and indirect victimisation is by no means soundly established. The major reason for this is that the effects of the media and 'fear of crime discourse' are notoriously difficult to measure.

In a time when technology is fast evolving, research needs to develop quickly in order to examine the full effects media might have on fear. For example, Perse *et al.* (1994)

discuss how new technology, such as remote controls and cable television, increase access to a greater range of media and, thus, future studies should take into account factors such as ownership of technology, channel changing habits and video use.

In a good review of the literature on the media-fear link, Heath and Gilbert (1996) suggest that future research should address three main points. Firstly, the characteristics of the message (for example, the sensationalism or randomness of the crime, the news content of the message, whether the story ends in justice, etc.). Secondly, the characteristics of the audience (not merely demographic details but, for example, whether they believe in fictional programmes). Finally, whether the relationship between fear and the media is stronger at a personal or societal level (distinguishing between local and national/international crimes and fears in urban and rural areas). They conclude, '[t]he message is clear. Media messages do not affect all of the people all of the time, but some of the messages affect some of the people some of the time'. (p. 385)¹⁰

Chiciros *et al.* (1997) focus on the first of these perspectives, identifying the importance of studying audience effects, an area which they note is neglected. They consider five audience circumstances which have the potential to influence the media/fear relationship, identifying those groups most likely to display these characteristics. They found that, when gender, age and other variables are controlled for, television news consumption is only significantly related to fear for white females between the ages of 30 and 54. This, they suggest, could be due to resonance and substitution but, for white women at least, they suggest that affinity may have the most likely effect in the media/fear relationship.

In terms of the characteristics of the message delivered, Altheide (1997) focuses on the role of the news media in promoting a public discourse of fear. In particular, he says that stories tend to be presented with a 'problem frame' within which news worthy stories can be presented in a way suitable for entertainment. This, he argues, promotes messages that resonate fear.

¹⁰ See also Altheide (1997), who uses a qualitative method called 'tracking discourse' to show how the focus and content of fear shifts between time and place.

Finally, questioning the level at which fear is perpetuated by the media (i.e. personal or societal levels) several researchers have emphasised the significant role public discourse of fear can have. Caldeira (1996) identifies the importance of discourse, describing how continual repetition of stories can magnify violence and emphasise prejudices. Girling *et al.* (1998) focus on a case of vigilante action in Macclesfield and observe that, '[t]alk of crime, and the passions and anxieties such talk discloses, speaks directly to people's sense of the habitability of the place in which they live and, in turn, of its place in its surrounding economic and cultural environments and hierarchies' (p. 475). This kind of discourse, they argue, is linked to levels of fear, worry, and concern, thus emphasising the important role the narrative method can play in the future conceptualisation of fear. What it shows is that, although there is a strong case for advocating a subjective approach to fear conceptualisation, we cannot neglect to recognise the fact that individual fears exist within an environment.

1.2.5 Environmental factors

'The most recent research shows that individuals' fears are better understood within a neighbourhood or community context rather than by simply concentrating on individual characteristics' (Hale 1996, p. 121).

Brantingham and Brantingham (1995) argue that it is essential that crime and fear are studied against an environmental backdrop. This backdrop is constructed of several elements; the geographical nature of the area, the level of incivilities and social cohesion. In each case, the actual and perceived levels are important.

In terms of the geographical nature of the area, research has shown that fear levels tend to be higher in urban areas. Brantingham and Brantingham (1995) identify four types of urban sites; crime generators, crime attractors, fear generators and crime-neutral sites¹¹. All of these types exist alongside each other and paths between them determine where people go and what they do. Moreover, the juxtaposition between land uses can influence the crime rates of the neighbourhood and, importantly, create areas where strangers are more easily accepted.

¹¹ This type of approach is usually used for understanding the distribution of crime itself, but evidently it can be just as useful in studying the fear of crime.

It is, of course, arguable that it is the *perceptions* of the surrounding area which may be more relevant to fear than the objective geographical characterisation of the area. For example, Mattson and Rengert (1995) show that there is a relationship between perceived distance (i.e. the distance involved moving from one location to another) and perceived danger which determines how people use their environments. They say that respondents in their survey perceived distance to be greater when they perceived the journey to be through a dangerous neighbourhood.

Hale (1996, pp. 117-119) observes that much of the work on the environment of fear has tended to focus on theories of incivility, although it is acknowledged that much of this research has been contradictory (Miethe, 1995). Traditionally, incivility has been measured in terms of perceptions of symbols of deterioration, such as noisy neighbours, abandoned buildings, litter, graffiti and gangs of youths loitering in the streets. Social incivilities are, to varying degrees, often shown to be more strongly linked to fear than are physical incivilities (Taylor and Kurtz, 1997, but see also Perkins and Taylor, 1996). However, Taylor (1998) illustrates that the incivilities thesis is more complicated than that. The effects of incivilities can be ecological (neighbourhood outcomes) or psychological (differences between neighbours) and can vary over time. What is needed then, is a measure of perceptions of incivility which operates at individual and aggregate levels, taking into account social and temporal changes. In addition, of paramount importance is the inclusion of some kind of measure of actual incivility. Perkins and Taylor (1996) advocate this combination of approaches, incorporating into their study a stage of observational measurement of the physical environment by trained raters.

Taylor (1996) describes how community dynamics can influence residents' feelings of vulnerability and the actions they take to reduce exposure to risk. He suggests that crime can atomise communities (see Conklin, 1975), but it can also mobilise them. Thus future research should expand on studies of responses to disorder and investigate the impact on local social climate and person-place bonds (his findings suggest that neighbourhood stability deepens residents' attachment to their locale and their involvement with their neighbours).

Evans *et al.* (1996) say that the fear of crime is much better understood through an appreciation of the way trust manifests in a community. They argue that whom one

trusts, when and by how much, mediates the way in which people living in a certain area manage their routine daily lives, and within that their sense of security. Their study examined the process of 'grassing' in an area characterised by its local networks held together by family ties. This type of socialisation provided a framework by which residents have a shared belief that if they are seen as 'locals' they are safe from intimidation. In this way, trust is linked to the possibility of co-operation and assessments of who it is safe to co-operate with.

Clearly, crime, and the fear of crime have significant effects on the social cohesion of the area. This can trigger a variety of responses. For example, Caldeira (1996) describes how the changes in crime and fear levels in Sao Paulo are helping to create distance and separation among social groups, thus enforcing segregation (see also Doeksen 1997). Taylor (1995) says that the outcome can either be psychological (in terms of attachment to the area, territorial functioning, neighbourhood satisfaction and the intent to move), behavioural (local participation and mobility) and economic (house values and socio-economic status). Although the consequences of the fear of crime are beyond the scope of this review, they are certainly important in terms of its political usefulness.

1.3 Methodological Concerns

The survey tool has been the dominant research instrument in the study of the fear of crime and at international, national and local levels has provided academics and policy makers alike with empirical evidence of both the existence of and causal factors relating to fear. To suggest that it is of paramount importance that these instruments must be valid and reliable is perhaps to state the obvious. However, Hale's analysis demonstrates that this is not the case and so this thesis is written at a time when concern for validity in fear of crime research is at its greatest.

Indeed, in recent years, the fear of crime debate has been underpinned by an increasing concern as to the methodological weaknesses within the research itself. Williams *et al.* (2000) write,

'As soon as researchers became aware of fear of crime, they focused on a search for related independent variables. Several important relationships were located, including

the usual sociological staples of sex, race, age, and social class. Yet on the whole, and as with examinations of crime and delinquency, concern over the measurement of fear of crime itself took a back seat to more interesting independent variables. Several approaches to measuring fear of crime were used without any real determination of exactly what was being measured and with little concern for the methodological adequacy of the measuring instruments. Recent work on fear of crime has been more sensitive to these issues and some researchers are now focusing on the measurement issues.' (Williams *et al.* 2000, p.2)

These methodological weaknesses, as Farrall *et al.* (1997) note, can occur at a variety of levels; from the epistemological basis through to conceptualisation, operationalisation and, finally, at a technical level. So, it is by no means an original observation on my part that traditional research methods in the fear of crime field have their failings. The purpose of this discussion is to examine how researchers are acknowledging these failings, especially those at conceptual and operational levels, and working to improve methods in the field.

As we have seen, fear of crime research has traditionally been based on quantitative methods, making extensive use of the survey tool. However, this reliance has been recently blamed for serious mis-measurement of the fear of crime - perhaps even an overestimation in its occurrence (Farrall *et al.* 1997). In his review, Hale states that, '[e]thnographic studies, life histories and individual and group interviews all have much to contribute and are currently relatively ignored by researchers into fear' (1996, p. 132).

More recent work has echoed this sentiment and increasingly researchers are adopting multi-methodological approaches to their work on the fear of crime (for example Hollway and Jefferson 1997a and 1997b, Farrall *et al.* 1997). It seems that qualitative work has a major role to play in the future development of fear of crime research.

In particular, qualitative work has highlighted the importance of survey design. The research by Farrall *et al.* was designed to test the reliability of the survey tool, using a qualitative interview to follow up the quantitative questionnaire and check for any methodological problems, identified as 'mismatches'. Their findings reveal an alarming rate of inconsistencies and they make a number of recommendations for future research.

In particular, in identifying the usefulness of qualitative methods, they recommend the use of open ended questions, more thorough codes and the use of vignettes (1997, p. 676).

The usefulness of open ended questions has been acknowledged by other authors, (Bryman, 1984, Fattah, 1993) and this research emphasised how ineffective closed questions can be. A significant 40% of the mismatches noticed by Farrall *et al.* (1997) (indeed, many were categorised ‘serious’ or ‘catastrophic’) identified inconsistencies between open and closed questions. The use of open questions, then, can aid conceptualisation and facilitate the development of better codes for use in surveys. Work by Jefferson and Hollway illustrates this point nicely (Hollway and Jefferson, 1997c). Their analysis of qualitative data¹² allowed them to separate specific fears for coding, creating a three pronged measure of fear; ‘fear of crime inside’, ‘fear of crime outside’ and ‘fear of crime discourse’. Under each category, respondents were labelled either ‘unafraid’, ‘cautious’ or ‘fearful’. The implications of this will become clear when we consider the conceptual weaknesses of the fear of crime later. Evidently, this type of approach is useful for designers of future surveys.

The validity of fear measures can also be monitored at a quantitative level. Kury and Ferdinand (1998) emphasise this issue, discussing how changes in question order can produce variations in responses. In addition, Schuman and Presser (1996, chapters 6 and 7) consider how the wording of questions can be influential on responses. Thus, they recommend that the effects of formal and substantive balance should be kept in mind. Both of these effects are beyond the scope of this discussion, but they suggest that the use of back-checks (the same or similar question asked at a later point in the questionnaire) and question and answer¹³ rotation may allow for more accountable results.

1.3.1 Types of measure

The global question.

¹² For a description of the open nature of their interview techniques see Hollway and Jefferson (1997a).

¹³ Answer rotation would also enable the testing of primacy effects, see Schuman and Presser (1996), Chapter 2.

The most common, and yet most criticised, measure of fear is the 'global' question, which can take a variety of forms. Examples include:

How safe do you/would you feel walking alone in this area after dark?

How safe do you/would you feel when you are alone in your home at night?

How safe do you/would you feel walking alone in this area during the day?

There are numerous problems with this measure (for a good discussion see Hale, 1996). Firstly, questions of this sort rarely mention crime specifically (even when crime is mentioned it is 'formless' - Figgie Report, 1980 - usually in the form of an introductory statement¹⁴). So, feelings of 'unsafety' may relate to things other than crime (a simple example is a mere 'fear of the dark').

This is not to say that the use of a 'concrete' measure is less problematic. Such measures tend to be subjective assessments of risk, which, like the subjective assessment of safety contained within the global, are dependent on each respondent's ability to make those assessments. This is an important point. The survey instrument relies on the ability of the respondent to recall events and answer honestly. Problems of fabrication, careless replies and memory (forward and backward telescoping) are well documented by Belson (1986), Block and Block (1984), Schuman and Presser (1996), and Schneider (1981). These problems are of particular relevance to fear of crime research due to the nature of the questions (for example, recalling the number of victimisations in the last year or gauging how often one worries about crime).

Secondly, what the respondent understands as 'in this area' or 'in this neighbourhood' will vary between individuals. This problem is alleviated, to an extent, by the inclusion of a clarifying statement (such as 'the area within a mile of your home') but again assumes that all respondents are equally able to make this judgement.

Finally, and perhaps most importantly, is the fact that such questions refer to a situation (i.e. going out alone, or being at home alone, during the night or day) that many people encounter either rarely or not at all (Hough, 1995). Attempts to address this problem have resulted in the inclusion of a hypothetical alternative (e.g. 'if you don't go out

¹⁴ For example, the National Crime Survey uses the statement 'Now I'd like to get your opinion about crime in general...'

alone, how *would* you feel?’) but this has simply clouded the vision further (Hale, 1996). Researchers need to consider dropping this hypothetical from surveys since it clearly can do more harm than good (Farrall *et al.*, 1997 found that hypothetical responses caused a significant amount of mis-matched data).

Despite these somewhat crucial failings, the global questions continue to be central elements of most crime surveys. In many cases this is because of the need to be able to compare data with data from previous sweeps of the same survey (for example the BCS) or with data from different surveys. Survey designers, however, should not be blinkered as to the points discussed above, and should aim to consider the following questions;

- Who does go out/stays home alone, during both the day and the night? In which of these situations do they feel safe?
- How long do these people spend out/at home alone during the day and night (perhaps in terms of how many hours in the past week were spent in these situations)?
- For what reasons do these people go out/stay at home alone?

Behavioural measures.

‘Advocates of the use of behavioural indicators would stress that what people do is a better guide to their level of fear than what they say’ (Hale 1996, p. 92).

These types of measures attempt to measure people’s fear by their actions, that is, do they take security precautions or, for example, avoid certain areas at certain times in order to reduce their risk or fear? Sceptics cast doubt on the reliability of such measures (see Fattah and Sacco 1989) but major surveys do tend to include them. Recent work, therefore, has continued to include a behavioural element.

Mesch and Fishman (1998) investigate the hypothesis that the fear for others’ safety may promote the use of precautionary measures more than the fear for one’s own safety (see also Warr 1992). Their findings only support the hypothesis for personal protective behaviour but they recommend that future research should take into account two distinctions. Firstly, the difference between personal and vicarious fear, and secondly

the difference between personal precautionary behaviour and household protective behaviour.

An interesting study by Vander Ven (1998) illustrates how behavioural measures can be used to develop the concept of fear in a striking way. His study focuses on a Latino urban neighbourhood which is characterised by its groups of young men hanging around on street corners. By observing pedestrian behaviour on encountering these groups, he shows how different reactions can increase or decrease fear, and in some cases encourage a more threatening situation. When a pedestrian approached a group of men, Vander Ven noticed that s/he could either exit the situation or employ some sort of strategic behaviour to reduce feelings of vulnerability. The choice to exit the situation, he observed, can communicate feelings of vulnerability by either avoidance techniques or demonstrative caution. Either way, the possible consequence was a 'temporary labelling' of the youths which led to the encouragement of further behaviour (perhaps because they felt it was 'expected' of them, or because it was simply 'fun'). A more assertive reaction was different in that it disarmed the feared stranger.

It is this type of work which paths the way to a better understanding of the behavioural effects of fear, which should be a priority for future research into the fear of crime. Vander Ven shows that when one individual fears another, it is an emotionally powerful and physically transforming experience, '...both the fearful and the feared are moved to interact in extraordinary ways' (p. 374). As we move on to discuss the concept of emotion based fear, this is an important point to bear in mind.

Emotion-based fear.

Emotion-based fears are usually measured with affective measures of fear, i.e. global measures, formless measures and questions about worry or fear of specific crimes. These questions have traditionally attempted to quantify levels of worry, concern or anxiety but, in responses to the criticism that they do not measure fear, more recent research has included questions which contain a notion of fear (for example, how *afraid* or how *fearful* are you? (Ferraro, 1995, Farrall *et al.*, 1997, Reid *et al.*, 1998 - to name but a few).

What has become clear is the urgent need for better conceptualisation of all of these emotion-based concepts. In their methodological study, Farrall *et al.* (1997) found that often respondents have feelings other than concern and worry which are not traced by surveys. Their results showed that feelings of 'anger' about the prospect of criminal victimisation are more common than feelings of fear (Ditton *et al.*, 1999). In addition, they found a variety of substitutes for the word 'worry', for example, 'distress', 'shock' and 'thinking about crime' (see also Mawby and Walklate, 1997).

This is important because it illustrates that 'fear' may be interpreted in different ways by different people, a fact which remains undetected by the survey tool. Hollway and Jefferson rightly note that previous research has amalgamated the personal fears of individuals into one, arguing that 'there is no reason why their fears should be commensurate' (1997c, p. 11). Their argument is quite convincing when one considers that the analysis of their fear data contradicted many of the findings relating to demographic variables (particularly age and gender) existing within the literature. Calls have also been made for fear measures to take into account the effects of temporal, spatial and social influences on attitudes and emotions about crime (Bannister, 1993, Farrall *et al.*, 1997). So, not only do fears vary between individuals, but also can vary across time and situational circumstances. It is the task of future research to develop the multi-dimensional concept of emotion-based fear in accordance with these findings.

Risk-based fear.

The concept of risk has sparked a great deal of debate in the last two decades, not only within the fear of crime field, but on a much wider scale (Furedi, 1998). It attracts particular attention in the fear of crime debate because of the infamous 'fear-risk paradox'; the fact that those least at risk of victimisation seem to be the most fearful (and *vice versa*).

How, then, do we measure who is at risk of criminal victimisation? Crime and victimisation statistics are usually used to calculate two kinds of risk. Firstly, incidence risks count the number of crimes per adult/household in a sample. Secondly, prevalence risks count the percentage of people who are victimised over a period of time.

Hope (1995) suggests that both victim prevalence and victim concentration are essential to our understanding of the distribution of victimisation (see also Barr and Pease, 1990). Both, he says, are fundamentally dependent on changes in temporal and spatial conditions and thus we should incorporate some element of what he calls 'crime-flux' into our measures. In order to measure change over time, a survey would ideally need to interview the same respondents over a series of sweeps and this is not compatible with the aims of most major crime surveys (Aye Maung, 1995).

One of the most common criticisms of the BCS and other large scale crime surveys is that they do not measure crime at the small area level very well (Kershaw *et al.* 2000, p. 2). Trickett *et al.* (1995) emphasise how important it is to focus on the effects of the characteristics of the individual household and the direct surrounding area. Their results showed that both factors are significant predictors of risk of victimisation, but area is the strongest predictor. This approach allowed them to conclude, '[t]o caricature our overall results, young professionals, living in detached or semi-detached houses in poor areas are particularly likely to fall victim to crime' (p. 273).

The tone of recent literature is critical of the way risk has been used in fear of crime research. Varnava (1995) suggests that research has neglected to use the concept of risk to its full potential, claiming that it can be used to develop the crime-fear relationship by providing 'an explanatory framework for the range of emotions which have been uncovered' (p.133). This is an important point, since it highlights the fact that much of the previous work on the fear of crime has been descriptive, rather than explanatory. Of course, it is necessary to find out *who* is fearful, but the reasons *why* they are fearful are central to our understanding of the phenomenon (for a discussion see Bilsky, 1993).

Bilsky suggests that the reason for this emphasis on descriptive work is that most of the research has been sociologically, rather than psychologically, based. The work by Hollway and Jefferson goes some of the way to bridging this gap. Their methods allowed for a more complex conceptualisation of risk (to include details of lifestyle, resources and any history of victimisation) which revealed that respondents who were coded high or low risk, were high or low risk for different reasons. Thus, when we talk about risk of criminal victimisation in terms of measures of incidence or prevalence, we are neglecting to take into account risk variations at an individual level. They argue that

by moving our focus from 'a rational, risk avoiding' subject, to an 'anxious, defended' one, we can build a clearer picture of the risk-fear relationship (1997a, p. 53).

There is, of course, a clear and important distinction between objective (*actual*) and subjective (*perceived*) risk. It has been shown, to varying extents, that certain groups of people (specifically women and the elderly) perceive their risk of victimisation to be far greater than it actually is. As we have seen, measures of perceived risk (especially the global measure) have in the past been taken as surrogates for fear. Thus, these groups of people are deemed to be more fearful. Rountree and Land (1996) challenge this assumption, arguing that perceived risk is conceptually distinct from fear and should instead be seen as one of the components of fear.

How, then, do we construct our perceptions of risk and how do these perceptions relate to our fears? Significantly, people with the same perceived risks do not necessarily have the same level of fear. Hale (1996) notes that it has been convincingly argued that fear depends on both perceived risk and sensitivity to that risk (Warr, 1984, 1987), '[t]he task for research is now to specify more clearly the determinants of perceived risk, crime seriousness and sensitivity' (Hale 1996, p.110). Warr (1987) suggests that sensitivity to risk is dependent on two factors, the perceived seriousness of the offence and vulnerability. The two, as Killias (1990) illustrates, are inextricably linked. Fear, he says, is determined by three factors. Firstly, the *exposure* to non-negligible risk. Secondly, the ability to *control* exposure in terms of protective measures and the ability to escape. Finally, the anticipation of how *serious the consequences* might be. The way we assess these factors is linked to our notion of vulnerability, how we see ourselves¹⁵ in terms of physical, social and situational strengths or weaknesses.

1.3.2 Conceptualising 'fear' of 'crime'

'In reality, the term 'fear of crime' is an artefact of a broad interest in what is presumed to be the psychological effect of crime.' (Williams *et al.* 2000 p. 6).

¹⁵ The subjectivity of this is important. Killias and Clerici (2000) compared respondents self assessment of vulnerability with the interviewer's visible assessment of the respondent's vulnerability. Results indicate that vulnerability, as assessed by the respondents themselves, explained fears and worries about crime better than the interviewer-assessed measures of vulnerability.

What is evident from the discussion so far is that any new contribution to the study of the fear of crime inevitably carries the baggage of a poorly developed concept with a haphazard history of operationalisation. Williams *et al.* (2000) emphasise the effect of years of scientific neglect:

'What has evolved after hundreds of studies is an overemphasis on independent variables as specific and fully developed concepts, while the dependent variable remains less sophisticated and much more ambiguous.' (p. 3)

In this final section, we take a step back and consider the fundamental question - *what is the fear of crime?* We have seen where it came from and how attempts have been made to explain it but I have, up until now, failed to offer a definition of the concept. The major reason for this is that there is no accepted definition and the need to address this problem propels my thesis into the chapters that follow. What I intend to demonstrate in the closing stages of this chapter is that the little work which has been done at a conceptual level has focused on extracting the meaning of the '*fear of crime*'. While I accept that the work on the psychological reactions to crime is a priority, I feel it equally important to ask what role the concept of 'crime' plays - what is the '*fear of crime*'?

Conceptualising fear

The distinction between cognitive, affective and behavioural measures of fear¹⁶ continues to be a paramount issue. It is important to recognise that, as individuals, we have cognitive and affective perceptions of crime at personal and general levels. We make judgements as to how much we are at risk of criminal victimisation, judgements which are made in accordance with our values and concerns about our environment. Armed with these perceptions, we go about our daily lives and adjust our behaviour accordingly. All exist independently of each other but are inextricably linked. The important point is that none represent fear. Fear is an emotion and, whilst it may be related to our risk judgements, concerns and behaviours, they cannot be used as surrogates for fear.

¹⁶ For details of this distinction see DuBow *et al.* (1979) and Ferraro and LaGrange (1987). For a more general overview see Hale (1996).

What has become clear, then, is the fact that the questions traditionally used in surveys are rarely measures of fear. They may be subjective assessments of safety, risk, disinterested concern, anxiety or worry, but they are clearly not measures of fear (Hough 1995). However, this does not render such questions useless. Rather, we should be alerted to the need to develop a multi-dimensional approach to the fear of crime. Any measure of fear should include both emotion-based and risk-based fears. In this way, fear, risk, concern, worry, anxiety and safety (which are all concepts in their own rights) can be collectively measured under the umbrella of 'the fear of crime'.

The (sparse) work on fear of white collar crime illustrates that reactions to crime extend beyond a level of fear. They can be seen to impinge on a more general state of well-being, the effects of which should not be underestimated. In his review, Hale (1996) proposes that the fear of crime exists within broader framework,

'More broadly, is 'fear of crime' simply measuring fear of crime, or, perhaps in addition, some other attribute which might be better characterised as 'insecurity with modern living', 'quality of life', 'perception of disorder' or 'urban unease'?' (Hale 1996, p. 84).

This is, in fact, an important conceptual issue. Taylor and Jamieson (1998) say that this type of approach is essential to our understanding of the fear of crime. Current research, they argue, fails to consider how attitudes are affected by recent historical and economic developments and the failings of governments to address social problems (for example, divorce rates, drugs, random violence and unemployment),

'Our argument here, however, is that this continually reinforced fear of crime now works to condense a series of other inter-connected anxieties about the current experience of middle class life in England, which includes the real danger of crime (car theft, burglary and incivility) but which really can only be comprehended in terms of this wider set of political, cultural and social anxieties' (p. 173)

Work carried out as part of the British Social Attitudes Survey 1994 merits particular mention in this discussion. In a much under-rated piece of work, Dowds and Ahrendt (1995) illustrate how the fear of crime can be seen as a reflection of a more general insecurity about the modern world. The survey used two fear of crime measures; firstly

a standard global fear measure (How safe do you feel walking alone in this area after dark?) and secondly a new measure:

'Because of worries about crime, some people change their everyday life, for example where they go or what they do. Other people don't change their lives at all. Do worries about crime affect your everyday life?'

This second measure produced some very interesting results. Using the first measure, women and the elderly were found to be more fearful than men and the young. However, using the second measure, age and gender were found to be less significant indicators. Of particular interest were the ways in which different people let their worries about crime affect their behaviours in different ways. Women were found to be more likely to restrict going out alone at certain times and men were more likely to take security precautions in the home.

Questions about 'worry' were not restricted to crime. Respondents were asked how worried they were about their family, money and health in addition to some remote world-wide events. Results revealed that for elderly men these sorts of worries were related to fear of crime. For example, worries about their health related to going out alone at night and worries about world events were related to allowing worries about crime affecting daily lives. However, for women and young men, there was no real significance in being 'one of life's worriers'. The authors argue that this is an important finding. The fear of crime, for some, is linked to a general feeling of anxiousness. For others, it relates more to specific problems in society which are identified as in need of attention to prevent further decline.

A further set of questions were used to measure political leanings (left/right wing) and authoritarianism, which is defined as 'to have an ideology consistent set of attitudes which relate to punitiveness, conformity and anti-welfarism' (p.25). Of the two, authoritarianism seems to have the most significant effects on fear. For elderly women, strong negative attitudes towards people on welfare benefits (regarded by many as 'scroungers') were significantly linked to unsafe feelings when out alone at night. For middle aged men, fear of crime was related significantly to the belief that immigration practices should be restricted. Interestingly, for young men, those who felt unsafe going out alone at night were more likely to hold libertarian views. In contrast, those who

claimed that crime affected their everyday lives, tended to hold more authoritarian views.

Questions attempting to assess unease within a changing society focused on attitudes towards issues such as the move towards equal opportunities for women and ethnic minorities, changes in legal aid provisions and the availability of pornography. Among elderly women, concern about the development of opportunities for homosexuals and the provision of sites for gypsies were related to feeling unsafe going out alone at night. Interestingly, those elderly women who claimed that worry about crime affected their daily lives tended to be of the opinion that equal opportunities for women have gone too far. Finally, for middle aged men, the key factor is the belief that the right to show nudity and sex in films has gone too far¹⁷.

All of these results have far reaching implications for the future of fear of crime research. Placing the fear of crime in the context of the quality of life may help us to explain the phenomenon.

Conceptualising crime

We have already seen how it is important for measures of fear to be concrete and it is widely accepted that questions should be crime specific (Figgie Report, 1980). However, most articles conclude with statements summarising the reactions to crime generally with very few recognising the implications of crime specific analysis. As Rountree states, '[s]tudies examining the crime-fear linkage tend to estimate the effects of *any* type of victimisation or a total crime rate on fear. Such an approach implies that there are no important differences in the effects of various crime or victimisation types on fear' (Rountree 1998, p.342). The case for conceptualising 'crime' is as strong as the case for 'fear', yet very little work has been developed from this perspective.

The fundamental question seems to be: what makes one crime different from another? Indeed, this is will be a recurring question throughout this thesis. Most attempts to distinguish between types of crime have led to the distinction between property and personal (or violent) crimes. It is well documented in the fear of crime literature that

¹⁷ Indeed, the survey found that the best predictor of the fear of crime amongst women was their attitude towards the availability of sexually explicit pornography. This, the authors suggest, reflects the idea posed within the feminist literature that women's fears are related to their vulnerability to sexual threats.

property crime evokes different reactions than does personal crime. LaGrange and Ferraro explain that, '[t]he type of crime has a profound effect on the pervasiveness and intensity of reported fears', citing crimes against the person, high risk crimes and crimes that result in substantial monetary loss as high fear generators (1987, p. 382). The problem is that previous research does not allow us to say that people generally worry about personal crime more than property crime (or vice versa). The literature suggests that an individual's level of 'fear' may be related to a number of factors: perceptions of risk of victimisation, the type of loss potentially suffered and the ability to resist or recover from the crime (all possibly linked to a perception of self vulnerability).

Indeed, it is not always the most serious crimes which prompt the highest fear levels. LaGrange and Ferraro suggest that, 'serious street crime may not be as important in generating fear as mundane, everyday events and situations that signify a lack of community order and control' (1987 p. 386). Similarly, Skogan (1987) argues that property victimisation has more measured effects than personal victimisation since personal crime is generally less common and rarely forms part of an individual's direct experience of crime. There are many dimensions, then, to the problem. Simple property crime may be perceived as less serious but more likely to happen. Mugging and burglary may be perceived as being more serious and fairly likely. Further, mugging is a good example of a type of crime that cannot easily be assigned to either the personal or property categories. Personal crime may be perceived as more serious but less likely to happen. At the end of the day, how an individual reacts to all of these perceptions may depend on a multitude of other characteristics or influences.

The crucial observation to make at this stage of the discussion is the fact that financial crimes are generally excluded from crime surveys generally and, thus, the concept of property crime. This, in my view, is a major failing. Crime surveys, on the whole, neglect to measure reactions to white-collar crimes. The main reason for this is that many of its victims remain unaware of its impact and are thus not easily identifiable (Fattah 1986). In addition, white-collar crime is not seen to impact the well being of victims as greatly as property or personal crime. In a sense, fear of white-collar crime lies beyond the scope of 'fear of crime' in its traditional cloak - 'stranger danger'. However, Pearce and Tombs (1992) note that when surveys do include questions on white-collar crime, often it has been rated as being more serious than many other types of crime. It can take the form of fraud, embezzlement, financial deception, tax evasion,

consumer fraud or corruption and, it seems, can have significant, long-term effects on the well being of its victims. Spalek (1995), in a study of pensioners who were victims of the Maxwell affair, found that their experiences did indeed have a profound effect on their lives. In particular, their mistrust of financial institutions and advisers left them in serious doubt of their financial stability. She concludes that any measure of the fear of crime should include a measure of white-collar crime.

We will return to these issues in chapter 3, but for now I wish to make the point on which the whole thesis hinges. If victimisation surveys are intended to build an accurate picture of crime and the fear of crime, it is a distortion to exclude all financial crimes on the basis of the blanket assumption that they are 'victimless'. Thus the task I set myself is to challenge the traditional boundaries of what we consider to be 'property crime' and to test the feasibility of introducing financial crimes to crime surveys.

Conclusion

I have attempted in this chapter to provide an overview of the current state of play in the field of fear of crime. In the process of tracing its roots and critiquing its development, I have suggested that there is a great deal of work to be done at conceptual, operational and technical levels. I am not suggesting that my aim in this thesis is to embark on a problem-solving mission on a grand scale. Instead, I hope to have illustrated how my own evaluation of the phenomenon as an object for criminological study has determined the direction of my own (albeit small) contribution to the field. I intend to pursue the issues relating to crime specific fears and return in later chapters to the need for reconsideration of the crimes that are dismissed as 'victimless'. In the next chapter, however, I discuss the underlying themes of the thesis and call for a forward-looking approach to the study of crime.

2. The changing nature of crime - a context of crimes of the future

Introduction

In Chapter one, it was argued that there are two paths one can choose from when attempting to develop the measurement of fear of crime. The first is to develop the concept of fear, a tricky task which has been repeatedly considered in recent years and reasonably well documented in the academic literature. The second, less trodden, path is the development of the concept of crime. We have seen that it is meaningless to talk about 'fear of crime' without a clear idea of what we mean by 'crime'. Chapter one concluded by selecting this second path.

This chapter begins by questioning the desire, or rather lack of it, to predict the future of crime. I suggest that examining the future entails the extraction of societal contexts, rather than making statistical estimates as to the trends in crime rates. The next stage of the discussion is to place the concept of crime in such a context. I explore the changing nature of crime in the context of a developing global society. There is an emphasis on looking to the future and exploring how technological advances, globalisation and an increased reliance on information might impact on crimes, criminals and victims (as well as on society generally). Many issues are raised and developed as far as is possible but it has been necessary at times to only scratch the surface as many of the theoretical ideas are worthy of a thesis in their own right.

In the final part of the chapter, I considered our ability to predict the future of crime. A number of predictions are made but the most important is the suggestion that there will be a shift in what things, for want of a better word, we attach value to. I will be exploring in particular the value attached to information and will talk about the growing phenomenon of identity theft.

The underlying tone of this chapter is intended to be critical of the anti-futurist nature of criminological thought. In a recent article, Pease wrote, '[c]riminology is a discipline

with a long past, a short history and no future' (2001, p. 19). The theme, then, which runs through this chapter, and indeed through the thesis as a whole, is that in order to understand crime (and fear of crime) it is not enough to look back at the changes in crime in the last one, ten or even fifty years. The criminological agenda should be driven by a desire to know what is around the corner.

In 1973, Leslie Wilkins made an insightful attempt at predicting what crime would be like at the turn of the 21st Century (Wilkins 1973). Not only did he predict a complete breakdown in the criminal justice system,¹⁸ but also he made some accurate predictions about the nature of crime. Firstly, he recognised the important role technology was to have in our lives, enabling crimes to be both committed and detected in new ways. Secondly, he recognised that our ideas of 'property' would change and that more information would be held by private companies, leading us to challenge the idea of theft of information.

A quarter of a century on these are still, on the large part, new, unexplored ideas in the field of criminology¹⁹. Only now are we just beginning to recognise the implications of changes in society in the latter part of the 20th Century and it is only in the last couple of years that we have seen a murmur of academic activity in the field of technology related crime. It is a sobering thought that 30 years after Wilkins made these predictions, the ideas are presented as 'new developments' in this PhD thesis.

¹⁸ Not as outrageous a suggestion as one might think in the wake of the recent Auld report, Halliday report and the latest government white paper on reform of the criminal justice system.

¹⁹ Indeed, Lloyd (2000) notes that the subject of technology has struggled to receive recognition from academia generally. He credits the recent surge in interest to three factors; the well publicised panic about the Millennium Bug, the increasing awareness of the implications of electronic commerce and the global communications networks (supporting computers which exchange data) which are increasingly becoming a part of every day life.

2.1 Crime and the future : A desire to predict the future of crime?

'No-one can predict the future. What we can do is look ahead and think about what might happen so that we can begin to prepare for it' (Foresight 2000a, p. 31).

Ultimately, for many, the quest for an understanding of crime is driven by a desire to prevent it. But before we can begin to think about crime reductive strategies, we need to accept that crime changes, '...crime is 100% stable and 100% volatile, depending on the aspects of the criminal event in focus' (Pease 2001, p. 19). Thus, as Pease argues, to move forward we need to construct a system which acknowledges the future, a context of change in which to place the future and a way of thinking about crime reductive strategies.

However, criminology as a discipline has been slow to acknowledge the importance of looking to the future. Wall (2001) argues that, while cybercrime is the crime of the future, criminologists are faced with several problems when researching it. Firstly, the lack of statistics is a major problem, those which are available are usually conducted by commercial bodies and are the result of unsound methodologies²⁰. This lack of statistics is a product of the fact that it is not easy to study victims and offenders of these types of crimes (usually due to invisibility of the victims and the problem of under-reporting). Moreover, problems of trans-jurisdiction mean that crime classification becomes a challenge. Finally, and of great importance, is the political economy of cyberspace and the power struggle for control. Wall asks, to what extent does this shape and control the motivations of the criminologist?

Outside of the academic sphere, however, the importance of the future of crime has been better recognised and the opportunity to study it has been seized with enthusiasm. In 1993 the Government launched the Foresight programme, a panel based programme

²⁰ The desire to quantify crime is an important feature of criminal justice policy. The problem we are facing now is can we build a picture of global crime? Can we make meaningful comparisons of crime indicators internationally, across different cultures? Findlay (1999) argues that patterns of crime are usually analysed within temporal and spatial contexts (spatial analysts have focused on comparisons between crime inside different geographical boundaries, for example urban crime compared with rural crime, and temporal analysts have looked at the development of crime trends across time, examining stages of transition at different stages in history). If globalisation and the internet represent the collapse of time and space, cybercrimes cannot easily be studied in this way.

which works on a five year cycle. Foresight brings together representatives from academia, business and the public sector, creating a number of different panels which consult and report on a number of different issues. One of these panels, The Crime Prevention Panel, published a consultation document in March 2000, entitled 'Just Around the Corner', as part of their project to '...help Government, law enforcement, business, science and society prepare for the future' (Foresight 2000b, p. 5). This paper explores the potential developments in society in the next 20 years and highlights the 'drivers' which may effect crime. Indeed, this paper, and the report which followed (Foresight 2000b), heavily inform this chapter since they represent a significant move towards a forward looking, multi-agency crime policy.

Foresight pioneers a forward-looking way of thinking about crime reductive strategies but its work to date has received little academic recognition. Indeed, the suggestion that the future of crime prevention lies in technology and design leaves many feeling bemused and suspicious. However, I intend to illustrate in this chapter that it is not unreasonable to make certain predictions. For example, developments in sequencing the human genome will increase the information available at the scene of a crime from DNA samples. Biometrics are indeed likely to become key tools in identification, with biometric templates being stored in data retrieval centres or on smart cards.

On the whole, criminology has been happy to accept that we will probably need an international response to crime and the different skills may be needed to tackle crime. But, with the urgent need for reduction in crime levels increasing, '...instant solutions are required to today's problems - preferably by using yesterday's methods' (Wilkins 1973, p. 15). The time has come to recognise the potential for looking towards tomorrow.

2.2 Drivers of Crime: Society in the Information Age

If one were to make a list of the things we wanted to know about crime in, say, ten years time, we would probably include the following: What crimes will be committed? How many crimes will be committed? How many people will be in prison? What new crimes will emerge? However, we cannot predict the future of crime within such

accurate parameters. Instead, we must identify trends and themes, based on what we know now about the social context in which crime occurs.

In this chapter, I intend to demonstrate how such an approach can be effective. I begin, then, by discussing the drivers of crime in the context of the Information Age since, '...it is clear that a key driver for change in the future will be changing demographics as well as the continuing impact of technological change and the increasing integration of the global economy' (Scase 1999, p. 68).

2.2.1 Globalisation and crime

'Where time and space have collapsed through the internet so too have the conventional representations of crime and control' (Findlay 1999, p. 52).

Few would dispute that globalisation is having a profound effect on societal structures and interactions around the world (Beck 2000, Giddens 1990). Changes in technology, commerce and communication have prompted the development of a more mobile, faster way of life, in the Western world, at least. The internet has brought with it an increased access to information, opening the door to a deluge of opportunities for travel and business and the sharing of cultural diversity on a global scale.

But does this new economic and social climate necessarily set the scene for a globalisation of crime? Castells (1996, 1998) suggests that the technologies which enable multinational business to function and which challenge state control across borders also open up opportunities for globally organised crime networks. He argues that the effects of transnational crime extend to economics, politics, security and societies at large (see also Nelken 1997 and Ruggiero 2000 for good discussions of new opportunities for transnational crime). Findlay illustrates this point, arguing that, '[t]he 'new' political context of crime is now global, as is the stage for its control' (Findlay 1999, p. 28). He argues that certain crimes have been prioritised for 'collaborative action' by governments across the globe because they have realised the potential for devastating harm on world markets, capital transfers, national security and transport and communication. The attack on the World Trade Centre in 2001 and resulting 'united' drive to combat terrorism is an obvious example of this.

However, the effect that globalisation is having and will continue to have, on crime is unclear (Held *et al.* 1999). It is important to recognise that the changes in society may not revolutionise the nature of criminal behaviour. Crime is not likely to mutate into an unrecognisable and uncontrollable phenomenon. Rather, globalisation is more likely to have an effect on where crimes occur and how they are executed. Crimes may be committed with more ease around the globe and crime scenes may even become virtual. But these changes will be more a feature of evolution than reinvention. Findlay (1999) warns against becoming swamped with images of organised master criminals, seizing power over a limitless population of victims (see also Levi 2002). The danger, he argues, of glorifying the collapse of time and space by the internet, is to lose sight of the meaning of crime. The inevitable response is to demonise the means for communication rather than the crime or criminal.

What we can be sure of is that the boundaries and the role of the law are becoming blurred. The most significant changes in the near future are likely to relate to the establishment of control mechanisms. A good example is the recent case of the lifetime injunction preventing the publication of the new identities of Jon Venables and Robert Thomson²¹. Demon, a major internet service provider, challenged the original injunction on the grounds of it being inappropriate for the internet. Internet providers, they argued, were concerned that they might face fines for contempt of court for unknowingly providing access to the material. However, Dame Elizabeth Butler-Sloss, who granted the injunction, resisted requests for more specific terms, stating that it would be impossible to cover all eventualities in the light of future technological development and, thus, the injunction should be in general terms. Eventually, an amendment was made restricting the liability of ISPs to where they have knowledge of the publication (or likelihood of publication) or where they fail to take reasonable steps to stop the publication (including removal of or blocking access to the information, Dyer 2001). This type of case raises a barrage of questions, particularly in the context of the criminal law. If an act is not considered to be criminal in one jurisdiction, but is in another, whose role is it to determine the criminality? Whose morality should be taken into consideration? Whose interests should the criminal law protect? The debates are likely to inform crime policy for years to come.

²¹ Thomson and Venables were convicted for the murder of James Bulger and, having completed sentences in young offender institutions, were released in 2001. The British press were prohibited from publishing details about where they were to be located. Fears arose that the information might be published on the internet, by someone in a different jurisdiction.

2.2.2 Changes in society

From the British perspective, it has been recognised that changes in demographics will be a key force of change in society over the next ten years (Lee *et al.* 1995). In the first decade of the 21st Century, the population size is predicted to remain static (possibly even decrease) but, as birth rates fall and life expectancy increases, we will see the rise of an ageing population (Scase 1999). This demographic shift, coupled with a continuing trend towards technological advancement is likely to have considerable social and economic implications.

Although we will inevitably be submerged in the problems associated with caring for the elderly, Scase (1999) argues that the emerging feature of British society over the coming decades will be the rejuvenation of the middle-aged. Middle-age, once deemed to signify 'the beginning of the end', brings new opportunities for travel and leisure. This will have a marked effect on the economy. For example, advertising agencies, the leisure and entertainment industries and the media who currently all target the young will need to focus on a new middle aged audience.

The change in population is likely to result in a growing number of households, in particular an increase in single person households and women living alone²². Not only will we see a higher proportion of those in their 20s living alone but also, as divorce rates increase and more women choose careers over families, we will see an increase number of middle-aged lone dwellers. The growth of single person households, already being experienced with the explosive development of luxury studio apartments in most British cities, may revive inner cities, prompting the influx of businesses tailored towards the health and lifestyle choices of the new population.

Routines are also likely to change. Many have predicted the growth of a service and information economy (Andersen *et al.* 2000). The major feature of such an economy is low-paid, insecure employment and it is likely that people will be required to work longer hours. As people juggle their working and personal lives, it is anticipated that they will demand a 24 hour society.

²² Scase (1999) predicts that by 2010, single person households will become the predominant household type in Britain, with 40% of all households containing one person only.

How these changes will impact on crime remains to be seen. We should not neglect to acknowledge that, together with an ageing population, we can expect to see more young men between 15 and 24 in the next decade (within which lie the current peak offending ages for crime, Foresight 2000b). Does this necessarily point towards an increase in both young offenders and middle-aged crime victims? Findlay (1999) argues that an expanding proportion of young males may increase the potential for an expansion of crime choices and relationships which are traditionally criminalised. But as the context within which crime occurs evolves, it becomes more difficult to predict how changes in the demographics of the population will impact the demographics of criminals and victims.

It has been argued that the effect of economic change on community will have repercussions on crime (Castells 1996). The destruction of the traditional household, neighbourhood and community relations has the potential to divide society into those who are socially incorporated and those who are excluded. Moreover, the breakdown of the traditional model of the extended family may result in the dissolution of socialisation networks. Technology, it seems, allows more people to remain isolated. Physical society may indeed become a more hostile place. The tendency to isolation may change the relationship between the offender and the victim – neither is aware of the other person.

Findlay (1999) argues that globalisation represents a radical repositioning of relationships, within the contexts of power and authority. Thus it has the power to marginalise or reintegrate the individual, and which effect it has depends on the place an individual takes within these relationships. Marginalisation is a consequence of social development and affects certain individuals and groups within a culture more directly and extensively than do others. Indeed, the trend towards consumerism, rather than communitarianism, as the predominant social philosophy is a worry for some. Findlay goes on to argue that for communitarianism to be a successful force against crime, group loyalties need to form a strong moral consensus. He suggests that to understand individual interdependencies and relationships which promote/resist crime, we need to place them in a framework of group loyalties.

2.2.3 The Information Age

'Today it has become a truism to assert that 'Information is power' and to state that we live in an information society' (Lloyd 2000, p. xxxvii).

Are we in the Information Age? Indeed, do we even know what the Information Age is? Ever since man landed on the moon in 1970 we have been said to be entering a new 'age' of some sort, be it the Space Age, the Network Age, the Digital Age, the Age of Computers or some other technological revolution. We have no clear definition of what we mean by the Information Age or the Information Society, yet most people are familiar with the contexts that the terms represent and the challenges which arise from them.

The development of information technology has had a considerable impact on modern society in the last 30 years. Of course, the development of the computer is at the core of development of that technology. Lloyd (2000) traces this development in detail and provides a striking example to illustrate the scale of progress. In 1970, when the first man landed on the moon, the world was in awe at the power and ability of computers. In 2000, a typical family car possesses many times the computing power of the Apollo spaceship and a desktop PC has more processing power than the whole stack of computers used in Mission Control. At the current rate of progress, in which the processing power of computers is estimated to double every eighteen months (the so-called 'Moore's Law'), fifth generation computers, defined by their human-like intelligence, may not be as far around the corner as one might think.

The major development of the last decade has been the birth of the internet and the creation of cyberspace. This development began against the backdrop of the space race in the 1960s, driven by America's desire to be able to maintain communications between the military and the government in the event of a nuclear attack. Once established, however, the internet was, for many years, used mainly by the academic community as a means for transferring information. It wasn't until 1992, when the world wide web was founded, that the file transfer facilities of the internet became more widely available and more user-friendly.

Once the world wide web had appeared, it soon caught on. Indeed, cyberspace developed quickly when compared with other communication technologies. Figure 1 illustrates how quickly the world wide web reached widespread usage in comparison to

the telephone, the radio and the personal computer. But, as with all technologies, widespread usage does not necessarily entail globalisation. Indeed, Lloyd (2000) demonstrates that only 4.5% of the world's population use the internet and it is only a feature of the developed world. For those living in the developed world, the internet *is* becoming a part of everyday life but to what extent do these innovations changes the picture of crime, at both a global and local level?

Figure 1: The rapid development of modern technologies.

Time taken to reach 50 million subscribers	
Telephone	74 years
Radio	38 years
Personal Computer	16 years
World Wide Web	4 years

Source of data: Lloyd (2000)

The challenges of the information age are mostly associated with the protection of privacy. In particular, the protection of Intellectual Property rights and concerns about media ownership and the role of competition policy are dominant themes. The ultimate irony is that the data processing techniques which are a growing attraction, actually threaten the rights and freedoms of individuals whose data is being processed. The current tangle of statutory responses relating to privacy illustrates the complexity of the control of information. We are forced to ask whether statutory responses to the misuse of information impose regulations on those who process the data *and* give rights to those who constitute its subject matter? Undoubtedly, this is a growing concern for individuals and policy makers alike, as stated in the European Commission Draft Green Paper on Information Security:

'Individual, corporate and national wealth expresses itself increasingly in the form of information. The growth and performance of an estimate 2/3 of the economy relies upon manufacturing or services heavily dependent on information technology, telecommunications and broadcasting, and therefore depends critically on the accuracy, security and trustworthiness of information. This is of as great importance and interest

for individuals as for commerce, industry and public administrations. Correspondingly, the protection of information in all its aspects, here referred to as Information Security, has become a central policy issue and a major concern world-wide' (cited in Lloyd 2001, p. xxxix).

It has, of course, been suggested that the internet offers greater opportunities for crime. For example, the increasing use of virtual cash will possibly result in crime concentrating more on the electronic realm where different detection methods may be necessary. Of particular concern is the suggestion that organised crime might become the dominant threat to society in the 21st Century:

'When coupled with the greater access directly to information (and the information itself potentially more dangerous), the threat is of an empowered small agent capable of creating crime and havoc of a level previously limited to organised or career criminals' (Foresight 2000a, p. 5).

However, the reality of this threat should be kept in perspective. Findlay (1999) examines what he calls the 'mythology' of organised crime, criticising the glorification of criminal groups such as the Mafia and the treatment of them as mystical bodies of power. He argues that public officials create super-criminals, thus deflecting the need to explain the state's failure to control organised criminals. Moreover, it has been suggested that, as more and more people become familiar with technology, those without knowledge may turn to more expressive (and violent) crime.

Thomas and Loader (2000) identify three emergent types of cyber-criminal in the global context. Firstly, 'hackers' and 'phreaks' are motivated by curiosity and rarely intend to cause damage or gain financially. Information merchants, in contrast, trade in the commercial sale of information in the form of more serious crimes such as espionage, sabotage, the sale and theft of identifying information, computer/network break-ins and large scale software piracy. The third type of criminal is the terrorist or extremist. These latter criminals are motivated by illegal political or social activism.

Wall (2001) suggests that the internet impacts on criminal activity in three ways. Firstly, it acts as a vehicle for communications which sustain existing patterns of harmful activity (for example, stalking). Secondly, the internet has created a trans-

national environment which provides new opportunities for harmful activities which are already the subject of law (e.g. fraud). Thirdly, he argues that the nature of the virtual environment has engendered new forms of harmful activity (e.g. the unauthorised appropriation of music products). Cutting across these three levels of impact are four broad areas of harmful activity: cyber trespass (hacking), cyber deception/theft (credit card fraud, misuse of cyber cash – both forcing us to reconsider the concepts of property and theft), cyber pornography and cyber violence (cyber stalking and hate speech).

2.3 What can we predict? The significance of value.

Having considered the characteristics of the modern environment of crime, and having identified the drivers of change in the nature of crime, we can take the next step and actually make *some* predictions about the future of crime. In particular we can predict significant changes in value. Value, here, is used in two senses of the word. Firstly, in the context of value systems, the concept of socially acceptable behaviour is likely to be reshaped. Secondly, particularly in the context of acquisitive crime, value is significant because it is inextricably linked to criminal motivation, and the objects of crime are characteristically of value to the criminal.

We have already considered the possible impact of changing lifestyles on the community. With more people living in single person households and, as new technologies allow individuals more independence over their lives, we may see a decline of traditional forms of organisation. Foresight suggest that, '[c]rime will be more likely as the social pressures which currently limit anti-social behaviour become eroded' (Foresight 2000a, p. 4). All of these changes point towards a changing set of value systems, at both levels of society and of the individual.

However, history tells us that a change in values is a natural feature of development in society over time. What seems to be different is the fact that these changes are accompanied by changes in technology. Wilkins alerts us to the relationship between the two:

'The impact of technology on crime will be as significant as changing values. Value systems emphasize the human actors in the situation, event or act which is defined as criminal; technology tends to emphasise the circumstances surrounding the event and

the techniques available to those who commit crimes, as well as those who attempt to prevent them' (Wilkins 1973, p. 21).

Technology then, as well as being one of the driving forces for changes in society's values, is also likely to have an effect on the nature of the criminal act itself. In particular, since acquisitive crime follows what has value (does it have value to the criminal or does it have a value on the stolen goods market?) it is likely that property theft will continue but might change. The miniaturisation of goods, for example, might lead to an increase in property theft. Similarly, computers are becoming more portable and personal devices and as they become smaller and more advanced they are likely to become more commonplace.

Grabosky *et al.* (2001) discuss how techniques of theft are evolving with technological advances in e-commerce. Historically, they note, theft has been carried out using simple and direct techniques. Using the example of electronic transfer of funds, however, they show how the object of theft has shifted from physical cash to the 'instructions' which move records of funds electronically. They conclude that the future is likely to see an extension of opportunities in both the public and private sectors.

Clarke (1999) suggests that hardware is likely to lose value. As hardware increasingly becomes a mere access point, serving as a portal through which services are provided via an electronic signal, it is likely to become less attractive to the criminal. Already, we are seeing evidence of this trend. Hardware is becoming cheaper and even free as a way of attracting customers. For example, On Digital recently marketed their television services by providing a free set-top digital decoder for each new customer. As the hardware loses value, the service which it enables becomes the valuable commodity. Clarke argues that as this transition occurs, the hardware which is popular with thieves will become unattractive because the value will shift to the service. Moreover, as better security features make physical goods less attractive and harder to steal, it may be that the component parts take on value themselves. Such a trend is evident in the mobile phone sector, in which a growing problem is the cloning of phones and SIM cards.

In order to predict what items might have value in the future, we need to consider the essential features of products which are attractive to criminals. Clarke (1999)

summarises these features using the acronyms CRAVED and EVADED (these are summarised in Figure 2). I do not intend to dwell on these features for the purposes of this discussion. The point I wish to make is that technological advances are having a significant impact on the nature of crime and criminal motivations. The key to unlocking the future of crime is value and, if we unpack that concept of value, it allows us to make a prediction for changes in crime.

Figure 2: Clarke's CRAVED and EVADED goods

Features of 'Hot Products'	
CRAVED	EVADED
Concealable	Enduring
Removable	Valuable
Available	Available
Valuable	Distributable
Enjoyable	Easy to use
Disposable	Desirable
<i>Consumer electronics, drugs, hardware.</i>	<i>Electronic services</i>

Foresight predict rises in violence and disorder, fraud, personation and extortion, and theft targeting electronic services, and more crime committed by those outside national jurisdictions (2000b). We have seen, earlier in this chapter, how the growing importance of information is posing new challenges to law and law enforcement and it is in this area that we may see the most significant changes in criminal activity over the next few years. In the next section, I consider the increasing value of information and identity and describe how the misuse of information is becoming a growing public concern.

2.3.1 The value of information and identity

I have argued so far that information will increasingly have value and will be the target for crime. Because so much of the information being exposed is likely to be personal information, it becomes inextricably linked to issues relating to identity. Ironically, as ways of proving identity increase, so will the *need* to prove it. There is a growing awareness of the need for self protection, particularly evident in technological developments such as internet identities, digital signatures, smart cards, DNA databases, computer based recognition (Brin 1998, Garfinkel 2001). As this awareness becomes more widespread, individuals are likely to become concerned about individual rights and privacy issues. In this final section of the chapter, I consider the extent to which we attach value to identifying information, discussing the importance of control.

2.3.1.1 What is identity?

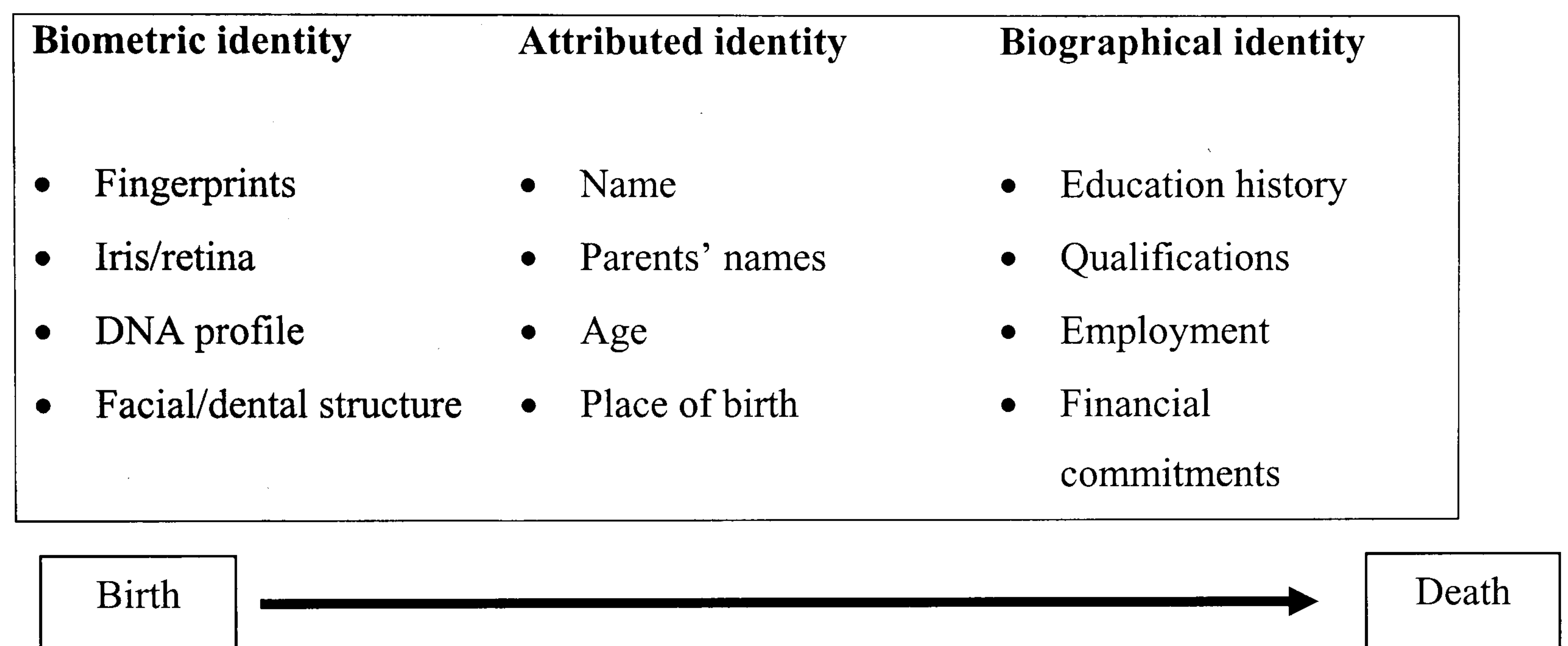
Identity is a concept which can be interpreted in a variety of ways. Both individuals and corporate bodies can have legal identities, for example. A gay or lesbian individual might have a very strong sense of sexual identity. Personal identity is a mosaic of personal information from many different sources - physical, genetic, personality characteristics, achievements, possessions and lifestyle. In the context of crime, and for the purposes of this discussion, it is personal identifying information which is the target for criminals: this is the aspect of 'identity' which is of interest.

According to a recent study conducted by the Cabinet Office (2002), personal information can be classified into three categories: attributed, biometric and biographical identity (summarised in Figure 3). Each type is different in terms of the time and method of acquisition and the ability to change or alter that information.

A person is identified for the first time at birth, in two ways. Firstly, the complex biometric features which make each individual biologically unique are the earliest and most permanent features of identity in a person's life. Secondly, the birth is registered by the parents and the birth certificate is provided, detailing the child's name and the time and place of birth. This is the start of what Jones and Levi (2001) call 'attributed identity'; a person does not choose this information and this part of a person's identity cannot be changed.

As life progresses and one interacts with other parties, different pieces of personal information are accumulated. For example, one might gain qualifications which lead to employment or one may get married and get a mortgage. Information about these life events forms part of a person's 'biographical identity' (Jones and Levi 2001, p. 3). Biographical information is different from attributed information in that one has the choice whether to acquire it in the first place.

Figure 3: The acquisition of biometric, attributed and biographical identity.



2.3.1.2 How can identifying information be misused?

In the context of crime, the misuse of identifying information is characterised by crimes involving impersonation. Identifying information is a tool which has been used by criminals throughout history. Indeed, the misappropriation of personal information is by no means a unique feature of the Digital Age. Common examples are spies, peeping toms, eavesdroppers and pirates²³ (Grabosky *et al.* 2001).

So, the misuse of information is historically entrenched in the realm of crime. However, crimes of impersonation are undergoing a reinvention under the guise of 'identity theft/fraud' which is being tagged as a new form of crime. Garfinkel (2001) discusses how identity theft is not a fundamentally new kind of crime but argues that, due to a growing corporate willingness to extend credit, more people are vulnerable to having their identity or reputation exploited without their knowledge. Although not new

²³ Pirates would hoist the flags of other ships in order to pose as an ally vessel.

in its core nature, then, it is perhaps fair to accept that identity theft has new features which are linked with changes in modern society.

The motivations for the adoption of a second identity are consistent throughout history and include social control, commercial exploitation, voyeurism, political protest, stalking or harassment and simple mistake (Grabosky *et al.* 2001). Impersonators either wish to conceal their original identity and avoid identification or seek to benefit financially from their disguise (either financial gain through fraud or avoiding financial liability). Thus, there are two distinct types of identity theft:

1. Taking a fictitious identity (**false identity**).
2. Borrowing someone else's identity (**'hijacked' identity**).

According to the Cabinet Office study (2002), the methods of assuming an identity depend on the type of information which is used as a tool for impersonation. The study suggests that fraud using attributed information is the greatest cause for concern. In the case of attributed information, the information can be acquired in three different ways. Firstly, a false application can be used to acquire genuine government documents, such as a passport or birth certificate. Secondly, genuine documents may be stolen. Thirdly, government documents may be forged. Biographical information is harder to acquire since it requires the criminal to actually 'live as the victim' for a period of time, appearing on public and private databases. Although difficult to achieve, it is possible with time and careful planning. In contrast, biometric information, in theory at least, is less vulnerable to ingenuity. For the criminal wishing to target this level of information, it is easier to tamper with the central system which holds the data than it is to forge biometric features.

2.3.1.3 Why is identifying information important to us?

We have seen how a wide array of information is collected throughout an individual's life and that all of these different pieces of personal information serve different purposes. In terms of value, personal information can have intrinsic value and/or exchange value and that value can be attached to information by ourselves and by other people. The question which is rarely raised is why this value varies between individuals. As Grabosky *et al.* (2001) argue, people's definitions of privacy differ, as do their expectations.

Intrinsic value can be social or sentimental. Social value is all about status and stigma. Information which has social value can effect the way members of society perceive us and, indeed, how we perceive ourselves. Information about your education, for example, might have social value. Someone with a weak education record (with poor school attendance and no qualifications perhaps) may be viewed negatively by other members of society. In contrast, someone with a doctorate in criminology may be perceived to be more deserving of a much higher status in society. Sentimental value is attached to information which you see as relating to yourself. For example your middle name might be a family name - this might not seem important to an outsider but you might deem it to be an important part of your own identity.

Most personal information has commercial value to some extent in the sense that it can be exchanged:

‘That personal information has value is not only implicit in the fact that many commercial institutions actively collect it. Increasingly, companies are willing to pay individual customers or subscribers, in cash or services, for personal information. And those who can obtain the information without paying for it will do so.’ (Grabosky *et al.* 2001, p.164)

Information, then, can be exchanged for goods and services or it can be exchanged for more information. So, for example, to get an internet service with AOL, one needs to provide credit card details. Similarly, to get a credit card, one must supply proof of address and proof of income and a sound credit history. The result is that, as life progresses, an individual accumulates different pieces of information using information s/he already has. These different pieces of information have different levels of exchange value. A passport, for example, will open the doors to more facilities than a membership card for the local video shop.

In this way, a person’s life can be mapped by the information s/he collects. This data has been described by Jones and Levi (2001) as ‘persuasive’ data. Examples of persuasive data include electoral roll entries, mortgage accounts, credit and financial facilities/associations, insurance policies and claims, marriage certificate, previous addresses, telephone numbers, employment information, court judgements, email

addresses, passwords and payment facilities (debit/credit, etc.) - the list goes on. Perhaps one of the most important features of persuasive data is creditworthiness. Garfinkel (2001) notes that, although no one is *entitled* to credit, we live in a society where credit is needed in order to buy a house or car or get a good education. Thus, he argues, to deny a person credit is to deny him/her the privileges of being a member of society.

2.3.1.4 The importance of control

The value attached personal information, however great, inevitably leads to the question of control. The privacy debate is fuelled by the issue of control, in particular by the questions of who owns personal information and whether that ownership implies exclusive control. Garfinkel (2001) argues that identifying information has become a valuable property right which is increasingly being seized by businesses. Thus, he contends, the issues of control of information are thrust into the forefront of the privacy debate:

‘Whether you call this freedom the right to digital self-determination, the right to informational autonomy, or simply the right to privacy, the shape of your future will be determined in large part by how we understand, and ultimately how we control or regulate, the threat to this freedom that we face today’ (Garfinkel 2001, p.12).

The extent to which privacy is perceived to be a concern for an individual depends on the value attached to the information. For some, sitting at the extreme of the human rights spectrum, all personal information should fall under the control of the individual in the name of democracy. For others, who do not perceive the threat to autonomy to be great, it is more acceptable to have their personal information transferred since they adopt the 'nothing to hide' approach. Garfinkel (2001) argues that attitudes are changing as databases become a normal feature of modern life:

‘Thirty years ago, the idea of a centralised computer tracking one’s every purchase seemed like part of an Orwellian nightmare...Who could have imagined that the day would come when millions of people would not only wish to have their purchases tracked but would complain when transactions were missed? Yet that is one of the most intriguing results of so-called loyalty programs...they have created massive databanks

that paint a detailed electronic mosaic of consumer behaviour, and they have done so with the willing participation of the monitored.' (Garfinkel 2001, p. 15)

The control of personal information is a complex issue and the web of developments in law and policy relating to data and confidentiality is beyond the scope of this thesis. It is important, however, to recognise that information can only be transferred or exchanged with consent. There are, of course, different degrees of consent, and consent can be explicit or implicit. Information which is held in the public domain, for example, is accessible to other people. We do not have to give explicit consent for other people to access it because consent is implied²⁴.

In contrast, the transfer of information *not* in the public domain requires express consent and it is this information that we tend to place in the trust of parties/institutions:

'It can be seen that as the individual ages, there is a distinct shift in the currency of the of the identification evidence from the public sector to the commercial sector...Non-consensual availability of cross sector life event evidence is only legitimate through legal exceptions and orders. This separation of life event evidence supports the individual's right to privacy, and leaves the choices surrounding disclosure entirely within their gift' (Jones and Levi 2001 p. 3).

Examples of information which cannot be shared without consent are medical records and financial records (there are, of course, situations where this need for consent can be

²⁴ Consent may be implied by custom or by the law. If I go to a party and ask the host the name of one of the other guests, he will probably give me that information. He does not go and ask that person for his consent to pass on this information - this consent is implied because it is generally accepted by custom that this information can be passed on freely. If you did not want people to know this information, you would not give it; if you wanted to restrict the use of the information, you would make that explicit (so in this scenario the guest would tell the host not to tell anyone his name). But suppose I ask the host to tell me the guest's mother's maiden name. Most people know that mother's maiden name is a piece of information which is often used as a security measure. It is not customary to share this information freely with other individuals and so it would be unreasonable to assume there was implied consent to share that information. The law permits access to certain types of information. Anyone can go to the electoral roll and find out your name and where you live. They would not have to come and ask your consent - the law ensures that we have the right to do this. We give consent to this information being made available by agreeing to abide by the law which requires all residents to register on the electoral roll. If you did not wish to obey this rule, you could go and live in another country.

overruled). It is these pieces of information which we *think* we have control of and, thus, when we lose it we feel violated²⁵.

The impact of this kind of violation should not be underestimated (Sutherland 2000). It is argued that to lose control of one's personal information is potentially damaging to quality of life. Grabosky *et al.* (2001) allude to a deep psychological harm:

'The loss of one's private life is often accompanied by a decline in spontaneity, creativity, and a diminished sense of self' (p.176).

Conclusion

Wilkins, it seems, was correct to predict the increasing value of information in the 21st Century:

'In terms of the future, the most serious crimes are going to be those relating to information, rather than to tangible things, and to the collective responsibility crimes...Its going to be extremely difficult to handle the idea of theft of information, when you can't even see the information' (Wilkins 1973, p. 28)

Identity theft is indeed emerging as a new crime problem, at least in the eyes of policy makers. The extent of the problem is not clear, mainly because we only have information about frauds which have been detected. Moreover, since there is no actual offence of identity fraud, there has been, up until now, little interest in finding out about it.

In a recent report, the Cabinet Office study made the first attempt at estimating the extent of the problem in the UK (Cabinet Office 2002). It estimates the cost of identity fraud to be in excess of £1.3 billion per annum. Presented against a back drop of the total cost of all fraud, estimated by National Economic Research Associates (NERA) to

²⁵ Garfinkel (2001) gives a good example of this kind of violation. In 1982, the medical records of a US representative named Nydia Velazquez were leaked to the press in an attempt to destroy her candidacy for the US House of Representatives. In the previous year, Velazquez has attempted to commit suicide. In her testimony (discussed at length by Cavoukian and Tapscott 1995), she described how she felt powerless, violated and let down by the justice system.

be in excess of £13.8 billion per annum, identity fraud is heralded to be a new wave of organised crime and, thus, of increasing concern to the state.

Although new to public (and political) debate in the UK, identity fraud has been cited as a fast growing crime elsewhere around the world. It is suggested that it is currently the fastest growing crime in the USA, a significant development since it wasn't even recognised as a form of fraud until the 1990s (Brin 1998). In response, the US, together with other countries (including Australia), has codified the offence of identity theft in a bid to stamp on its development. The UK, hot on their heels, is now entering a process of consultation for the development of a new criminal offence of identity theft.

The interesting thing which distinguishes the British approach to identity fraud are the fears which drive the political debate. In America and Canada, identity theft is perceived to be a problem because it threatens economic stability. Put simply, the term 'identity theft' has become a surrogate for all frauds committed using credit cards and social security numbers. In contrast, the debate in the UK (and also the rest of Europe) is fuelled by the growing problems of illegal immigration and organised drug trafficking. Identity theft is, in effect, being presented as a problem of passport control. However, for the individual who becomes a victim of identity theft, the implications are more far reaching than the current political stance. All the while the Home Office continues to edge public concern towards the threats of immigration and organised crime, the individual victims of information thefts and frauds are being ignored.

3. The case for studying the victims of fraud

Introduction

One of the major themes of this thesis is the idea that victimisation surveys need to be forward looking if they are expected to build (and continue to build) an accurate picture of crime and the fear of crime. Having accepted the challenge to work on the development of a concept of crime (chapter one), and having recognised the probability of a marked rise in fraud offences in the foreseeable future (chapter two), I explain in this chapter that I intend to work within the paradigm of fraud.

The starting point for this chapter is, at first glance, a fundamental stumbling block - fraud offences are traditionally excluded from victimisation surveys. I suggest that this exclusion has evolved directly from the assumption that all financial crimes are necessarily white collar crimes. Since there are well-established and sound arguments for omitting the victims of white collar crimes from surveys, all fraudulent offences are automatically overlooked.

However, I argue that offences of fraud are not necessarily white collar crimes and can offer a sturdy defence to the arguments for exclusion. This argument is developed in three stages. First, I consider the meaning of the term 'white collar crime', beginning with the work of Sutherland in 1949. As it transpires, arriving at a clear definition of white collar crime proves to be far from easy. I suggest that for the purposes of this thesis, the main focus should be on identifying what distinguishes white collar crimes from street crimes. In particular, what makes fraudulent behaviour different from criminal behaviour at the street level?

This takes us to the second stage of the argument - defining the nature of fraud. In order to do this, I trace the historical development of the legal concept of fraud in English law. Beginning in the 15th Century with the early law of larceny, we see how the simple law of theft was forced to evolve to encompass fraudulent or deceptive behaviour, a change that was driven by momentous changes in society and commerce. In particular, as trade relationships developed into global ventures, the law had to develop to protect those who had previously conducted their business practices on trust. In effect, the

criminal law was drafted to bridge the gaps left by inadequacies in the civil law, and fraudulent behaviour became progressively more frequently labelled as criminal.

By the time we reach the 21st Century, the law of theft had undergone so many piecemeal developments that it was arguably inadequate to deal with modern day developments in society, technology and commerce. Moreover, there is much uncertainty surrounding the relationship between theft and fraud, and there have been vociferous calls for major reform of the law. It seems that we have not come far in more than five centuries. We are left with a concept of fraud which is merely a species of theft and has no clear definition in legal terms.

What we do have is a notion of what constitutes fraudulent behaviour and it is this which takes us into the next part of the discussion. The element which characterises fraudulent behaviour is 'deception' and it is this which makes fraud different from other crimes. Deception, of course, is also an element which characterises most white collar crimes and so it seems, at first glance, logical to accept that fraud is a white collar crime. However, moving on to the third and final stage of this argument, I argue that some fraudulent offences do not simply fit the white collar mould and straddle the (already blurred) boundaries between white collar and street crimes. The victims of these offences may be worthy subjects of survey-based criminological research and I suggest that the implications of victimisation of such offences should not be underestimated.

At the end of chapter one, I stated that the major aim of this thesis was to test the feasibility of introducing financial crime to the British Crime Survey. I conclude this chapter by selecting plastic card fraud as the "crash test dummy", primarily due to the robust defence it provides to the well-established reasons for exclusion. We then move on, in chapter four, to examine the crime itself in more detail.

3.1 The exclusion of fraud victims from victimisation surveys

The term 'white collar crime' is often used as a synonym for fraud. It is possible that when most people think about white collar crime, they tend to think of large scale financial crimes, committed by the charming and powerful - those with high social standing. The victim is often perceived as a vulnerable upstanding citizen who is just 'not so worldly wise'. These images are, of course, perpetuated by the media but we have to look beyond these stereotypes to get a true picture of what fraud is all about.

Levi (1993) notes that most frauds which end up in court are committed by blue-collar criminals, '[i]n Great Britain, frauds largely involve checks and credit cards, embezzling, and businesses obtaining money or goods under false pretences' (Levi 1993, p. 71). Moreover, the victims are most likely to be financial services or institutions - private victims are certainly in the minority for these crimes. Indeed, family and friends are in a better position than strangers to defraud private citizens (for a good discussion of these points see Levi and Pithouse 1992).

However, since it has long been assumed that fraud is a white collar crime, its victims have been treated accordingly. As a result, the victims of fraud have been somewhat overlooked by criminologists, dismissed in particular by those conducting victimisation surveys. In this section I will challenge the assumption that fraud is necessarily a white collar crime and suggest that the two should be separated conceptually.

3.1.1 Is fraud a white collar crime?

In order to answer the question 'is fraud a white collar crime?' we need to consider two additional questions. Firstly what is white collar crime and, secondly, what is fraud? Only then can we give a meaningful answer to the question.

3.1.1.1 What is white collar crime?

The concept of white collar crime was introduced in 1949 by Edwin Sutherland. In an infamous speech to American Sociological Association, he launched an attack on his peers - academic social scientists whose work, in his view, was biased since it focused

exclusively on the crimes of the disadvantaged. He proposed that an explanation of crime needs to encompass features of both street crime and white collar crime, which he defined as 'a crime committed by a person of high social status in the course of his occupation'. Six decades later we use the term to describe a wide variety of actions and omissions, ranging from false advertising and environmental violations to large scale fraud and major corruption in governments.

White collar crime has indeed evolved into a significant limb of criminological study, on both sides of the Atlantic. But, as Coleman (1992) illustrates, this evolution has occurred in waves. When Sutherland and his colleagues began to work on white collar crime, they opened a Pandora's box of theoretical and conceptual conundrums. The flagship of their work was the theory of differential association (an explanation for criminal behaviour which applied, they claimed, to all types of crime). However, it proved to be something of a false start for the study of white collar crime, and a period of latency characterised the field between 1964 and 1975 (Geis 1992). Fortunately, the political climate during the 1960s prompted a renewed interest in the mid-1970s. A surge for power by blacks, the threat of the Vietnam War and Watergate, all reinforced public, political and academic attention onto abuse of power.

This time the study of white collar crime developed with growing maturity and increased vigour. As those interested in the topic increased in number, so too did the number of theoretical and philosophical perspectives on the broader concept. Indeed, since Sutherland introduced the concept, the original boundaries of his definition have been challenged on a number of grounds. Sutherland's vision was a type of crime which was different from street crime in terms of both its perpetrators and the nature of the criminal act. Curiously, it is this very vision which has created a minefield of conceptual overlaps.

The debate about definition has centred around the dilemma of whether the characteristics of the perpetrator or the characteristics of the crime should form the nucleus of the concept (Shapiro 1990). On the one hand there are those who deem the status of the perpetrator to be the primary concern. On the other, some commentators have favoured an offence-based approach and see little reason for emphasising the privileged position of the perpetrator, focusing instead on the formal characteristics of the crime. Geis (1992) says that this division emerges from the distinction between

sociological and legal approaches to white collar crime. Sociologists (who he says dominate the academic community in this field) argue that whitecollar crime is identifiable by the fact that it is committed by people with reasonably high standing in the course of their business, professional or political work. In comparison, legal commentators argue that offences which are embraced by the term 'white collar crime' are committed by people who might be located anywhere on the status hierarchy.

It can be difficult to skirt these issues without becoming embroiled in conceptual dredging. It is tempting to avoid definitional jousting altogether by adopting the '*we can all recognize it when we see it, so why bother overmuch with attempting to pinpoint precise parameters?*' approach (Geis 1992, p. 32). It is essential not to lose sight of the fundamental question - what distinguishes white collar crimes from street crimes²⁶? Shover and Wright attempt to encapsulate the nature of the crime in a nutshell:

'[W]hereas street crime typically is committed by confronting victims or entering their homes or businesses, most white collar crimes are committed using guile, deceit, or misrepresentation to create and exploit for illicit advantage the appearance of a routine legitimate transaction' (Shover and Wright 2001 p. xi).

According to this approach, the defining feature of white collar crime is deception. The criminal activity (illegitimate gain) is dressed up as a routine legitimate transaction and the white collar criminal must build up the trust of the victim in order to carry out the deception. Shapiro suggests that this violation of trust is crucial to the understanding of white collar crime. She argues that all types of fiduciary relationship are open to some kind of abuse, be it misrepresentation, deception, omission, fabrication or falsification of information by those in positions of trust. She concludes, '[I]t is time to integrate the "white collar" offenders into mainstream scholarship by looking beyond the perpetrators' wardrobe and social characteristics and explaining the modus operandi of their misdeeds and the ways in which they establish and exploit trust' (Shapiro 1990, p. 365). Within such a relationship of trust, the criminal can use the methods and techniques used for legitimate business on a day-to-day basis as the tools for

²⁶ Shapiro (1990) reminds us that it is this very distinction which prompted Sutherland's original concept defining crimes by the characteristics of their perpetrators results in "an unfortunate mixing of definition and explanation" (Braithwaite 1985 p.3) that precludes the possibility of exploring empirically the relationships between social class and crime - the very reason Sutherland coined the phrase' (Shapiro 1990, p.347, citation in original).

committing the crime. Sparks (1979) argues that this is what distinguishes white collar crimes from street crimes.

3.1.1.2 What is fraud?

‘Contrary to popular belief there is in English law no criminal offence of fraud...[t]he law does, however, recognise a concept of criminal fraud, a broad notion - broader, indeed, than the layman’s - of what it means to defraud someone’ (Arlidge *et al.* 1996, p. 1).

It is surprising, perhaps, that there is no criminal offence of fraud in English law. The law does, however, recognise a concept of fraud that has emerged from five centuries of construction of the law of theft. In this section I trace the history of the concept of fraud, beginning with its roots in the early law of larceny and culminating in an assessment of the modern notion of 'fraudulent behaviour'.

The early law of larceny.

The criminal offence of theft did not form part of English law until the 15th Century. England was, at that time, experiencing significant societal change. Medieval England, isolated and localised, entered an age of manufacture, international trade and global commerce. Trade and industry (in particular the textile industry) expanded rapidly and, as exports increased, so did the carrying trade. It soon became clear that the law (both civil and criminal) was unable to protect individuals from new scenarios and relationships which began to evolve as commercial dealings developed.

Now, in terms of the law of theft, or larceny as it was known, the development of the carrying trade, both nationally and internationally, was significant²⁷. The *actus reus* of

²⁷ Foreign merchants frequented English ports and soon became unpopular among native merchants who resented the competition and, importantly, the preferential treatment they were given by the Crown and the law. These foreigners were often exposed to forceful resistance and violent attacks and rioting were common. Transportation was hazardous and foreign merchants were often given royal covenants of safe conduct in an attempt to reassure them of safe passage. Indeed, foreign merchants held a favourable legal position. According to common law, a person who came legally into possession of property and later converted it did not commit a criminal offence ('the owner should have protected himself by selecting a trustworthy person' Hall 1952 p.31). A foreign merchant, however, would not be in a position to make a judgement as to the trustworthiness of a stranger and so the common law was hard to apply. The civil law shows similar developments at the time, civil liability of the carrier was extremely strict.

larceny in the early law was threefold: the defendant must have *seized* a thing *without the consent of the owner* and *carried it away*. It was essential to show both the taking and the carrying away for a successful conviction. Larceny, then, was treated as an offence against possession²⁸ and trespass was necessary before the felony was proven. For this reason, most servants and bailees (i.e. those operating in the carrying trade) avoided prosecution since the property was usually handed to them voluntarily and they were considered to be 'in possession'.

The Carrier's case in 1473 marked the first move to develop the inadequate law of larceny. In this case, the defendant was hired to carry bales (probably containing wool or cloth) to Southampton. He failed to deliver the goods to Southampton and instead took them elsewhere, broke the bales and took the contents. He was charged with the felony of larceny. The case was important because it sparked a debate about the requirements for larceny in a new context - theft by a bailee. Recall that common law laid down the rule that a bailee could not be guilty of larceny since he is in possession of the property. However, it was obvious in this case that the law did not extend far enough to cover what was clearly dishonest behaviour. So, it was argued that the breaking of the bales terminated the bailment and thus the elements of larceny were fulfilled.

Without dwelling on the technicalities, the importance of this case is clear. The law as it stood was unable to fill the gaps opened by the developments in commerce. A civil action (for breach of trust) in situations where a servant or bailee 'stole' the goods he was delivering was inappropriate since it was not likely to result in a satisfactory restitution for the plaintiff. Remedies available under the criminal law were also limited, '[i]n the absence of any other even remotely relevant sanction in the criminal law, the only choice was - guilty of larceny or not guilty of any offence' (Hall 1952, p. 32). This choice was of real significance since the offence of larceny was seen as very serious and the punishable by death.

However, the Carrier's case left a legacy of confusion and uncertainty in the law. It was subsequently cited by many judges in cases where bailment occurred. This was not an indication that the decision was sound or based on good principles; rather it allowed

²⁸ English law has always considered 'ownership' to mean the person who has the best right to possess something.

judges to bring clear cases of dishonest behaviour within the inadequate scope of the criminal law. Problems emerged when the facts of a case did not fit with the requirements under the Carrier's case decision. It wasn't until 1857 that the situation was finally cleared up with the introduction of a statute (20 and 21 Vict, c. 54, which later became s. 1 Larceny Act 1916) which made it a felonious theft where a bailee dishonestly converted goods.

The early law of fraud.

'The Latin word *fraudulenta* had a wide meaning in Roman Law and covered dishonest dealing of many subtle kinds involving deceit and trickery; but in the days when our common law crimes were first defined, the economic relations of men were simple and the main need of society was for legal protection against crime of physical force rather than against deceit' (Turner 1962, p. 253).

The development of the law of fraud was considerably slower than that of the law of theft in the 15th-17th Centuries. The early law of cheating covered only limited situations where a fraud had been committed on the general public by the use of false weights and measures which normal prudence could not guard against. In 1541 the statute of 33 Hen VIII c.1 expanded the law on cheating, diluting the requirement for a general application to the public at large but retaining the requirement that the defendant must use an 'objective device' (e.g., a seal or letter).

The law did not change significantly over the next 200 years. The eighteenth century saw further advances in the law of fraud but it was soon to converge with the growing number of laws of larceny.

The 18th Century and the convergence of fraud and larceny

'...practically the entire modern law of theft has been a product of the 18th century' (Hall 1952, p. 54).

18th Century England bore witness to major changes in trade, finance and social structure (Olsen 1999). The transition from an agricultural economy to a manufacturing economy had led to the rise of cities. The population became increasingly more mobile

and less localised. Trade became increasingly impersonal but business relationships received little regulation.

Changes in business relationships naturally led to the reform of financial institutions and procedures. There was a significant development of banking facilities following the establishment of the Bank of England in 1694. In 1759 the bank promoted the use of paper money, issuing £10 notes (previously only larger notes had been issued and ordinary traders had been forced to carry large amounts of coinage) and at the end of the century, payment by cheque was introduced. One of the most striking developments at this time was the rise of credit facilities; indeed there was a fundamental shift from cash on delivery to credit transactions (Roberts 2002, Hay 1975).

The 18th Century saw considerable development of both the laws of larceny and fraud and, in the second half of the century, the two began to converge. The impersonal nature of business opened the doors to both commercial and non-commercial frauds. Issues of trust were paramount and this is reflected in developments of the law. The introduction of the new offences of receiving stolen property, larceny by trick, obtaining goods by false pretences and embezzlement marked a major move to develop the concepts of larceny and fraud in line with the social and economic changes being experienced at the time.

Social attitudes towards theft and fraud were changing, especially amongst the rising 'mercantile class' who were becoming increasingly powerful (Hay 1975, McLynn 1991), and the courts struggled to interpret inadequate laws to cover new business relationships. Hay observes the rapid growth of legislation relating to property in the 18th Century and debates whether this trend was a reaction simply to changes in trade and commerce or to the wider implications of life in a changing modern society. He focuses in particular on the use of the death penalty and how it represented an official 'policy of terror',

'Death had long been a punishment for theft in England and several of the most important statutes were passed in Tudor times. But the gentry and merchants and peers who sat in parliament in the eighteenth century set new standards of legislative industry, as they passed act after act to keep the capital sanction up to date, to protect every conceivable kind of property from theft or malicious damage' (Hay 1975, p.22).

The second half of the century saw considerable legislative activity, most notably the introduction of statutes relating to the offences of obtaining by false pretences and embezzlement (Hall 1952). These are arguably the two major offences of fraudulent behaviour which remain under English law today.

Hall (1952) describes how the offence of obtaining by false pretences had something of a false start. The Carrier's case had allowed judges to bring clear cases of dishonest behaviour within the (inadequate) scope of the criminal law. Problems soon emerged when the facts of the case did not fit with the requirements that *the property* and *the rights of possession* had to be interfered with, i.e. in cases where fraudulent behaviour of some kind induced the owner to hand over the property voluntarily. It was generally held that such cases fell within the civil law. Fraudulent behaviour fell within the realm of the criminal law of cheating but, as we have seen, the 'cheat' in cases needed to be effected by 'a false token or device of a tangible character' and one which normal prudence would guard against. So, in cases where a person was induced by deceit into parting with his own property, the criminal law did provide a remedy but as commercial activity in the eighteenth century expanded, the common law rules proved to be too narrow. In 1757, 30 Geo. II closed the gap, making 'obtaining property by false pretences' a criminal offence.

However, it was at least 25 years before this statute started to be used to its full effect. In the meantime, another dimension was added to the law of larceny by the courts, creating a new category of 'larceny by trick'. Larceny by trick was established by Pear's case in 1779. The defendant had hired a horse with the intention of selling it and keeping the proceeds. It was held that if a man intends to misappropriate property and 'induces' the owner to pass possession to him and then he makes away with it, the offence is larceny. The rule in Pear's case eventually came to be accepted as an arbitrary decision²⁹ but at the time it was commonly applied to cases of confidence tricks³⁰. The result was that distinction between larceny by trick and simple fraud

²⁹ It is significant that Pear's case involved the theft of a horse. Great value was attached to horses and cattle and often specific legislation was passed to provide greater protection. It is likely that it was more favourable to create a new category of larceny rather than use the existing statutory provisions for obtaining by false pretences since larceny carried a much severer punishment than the fraud offence.

³⁰ Examples are ring dropping and purse dropping where the fraudster would select a victim, pretend to have found a purse/ring and agree to share the finding reward with the victim. The fraudster would

(obtaining property by false pretences) became confused. A departure was finally made in the case of *Rex v. Young et al.*³¹ in 1789 when the courts made a decisive move towards applying 30 Geo. II to fraud cases.

Embezzlement had an easier journey into the statute books. The case of *R v. Bazeley* in 1799 prompted parliament to enact 39 Geo. III c.85 which was the first general embezzlement statute³². It only applied to servants and clerks at that time but developments through the 19th Century extended the scope of embezzlement in both public and private spheres.

Traditionally, then, larceny was an offence solely against possession of property. We have seen how the development in common law of larceny by trick (*Pear's case*) and the introduction of statutory provisions for embezzlement and obtaining by false pretences stretched the concept to its limits. In the 19th Century, moves were made to repeal much of the 18th Century capital code. The Larceny Act 1803 abolished the death penalty for larceny and under the Larceny Act 1827 the offence itself was divided into two categories - petty larceny and grand larceny (Philips 1977). The distinction was made explicit in the Larceny Act 1916 (which simply codified the common law, rather than adding anything new) which renamed the two categories 'simple larceny' and 'aggravated larceny'. A larceny was aggravated if it occurred in a certain place (on a ship, dock, wharf, wreck or in a dwelling house), if the theft was from a person (robbery with and without force), if the offender was a clerk or servant or if the objects stolen were of a certain type (cattle, textiles, animals or letters).

The modern law of fraud and theft

By the mid-20th Century the law of theft was so piecemeal and problematic that calls were made for radical reform. The law:

volunteer to take charge of the purse/ring as long as the victim left a watch or some other valuable item as security. The purse/ring would of course be fake and the fraudster would abscond with the security.

³¹ In this case, the defendants had told a man that a race was to take place and took his bet. The race was fictional and they kept the money.

³² We have seen how the *Carrier's case* marked the first step to making servants liable for larceny. However, this only covered cases where the servant had been entrusted with property *by* his master. It did not cover situations where the servant was given possession of property *for* his master by a third party. This was a significant problem out of the domestic sphere; if a shop cashier took money for an item and did not put it into the till, it was technically not a felony.

'...by that time had about twenty distinct forms in which the basic offence was modified by reference to the relationship between the victim and the defendant, the method by which the property was obtained, the nature of the property or the presence of various aggravating circumstances' (Law Commission 1999, p. 26).

In 1959, the Criminal Law Revision Committee was appointed, '...to consider, with a view to providing a simpler and more effective system of law, what alterations in the criminal law are desirable with reference to larceny and kindred offences and to such other acts involving fraud or dishonesty as, in the opinion of the committee, could conveniently be dealt with in legislation giving effect to the committee's recommendations on the law of larceny' (Criminal Law Revision Committee 1966, p. 5).

The Committee's report resulted in the Theft Act of 1968 (hereafter the 1968 Act) which replaced the old laws of larceny. The 1968 Act created a new basic offence of theft. Section 1(1) of the Theft Act 1968 says a person is guilty of theft if he *dishonestly appropriates property belonging to another* with the *intention of permanently depriving* the other of it. All five elements must be present and each has undergone intense scrutiny in the courts (discussion is not appropriate here but the interested reader is referred to Jefferson 2001).

Thus the law of fraud remained entwined in the law of theft. The major change made by the 1968 Act was the introduction of the concept of 'dishonesty'. It replaced the term 'fraudulently and without a claim of right made in good faith' which had been written into the 1916 Act. It was felt that the meaning of 'fraudulently' was difficult for the jury to interpret and 'dishonesty' would be an easier concept to understand; only a partial definition of dishonesty was given to allow for wide interpretation. This, of course, has meant that in the years following the 1968 Act, the concept of dishonesty has undergone considerable expansion and prompted much debate in the courts and academic circles. Of particular concern has been the role of the jury in dishonesty cases. The cases of *Feely* and *Ghosh* place responsibility for the judgement on the jury and the judge cannot direct them as to what conduct is dishonest. Previously the judge had been able to guide the jury as to what constituted a 'fraudulent' act.

Offences which are 'fraudulent' became a species of theft under the 1968 Act and are commonly referred to as the 'deception offences'. The deception offences are specifically defined by the Theft Act 1968 and expanded in the Theft Act 1978 (obtaining property by deception³³, obtaining a money transfer by deception³⁴, obtaining a pecuniary advantage by deception³⁵, procuring the execution of a valuable security³⁶, obtaining services by deception³⁷ and evasion of liability³⁸). One element is common to all, namely the benefit must be obtained by *dishonest deception*. The deception offences are considered more serious than ordinary theft and carry higher sentences.

The concept of deception is much broader than its predecessor 'false pretences'. The word deception is often used synonymously with the term fraud but deception alone does not constitute fraud. The deception must cause the victim to suffer some kind of loss or alter his/her conduct in some way (the deception should induce the victim to act to his own detriment and to the deceiver's profit). A deception can be fraudulent even if there is no intention of leaving the victim financially worse off in the long run. It is enough to induce him/her to take a risk.

The majority of fraud offences are prosecuted under the Theft Acts 1968 and 1978, usually under obtaining by deception or evasion of liability by deception. However, further provisions have been made under separate pieces of legislation, covering a wide range of conduct from company or investment fraud through to social security, for example:

- Conspiracy to defraud (Criminal Justice Act 1987)
- Company fraud (almost 150 offences under the Companies Act 1985)
- Corruption (Prevention of Corruption Acts 1906 and 1916)
- Investment fraud (misleading prospective investors, market manipulation and insider dealing) (Financial Services Act 1986 and Criminal Justice Act 1993)

³³ s.15 Theft Act 1968

³⁴ s.15(a) Theft (Amendment) Act 1996

³⁵ s.16 Theft Act 1968

³⁶ s.20(2) Theft Act 1968

³⁷ s.1 Theft Act 1978

³⁸ s.2(1) Theft Act 1978

- Frauds on creditors (Insolvency Act 1986)
- Frauds on the public (Tax fraud under the Customs and Excise Management Act 1979 and Value Added Tax Act 1994, Social Security fraud under the Social Security Administration Act 1992 and fraud against the European Community under the Social Security Administration Act 1992).
- Computer fraud (unauthorised access to or modification of computer information under the Computer Misuse Act 1990).

The need for reform

The major problem with the law of theft at the present time is that it is outdated. When the 1968 Act was designed, few would have contemplated the advances in technology which have occurred in the last 30 years. What we are left with today is a series of controversial decisions (made *ad hoc*, as the courts have encountered each new problem), often resulting in a scattering of statutory provisions. As a result the law is both uncertain and piecemeal. Moreover, as the use of technology becomes more widespread, it is likely that the inadequacy of the law will be further exposed. The Law Commission cites this as a potentially serious problem because the European Convention on Human Rights requires that criminal offences should be defined with reasonable precision.

Future problems are likely to emerge from increased use of the internet, but Wasik argues that the use of the computer will not significantly alter the law relating to fraud:

'...in most computer fraud offences the object of the offence is to acquire a tangible benefit, generally money, and the computer is being used as a tool to perpetrate or conceal the fraud. In general the criminal law is addressed to, and defined in terms of, the objective of the dishonest conduct rather than the fraudster's precise *modus operandi*, so that computer manipulation ought, in principle, to be irrelevant to liability' (Wasik 1991, p. 104).

However, some commentators have already warned that the law needs to be responsive to changes in the use of electronic payment, and developments in intellectual property. For example, in cases of internet shopping/purchases, it has been noted that it is difficult

to show that a human mind has been deceived³⁹. Similarly, if we look at the internet as a delivery mechanism for services, for example getting legal advice online or receiving an electronic journal, further problems emerge. Usually, if an individual purchases one of these services, the purchaser is given an access code or password which allows them to access the service. As the law stands, the fraudulent use of the access details after the initial legitimate purchase is not an offence. How the law will deal with these situations remains to be seen.

The highly controversial case of *Preddy* (1996) prompted the most recent calls for major reform of the law of theft and fraud. In *Preddy*, the House of Lords held that a credit balance gained from a mortgage fraud did not constitute 'property belonging to another' and therefore the act could not be regarded as theft⁴⁰. Indeed, the concept of 'property' has given the courts much to chew on in financial situations where overdrafts have been abused or cheques have been misused and the situation is likely to become more complex with the increased use of the electronic purse in both business and consumer relationships.

Similarly, as more value is attached to knowledge and information (see chapter two) the question of whether information constitutes property is likely to fuel much debate. Information sits on the boundaries of the concept of property. Information not in the public domain does not only warrant special protection by the law but also takes the form of 'property'. In contrast, according to the case *Oxford v. Moss*, information which is not given this protection (i.e. *in* the public domain) is not property. This may have implications where personal information (name, address, credit card details) is increasingly used on the internet, either via purchases, bill payments or internet banking, and it is unclear what level of protection the law might offer.

³⁹ Deceiving a machine in order to obtain property is theft, so putting a false coin into a vending machine amounts to the same as breaking into it. The situation is different for obtaining a service (not property) which requires a deception. Various attempts have been made to fill this loophole with specific statutory sections (parking meters, telecoms, VAT). If you buy a theatre ticket online (a service, not property), for example, and give false credit card details, it is arguable that it is the machine that you have deceived, not a human mind. It seems likely that the courts will be forced to deal with this loophole before long. It is a particularly important issue because it is possible that E-money may be treated like credit/debit cards under the law.

⁴⁰The defendant had obtained a chose in action, an asset that had been created for him and had never belonged to anyone else. Unsurprisingly this was an unpopular decision and prompted the implementation of the Theft (Amendment) Act 1996.

In 1998, on the back of controversy created by the Preddy decision, the Law Commission were asked by the Home Secretary to:

‘...examine the law of fraud, and [consider] whether it: is readily comprehensible to juries; is adequate for effective prosecution; is fair to potential defendants; meets the need of developing technology including electronic means of transfer; and to make recommendation to improve the law in these respects with all due expedition. In making these recommendations to consider whether a general offence of fraud would improve the criminal law’ (Law Commission 1999, p. 1).⁴¹

Whether we will see a major overhaul in the law of theft and fraud in the near future remains to be seen. For now, we are left with a legal concept which is merely a species of theft and has no clear definition in legal terms. Arlidge *et al.* suggest that '[t]he factor that lends this protean concept some semblance of unity is not so much what is actually done, as the legal and moral *character* of what is done, the element of disregard for the rights of others and for ordinary standards of conduct' (Arlidge *et al.* 1996, p. 2). This, of course, echoes Shover and Wright's conception of the nature of white collar crime, focusing on the distinguishing element of '...guile, deceit, or misrepresentation...' (Shover and Wright 2001 p. xi).

3.1.1.3 Is fraud a White collar crime?

There is no easy answer to this question since many different kinds of conduct constitute fraud. Fraud can be on a large scale, involving large corporate entities or world financial markets but it can also occur on a smaller scale, be it an individual evading income tax or claiming social security benefits to which s/he is not entitled. Can, then, all frauds be classified as white collar offences?

In cases of serious frauds⁴², it is probable that they are white collar crimes but we may arrive at this classification via different routes. One might argue that serious frauds are

⁴¹ To date a consultation report has been published but responses are not published at the time of writing.

⁴² Some frauds fall under the jurisdiction of the Serious Fraud Office. The Davie Report (1994) recommended consideration of the following factors:

- Cases where the sum involved is at least £1 million.
- Cases which are likely to give rise to national publicity and widespread public concern.

committed by executives or high level officials who take advantage of their high status and thus should be labelled as white collar. Alternatively, those adopting an offence based approach may attach the label simply by virtue of the nature, seriousness or scale of the offence.

However, there are fraudulent offences which cannot be deemed as white collar with such ease. Offences of fraud on the public (tax evasion, benefit fraud, etc.) or where the victims are individuals (personal frauds) could just as easily be committed by blue-collar or collarless individuals and those acting outside of an occupational role. Thus, using an offender-based approach, many frauds are excluded from the realm of white collar crime. Such offences, however, are clearly different to mugging and burglary and their street level counterparts.

In this sense, then, these street level frauds straddle the boundary between white collar and street crime. Although they are just as likely to be committed by the common-or-garden street criminal, they share the important distinguishing characteristic of white collar crimes - an element of deception. However, in the case of personal frauds, where the victims are individuals, there is an additional feature which sets them apart from white collar crimes. Unlike frauds against the public, large financial corporations or governments, the victims of personal fraud are identifiable and the harm is quantifiable⁴³. I move on now to illustrate that the victims of these offences may be the worthy subjects of survey based research.

3.2 *Studying the victims of personal fraud*

We have seen in chapter one that victimisation surveys, on the whole, neglect to measure reactions to any of the white collar crimes, including fraud, for two main reasons. The first is that white collar crimes are said to be victimless. Even where individual victims (as opposed to companies, institutions or the public at large) are

-
- Cases where the investigation and prosecution of the case is likely to require highly specialised knowledge.
 - Cases involving a significant international dimension.
 - Cases where legal, accountancy and investigative skills need to be brought together.

⁴³ Examples include credit or loans scams, false billing, dodgy promotions, deceptive acquisition of credit card numbers and charity scams (Titus 2001).

identifiable, most are unaware that they have actually been victimised. The second reason for exclusion is that white collar victimisation is unlikely to have a serious impact on the victim (compared to street crimes). In this, the final section of this chapter, I illustrate that personal frauds are capable of mounting a sound defence to these arguments.

We do not know a great deal about the victims of white collar crime. We do not know how many white collar offences are committed and we do not know the true implications for the victims. Indeed, in comparison to the vast number of studies of street crime victims, research into the victims of white collar crimes is in its infancy. Moreover, much of the research (academic and otherwise) originates from the United States and so we know even less about the extent and nature of white collar crimes this side of the Atlantic.

Research does seem to suggest that white collar crime is more widespread than one might think. Titus (2001), writing about the study of fraud victimisation in America, illustrates how the failings of official crime statistics (the Uniform Crime Reports and the National Crime Victimization Survey) to cover fraud victimisation has prompted a stream of household surveys designed to fill the gaps. He argues that these studies have revealed high levels of white collar victimisation (for example, Titus *et al.* (1995) found that 15% of their representative sample had been victims of personal fraud in the previous year).

If white collar crime levels are as high as some suggest, it leads one to question why its victims do not feature in the crime agenda, '...in mainstream victim support and compensation movements, or in the standard debates concerning 'what should be done for victims' and 'what is to be done about law and order'' (Levi and Pithouse 1992, p. 230). Moore and Mills (1990) argue that victims of white collar crimes do not receive the same feelings of sympathy as the victims of street crimes. Sometimes they are even treated with suspicion and scepticism. Victims may be perceived to be 'deserving' of misfortune, either because they are perceived to be of high social status or simply because they are stupid.

The victims of street crimes are seen to be deserving of help from the state because the state has failed in its responsibility to protect them; both victims and criminals tend to

be poor and thus the state has a responsibility to make good the victim's losses. In contrast, the victims of white collar crimes are not necessarily poor and the offenders may (but need not) be part of a business establishment; thus the state should not be obliged to intervene. Thus, criminals do not invoke the same amount of loathing and fear and victims do not invoke the same amount of compassion (Titus 2001).

Titus (2001) discusses how victims of personal fraud, in particular, are seen to facilitate their own victimisation and are seen to be (at least partly) to blame for their own misfortune. The victim may make the initial contact with the offender, or at least takes steps which lead to the initial contact. Often, the victim provides information about himself/herself which helps the offender to carry out the scam. The victim allows the offender to create a scenario that, when believed, sets the stage for the fraud. In many cases of personal fraud, the victim gives card/bank details which provides the offender with access to the funds. In so doing, the victim allows the offender to convert what should be a business relationship into a personal relationship (thus waiving customary safeguards) and loses the right to public sympathy.

Interestingly, the media portrays the retired or elderly as the prime targets of fraudsters. However, Titus *et al.* (1995) found that those aged 65 years or more were the least likely to be victimised, in fact they concluded that victimisation could not be predicted by any demographic variable. They did find, however, that victims were most likely to be well educated, well informed, relatively affluent and not socially isolated. They suggest that younger, better educated people have wider interests, engage in a broader range of activities and have more consumer participation in the marketplace than do other demographic groups. Moore and Mills echo these findings: 'whereas street crimes disproportionately victimize the poor and marginal, white collar crime is more democratic in its impact. It harms not only well-heeled financial speculators but couples and individual citizens with few if any assets beyond a modest savings account' (Moore and Mills 1990, p .410). The impact of that harm is likely, then, to have a range of effects on the victims.

Those working in the field are keen to emphasise the potential seriousness of these crimes:

'White collar crime exacts an astronomical toll in deaths, physical health, emotional suffering, and fiscal costs, one that dwarfs comparable losses to street crime' (Shover and Wright 2001, p. 49).

The types of harm suffered by the victims of white collar crimes range from physical harm (pain or even death), to psychological harm (stress or depression), through to financial harm (either directly to the victim or indirectly through the cost being passed to the citizen/customer through taxes/the price of goods). Harm can be suffered by the individual and by society generally. Sutherland (1949) discussed how white collar crime can damage the social fabric in terms of breeding distrust and lowering social morale. He argued that incidence of white collar crime results in a diminished faith in the free economy and in business leaders. This, together with a loss in confidence in political institutions, processes and leaders, erodes public morality.

A great deal of research has focused on the financial and physical consequences of crime victimisation, but little attention has been given to the aftermath of fraud victimisation. Shover *et al.* (1994) found that feelings of anger and bitterness continued up to ten years after the victimisation (see also Shichor *et al.* 1996 who found that victims reported anger and emotional outrage). Some victims became depressed, reporting frustration at the injustice of the situation. Similarly, Titus *et al.* (1995) found the 10-20% of their sample reported health problems as a result of the victimisation and having had time off work.

Moreover, Ganzini *et al.* (1990) note that work on the effect of crime on victims has tended to focus on the victims of violent crime. Victims of rape, in particular, have been the subjects of many studies. They suggest that the victims of white collar crime can be compared with victims of violent crime at several levels. In terms of statistical risk of victimisation, white collar victims tend to be older, more affluent and are relatively more likely to be female. In terms of psychiatric outcome, general anxiety disorder and major depressive disorder are the most common psychiatric complications of both types of victimisation. Also, for both types of victimisation, a previous history of psychiatric illness and the degree of victimisation are important variables in predicting the risk of psychiatric problems. Levi and Pithouse concur, arguing that, '[f]or these private victims, the victimisation experience could be likened to a (comparatively mild) sort of rape' (Levi and Pithouse 1992 p. 233).

Conclusion

This discussion suggests that the little we *do* know about the extent and impact of white collar offences beckons for more extensive criminological research into its victims. Of the wide range of potential subjects, it is the victims of personal frauds that seem to be the most suitable for survey-based study. Not only are they identifiable, but also they are also likely to have suffered the impact of the crime at a very personal level. Thus, for the purposes of introducing a financial crime to the British Crime Survey, it was necessary to choose one of the personal frauds for inclusion.

Plastic card fraud was eventually chosen for two main reasons. Firstly, the defence it raises to the reasons for exclusion is particularly robust. In the climate of growing consumer awareness, not only are the victims more likely to be aware of a victimisation (by checking monthly statements) but we are also alerted to the implications of exposure to harm. In addition, bearing in mind the themes of globalisation, the information age and the cashless society which, if we recall from chapter two, drive this thesis, plastic card fraud fits the forward-looking philosophy which underpins the project itself.

4. Plastic card fraud

Introduction

In this chapter, I discuss how the growing use in plastic cards has been accompanied by an ever-increasing misuse of cards. I begin with a discussion of the current state of plastic card usage, focusing firstly on the historical development of the industry. Also, from the consumer's perspective, I ask why and how people use cards. We will see that there are many parties involved in the processes of application and transaction and, thus, there are several potential victims in an incident of card fraud. I argue that, although the cardholder will rarely suffer financial harm, the effects of the victimisation may be serious.

Moving on, in section 4.2, to the misuse of cards, I set the scene with an overview of the fluctuations in fraud levels in the last decade (1992-2001). The discussion which follows includes a description of the different types of card fraud and the problem of prevention.

In the final section, I consider the difficult issue of measurement. Much of the data contained in this chapter has been made available by the Association of Payment Clearing Services (APACS), the industry body for banks and building societies in the UK, and without it the story would be far less compelling. But the validity of the industry figures is, at best, questionable and I recommend caution with their interpretation. Turning to alternative sources of information, I consider the effectiveness and reliability of the figures presented by the Home Office, in particular the data collected by the police. I illustrate that these data are also of limited use. Faced with the problems of data relating to card fraud (problems of both quantity and quality), I conclude that data from the British Crime Survey would complement, and maybe even challenge, the picture of card fraud presented by existing sources.

4.1 The use of plastic cards

Plastic cards have been in use in the UK since 1964, when the first cheque guarantee card was introduced by the National Provisional Bank. Credit cards followed closely in 1966 with the introduction of the first generation of Barclaycard. Interestingly, it was more than twenty years before the debit card came onto the scene (in 1988). Today, the use of plastic payment is becoming more widespread and the UK has seen a boom in the number of cards issued in the last 10 years. In 1992, APACS reported that 87 million plastic cards (credit, debit, charge, ATM and cheque guarantee cards) had been issued that year; in 2000 that figure had risen to 127 million (APACS 2001, p. 11).

Levi observes, '[t]he result of these developments is that per capita, the United Kingdom is now the world's largest user of plastic cards' (Levi 1991 p. 2). According to APACS, in December 1999, 94% of British adults had a current/deposit bank account, 84% had a debit card, 56% had a credit/charge card and 27% had a retailer card. This means that there are 42 million cardholders in the UK and 89% of British adults hold one or more plastic cards (APACS 2001, p. 11).

As plastic card use becomes more widespread, banks and financial institutions enthusiastically battle for customers. This has led to a massive increase in advertising and incentive schemes, all pitched at drawing in customers of different types. The market is indeed expanding. Credit and debit card purchase volumes are expected to more than double in the next ten years (APACS 2001).

The Credit Card Research Group (2001) report that there are approximately 1300 different brands of credit card in the UK, issued by one of 33 card issuers (including the major banks). No longer are credit cards simply aimed at the upper classes and businessmen, for whom credit card ownership is something of a status symbol. The new focus extends to the twenty-something market and even students. Benefits have moved on from the old 'Air Miles' style schemes and new incentives have appeared to hook new customers: cash incentives, insurance for goods, fraud guarantees, reduced interest rates, 'points' for a plethora of goods and activities - the list is ever expanding. Barclaycard have even made a recent move to refund the shopper who finds his purchase cheaper elsewhere! Owning a credit card used to be about status. To get one

you needed to be worthy of credit and you had to pay a yearly fee for the privilege. Today a credit card, and sometimes a collection of cards, has become a normal feature of most wallets and purses.

Of course, the plastic card market is not exclusive to the credit card industry. The consumer market is evolving. We have more methods of payment available than ever before and the growth of e-commerce is revolutionising the way we organise our finances, '[w]ith new technology and the demand for cards being served by a highly competitive market, the trend towards the so-called 'cashless society' shows no signs of abating' (Credit Card Research Group 2001 p. 4). In the 1990s, debit cards made a successful transition into the world of personal banking and new payment methods are emerging as technology develops. The 'electronic purse', for example, is a plastic card which is credited in a machine when a cash payment is made - rather like a top-up card for a mobile phone. It has been suggested that this payment method will be popular for those who wish to shop over the internet but who are not eligible for credit/debit cards (e.g. those under the age of 18).

4.1.1 Why do people use plastic cards?

People use different plastic cards as a method of payment for a variety of different reasons on a variety of occasions. The attraction of using plastic cards stems mainly from their convenience and flexibility. They save carrying around large amount of cash and avoid the problem of only being able to use cheques up to the value of the guarantee card. Both credit and debit cards can be used to either purchase items directly or to withdraw cash from a variety of financial institutions at home and abroad. However, some cards (credit cards and store cards, for example) can be used as a means for borrowing money.

Generally speaking, debit cards are of no use to the consumer who wishes to borrow money. The debit card will only be accepted until the customer reaches the amount contained in the bank account. Any transactions which take the customer beyond their balance (or agreed overdraft limit) will result in penalty charges. Therefore, the major advantage of using debit cards is that of convenience.

Credit cards, on the other hand, can be a cost-effective way of short-term borrowing. The current competitive nature of the market is driving down the costs of using credit cards and providing a range of benefits to fit consumers of all types. In Figure 1, I have developed a typology of three types of credit card user to illustrate the differences between their card use and account management practices. Borrowers use the credit facility to make larger purchases which they simply would be unable to afford otherwise and pay small amounts back each month. For the Finance Manager, the credit card plays a useful role in that individual's financial management strategy. They can be of use, for example, during times when a boost is needed (for example, at Christmas) and then the payments spread over subsequent months. Finally, the business user uses the card for pure convenience - using a company card is simply easier than claiming back expenses every month or so. As a result, the business user is not personally responsible for paying the account each month.

Figure 1: A typology of credit card users

	Borrowers	Finance Managers	Business Users
Type of purchase	Large purchases (maybe up to card limit)	Purchases of different sizes and from different sources (telephone/in person/internet).	Business purchases (petrol, restaurants, hotels, travel, etc.).
Reasons for using card	<ul style="list-style-type: none"> Borrowing in order to purchase something which s/he could not otherwise afford. 	<ul style="list-style-type: none"> Financial management strategies Convenience Protection (insurance for goods or fraud guarantees) 	<ul style="list-style-type: none"> Convenience
Repayment	Minimum payment each month (accruing interest)	Balance paid in full most months (extended credit in others) ⁴⁴	Balance paid monthly in full by business

⁴⁴ According to the Credit Card Research Group, each month between 40-50% of cardholders pay their balance in full. Some 75% of cardholders repay in full most months but take extended credit in others (2001, p. 2).

4.1.2 Applying for and using a card.

An application for a card, and each transaction made on that card, invoke a chain of actions by several parties. It is important to understand how the processes of application and transaction work in order to establish where the risk of fraud lies.

4.1.2.1 The process of application

In the case of credit cards and store cards, there are three players in the card issuing chain:

1. The customer
2. The card issuer
3. The credit reference agency

For debit cards, there is no need for a credit reference agency and, therefore, there are only two parties involved in the application process (the customer and the card issuer).

When a customer applies for a credit/debit/store card, the issuer needs to confirm two things. Firstly, the applicant *is* who s/he *says* s/he is, and has provided genuine personal information. Secondly, the applicant must be creditworthy (or, in the case of debit cards, must have a bank account with appropriate funds). The legitimacy of an application is assessed using information provided by the applicant and cross-checking with the customers other financial records, be they accounts with the issuer or a different bank. Details of income, employment, housing, marital status, age and financial commitments are all details commonly requested.

Credit card and store card issuers usually consult a Credit Reference Agency (CRA) when assessing applications for cards. The CRA holds information from the electoral roll (names and addresses), previous or forwarding addresses, county court judgements, bankruptcies, account histories with other agencies and records of searches. Any agency (indeed any member of the public) can access information about county court judgements and electoral roll details as these are in the public domain. The remaining types of information are given only to those CRAs who provide information to the

database. Each individual has the right to access the information held on their own record, and has the right to correct any misinformation.

4.1.2.2 The process of transaction

There are five players in the transaction chain

1. The customer
2. The merchant
3. The merchant acquirer
4. The issuer
5. The card scheme network.

The customer starts the chain of transaction by making a purchase from the merchant (shop or service provider) using the card. The merchant is able to take the payment because s/he has an arrangement with the merchant acquirer (and so is able to accept, for example, Visa or Switch cards). The acquirer is the bank or building society that processes all of the transactions on behalf of the merchant, charging a fee for the service. The acquirer then passes on details of the transaction to whichever institution has issued the card; the card issuer pays the acquirer and then bills the customer for the purchase. The card scheme networks, such as Visa, Switch or Mastercard, are subscribed to by the card issuers and the issuers are entitled to display their logos.

Most credit and debit card transactions are processed using an electronic swipe terminal (Electronic Point Of Sale, or EPOS machine) which is a gatekeeper in the payment process. The EPOS machine flags for authorisation, transactions which are above the floor limit (the limit which each outlet has on the amount it can accept for a single transaction). Authorisation can either be conducted online by the machine or by telephone by the sales assistant. This process allows the card to be checked for lost/stolen status and the payment limit (for a credit card this is the maximum credit limit and for a debit card this is the amount available to spend in the account). Once a transaction is authorised, the authorisation code is recorded on the sales voucher.

The transaction can also occur via telephone, mail or the internet. In these situations the sales assistant takes down the cards details as an EPOS machine would if the customer were paying in person. Of course, there is no opportunity for the sales assistant to

inspect the card so as a security measure the address of the card holder is often taken for confirmation with the issuer.

4.1.3 Identifying the victims of card fraud

A possible argument against the inclusion of plastic fraud in a victimisation survey is the fact that the card issuer usually bears the cost of the fraud and therefore the card holder (the potential respondent) is not actually 'the victim'. It is a thorny issue, since there are three potential victims of plastic fraud; the card holder, the retailer and the card issuer.

Who will shoulder the cost of the fraud will depend on how it occurred but, as Levi (2000) notes, '[e]xcept via impersonation, higher prices and crimes committed solely for cards, the consumer is largely insulated from these costs directly: it is the financial institutions and the retailers who are the primary sufferers' (Levi 2000, p. 3).

Indeed, it has become a selling point for credit card companies (and banking services generally) to guarantee against fraud on the internet. This is obviously good for the consumer, and for encouraging e-commerce, but at the moment such a small proportion of plastic fraud is internet related (only accounting for 2% of total losses in 1999) that it does not make a huge difference. Fraud on lost and stolen cards remains the big problem. The general rule is that, unless you pay for some kind of protection plan, the cardholder is liable for any fraud conducted on a lost or stolen card up until the point when that card is reported as lost/stolen.

Although the consumer is largely protected from financial loss, it is important not to dismiss the risk faced by the individual. Whilst it is true that the card issuer and the merchant bear the brunt of the financial cost of fraud⁴⁵, the customer is exposed to different kinds of harm. Looking at costs in absolute terms fails to tap into the impact of fraud. We need to look at it in terms of the victim's means – how much of an effect will it have on the quality of life (Levi and Pithouse 1992)? In the case of card fraud, there are two perspectives to the impingement on quality of life: the first relates to the process

⁴⁵ Of course, it is arguable that the consumer ultimately becomes the victim since the cost is passed on in the form of higher prices.

of dealing with the fraud in the first place, and the second relates to the exposure to future (and perhaps more serious) victimisation.

When a card holder discovers a fraudulent transaction on his/her account or statement, it is often the beginning of a lengthy and inconvenient process of self-exoneration.

Victims are caught in a cycle of crime reporting and bureaucracy, being responsible for all exchanges of information with card companies and the police. Sometimes, the victims of card fraud are even pushed to investigate the frauds themselves. The cost to the victim is in terms of time, effort and frustrating inconvenience, an inconvenience which seems particularly disproportionate to an innocent or responsible card user.

In addition, and often this implication is overlooked, the victim is exposed to future victimisation. If a fraudster has gained access to a victim's card details, the chances are that many other aspects of the victim's identity have been exposed. In the time it takes for a statement to arrive (usually a month), an experienced fraudster can reap enough information to facilitate a number of fraudulent credit applications or purchases in the future. It may be months before the victim becomes aware of the snowballing frauds. As the losses escalate, the victim may be faced with damaged credit ratings and even legal proceedings. With every new incident discovered comes another dose of hassle and emotional stress.

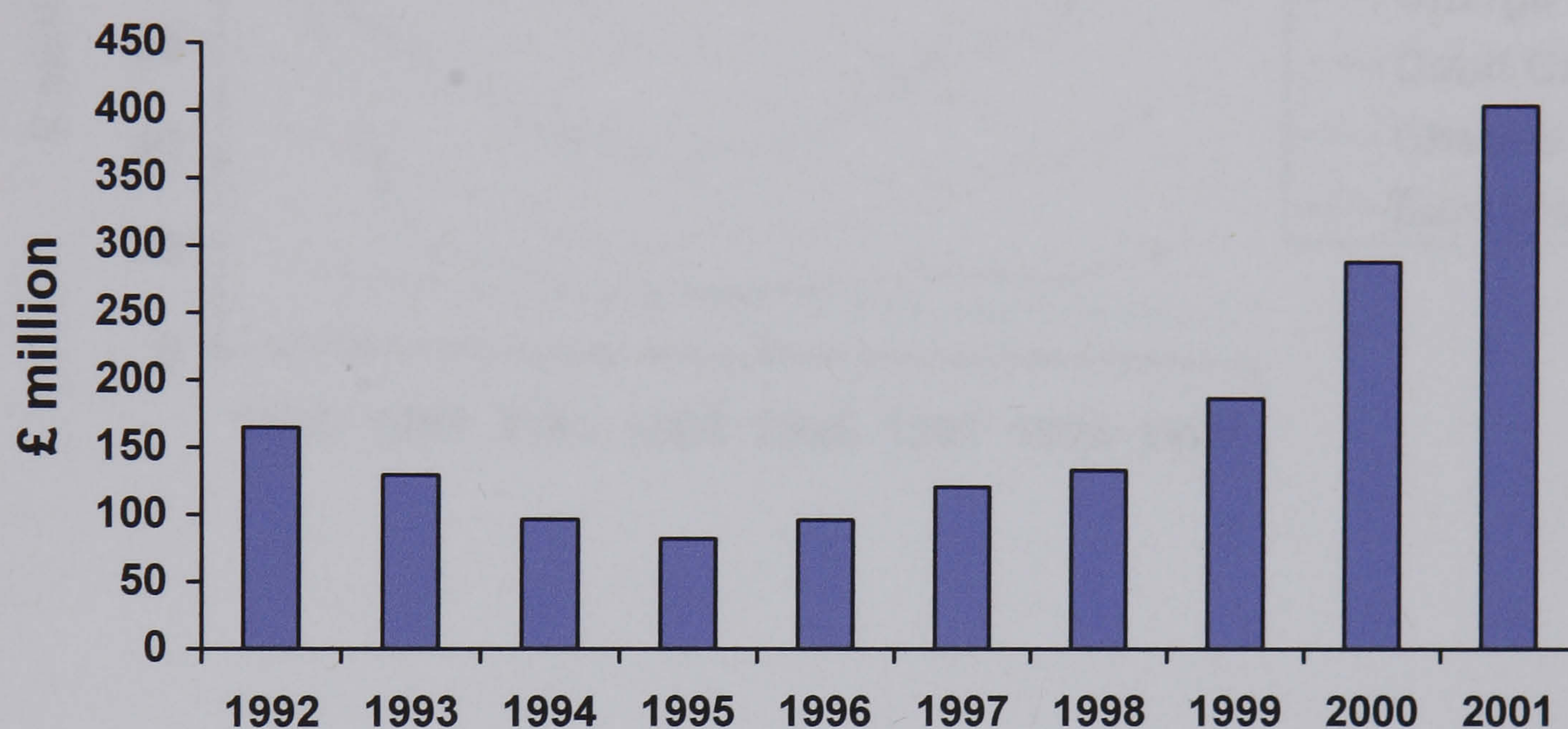
4.2 *The misuse of plastic cards*

As the use of plastic cards has increased, so too has the problem of card fraud, '[a]s society's reliance on cards becomes more widespread, the losses from card fraud grow too' (APACS 2001 p. 5). In this section I consider the extent and nature of plastic card fraud, exploring the different methods of card fraud and the problems of prevention. The section concludes with a discussion of the problems of measurement. In this section, fraud loss statistics are presented in the form of graphs since they provide a visual representation of the trends. Full accompanying tables are omitted from the text but can be found in Appendix 1.

4.2.1 The growth of card fraud

Card fraud was not seen as a serious problem in the UK until the early 1990s when losses of over £165 million in 1991 prompted the major banks and building societies to form the Plastic Fraud Prevention Forum. The Home Office was quick to respond, appointing Professor Michael Levi from Cardiff University to produce an extensive report. In 1991 the industry presented his recommendations to the Home Secretary with a programme of initiatives to reduce fraud.

Graph 1: Absolute fraud losses 1992-2001

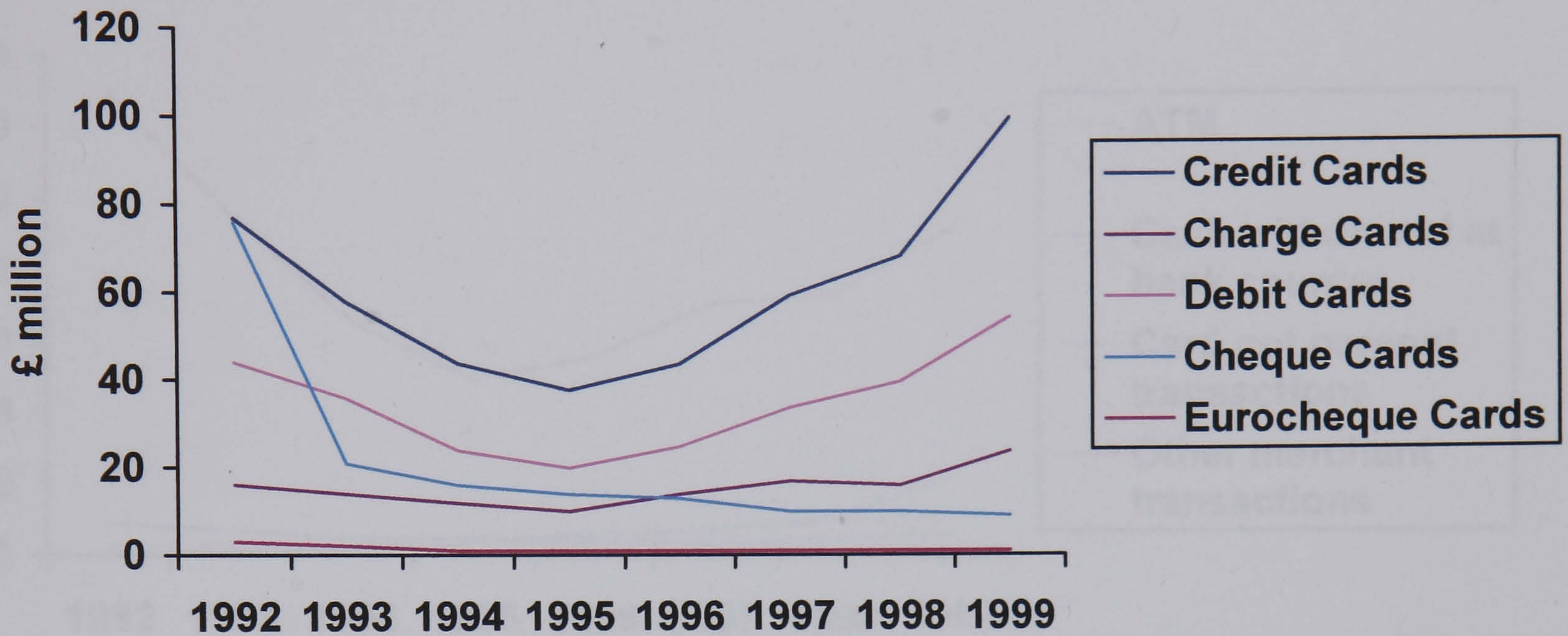


Total losses were contained by 1992 and continued to fall until 1995 when the figures slowly started to rise again. Looking at Graph 1, we can see a rapid growth in losses in the last three years to more than twice the 1991 level. APACS announced a 55% increase in card fraud on the previous year in 2000 and a further rise of 30% in 2001. At the time of writing, card fraud costs the banks and financial institutions more than £1 million per day (more than three times the annual losses of £135 million in 1998).

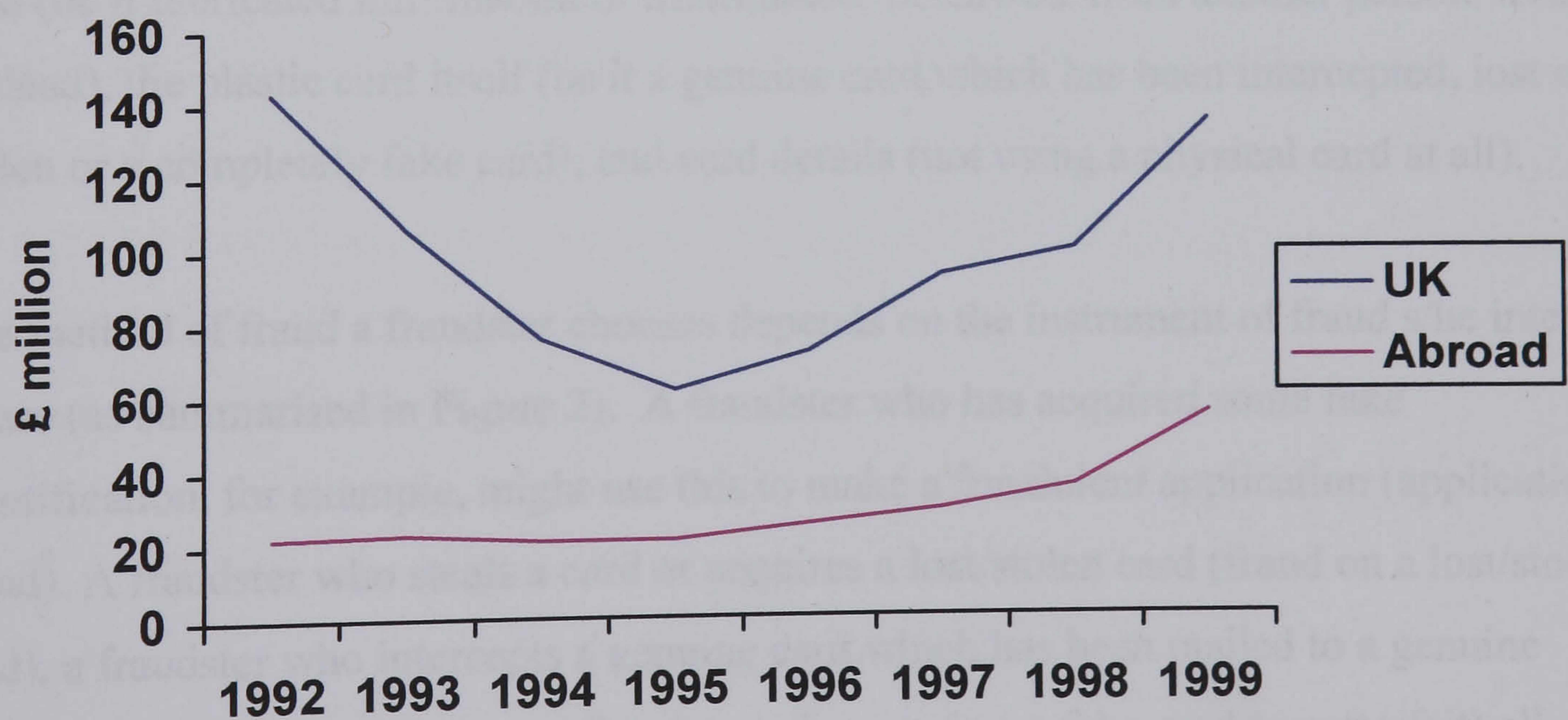
Graph 2 shows that fraud losses have fluctuated relatively consistently across card types since 1992, with credit cards being the major source of loss, followed by debit cards and then charge cards. Fraud on credit, debit and charge cards has increased steadily since 1995 but, in contrast, fraud on cheque cards has been slowly decreasing since the mid-1990s. In terms of place of misuse, fraud has increased both at home as well as abroad (see Graph 3), with the majority of UK based frauds occurring during regular merchant transactions (as opposed to occurring at ATMs or bank counters, see Graph 4). The period between 1997-2000 has seen a marked increase in the number of card not present

transactions, where the place of misuse is unclear since the transactions occur through the mail, or over the internet or telephone. The implications of this rise will be discussed further in section 4.2.2.5.

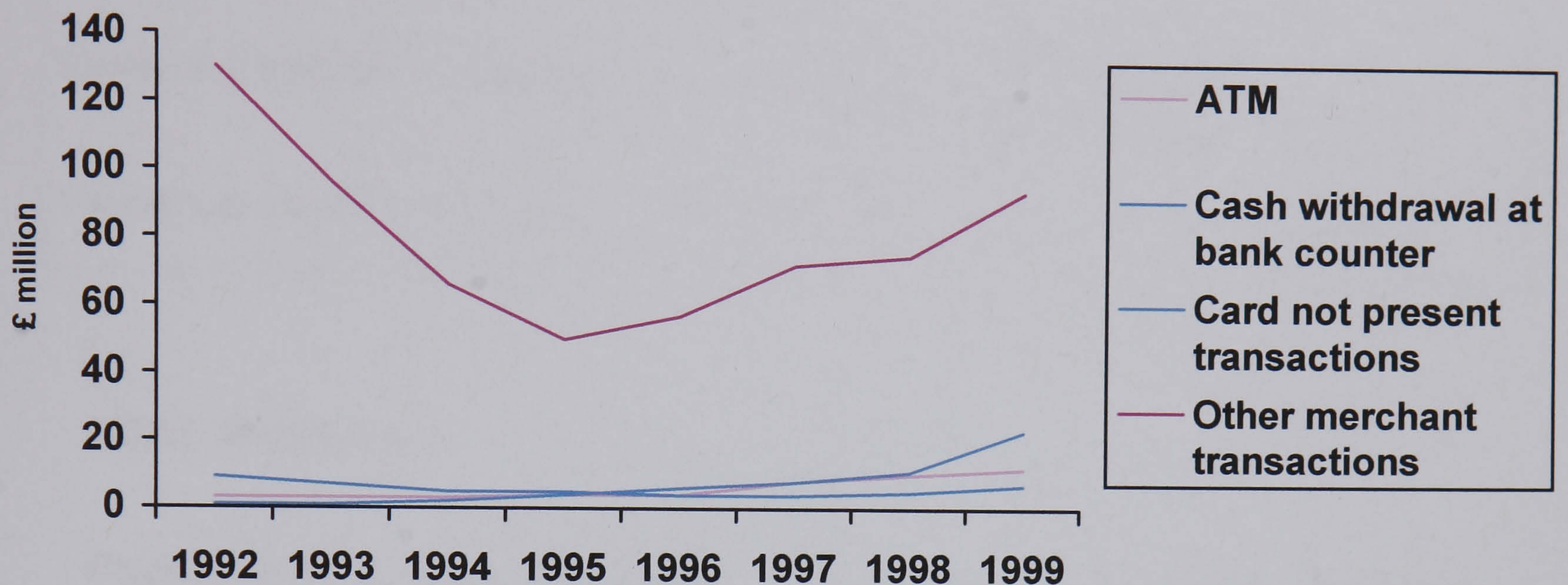
Graph 2 :Annual fraud losses by card type



Graph 3: Annual fraud lossed by place of misuse



Graph 4: Absolute annual fraud loss by place of misuse (UK transactions)



4.2.2 Types of plastic card fraud

Card fraud can occur at different stages of the issuer-holder relationship, either at a point in the process of application or at a point in the process of transaction. A fraudster can use any of three 'instruments' of card fraud - information on an application for a card (be it fabricated information or information 'borrowed' from another person, living or dead), the plastic card itself (be it a genuine card which has been intercepted, lost or stolen or a completely fake card), and card details (not using a physical card at all).

The method of fraud a fraudster chooses depends on the instrument of fraud s/he intends to use (as summarised in Figure 2). A fraudster who has acquired some fake identification, for example, might use this to make a fraudulent application (application fraud). A fraudster who steals a card or acquires a lost/stolen card (fraud on a lost/stolen card), a fraudster who intercepts a genuine card which has been mailed to a genuine customer (mail non receipt), or a fraudster who acquires a fake card (counterfeit) all might use the card in some way to purchase goods or withdraw cash. A fraudster who acquires card details, perhaps from a discarded receipt, might use the details to make a purchase by telephone or on the internet (card not present transactions). These different methods of card fraud are discussed in detail below.

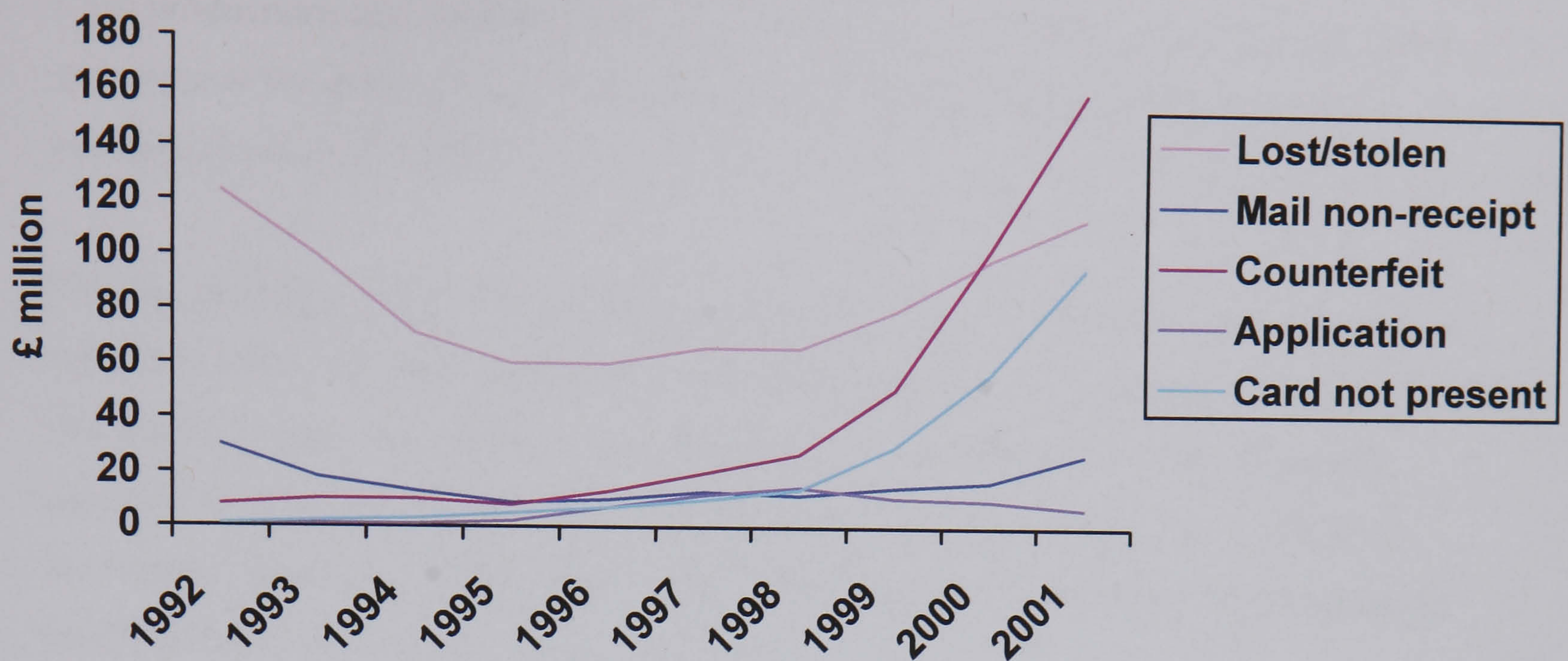
Figure 2: The instruments and methods of plastic card fraud

Instrument	➔	Method
Application details (fabricated or 'borrowed')	➔	Application Fraud
Plastic card (genuine or counterfeit)	➔	Mail non receipt Counterfeit Lost/Stolen
Card details (no physical card)	➔	Card not present transactions

4.2.2.1 Overall trends

Graph 5 clearly illustrates the trends in card fraud loss over the last decade. All types of card fraud except application fraud have been increasing steadily since 1998, growth has been most rapid for fraud on lost and stolen and counterfeit cards and card not present transactions. Between 1999 and 2001, the proportions of total losses from lost/stolen and counterfeit cards shifted slightly. In 1999, 42% of all fraud was on lost and stolen cards, and 27% of losses were traced to counterfeit cards. In 2001, the largest proportion of losses was on counterfeit cards (39%), with only 28% of the total losses attributed to cards which had been lost and stolen. It seems that, based on these figures at least, fraud using physical cards is the largest problem we are faced with at present and fraud using card details (on card not present transactions) is a growing concern.

Graph 5: Annual fraud losses by circumstances of loss



4.2.2.2 Application fraud

Application fraud occurs when a person makes an application for a card using either fabricated details or the particulars of another person. When one applies for a credit/debit/store card, some personal details and some form of identification are requested. Name, address and evidence of employment are all details which can either be made up or 'borrowed' from another person's identity. It is not difficult for fraudsters to acquire fabricated or stolen identification papers (e.g. a driving licence).

Graph 5 shows that application fraud losses, after a short decline between 1992 and 1994, increased steadily between 1995 and 1998. However, application fraud dipped in 1999/2000 and in 2001 fell to £6.6 million (down 37% on the previous year). It is significant that this type of fraud only forms a small percentage of total fraud losses (2% of the total in 2001, for example).

In a briefing paper for the Home Office, Levi (2000) cites the creation of false identities as the largest growth category in applications fraud. He states that the industry suggest that the rise in ID fraud may be a substitute for repeat fraud using a fraudster's own details repeatedly (a response to improvements in identity checking across the industry).

4.2.2.3 Mail non receipt

'Card productions and distribution to issuers are very secure. However, once the cards are prepared for sending through the postal service, potential fraud risks begin to multiply' (Levi *et al.* 1991 p. 18).

Usually, cards are sent out in the normal first class mail. Cards may not be delivered for various reasons - the address may be incorrect, the point of delivery may not be secure (for example it may be a shared dwelling where mail is delivered for several people together) or someone working in the postal service may intercept the card. Whatever the reason, loss of card at this stage is significant because the cards have blank signature panels and are very easy for fraudsters to use.

When the Levi report was written in 1991, mail non receipt fraud was a major source of loss coming second only to fraud on lost and stolen cards and accounting for a fifth of total fraud losses. Hence at that time, mail non receipt was considered to be a serious problem and was prioritised in terms of crime prevention. Looking at Graph 5, we can see that mail non-receipt losses decreased between 1992 and 1995, dropping to a low of £9 million in 1995. However, since 1995 the figures have started to creep up slowly. 2001 saw a rise to almost £27 million, almost back up to the 1991 level.

4.2.2.4 Counterfeit

Card counterfeiting began in the USA in the 1970s and became such a huge problem that in the early 1980s Congress was forced to enact legislation in response to record fraud losses, and the US Secret Service was given jurisdiction for the investigation of credit card fraud (Newton 1995). The mid-1980s saw the development of security features for plastic cards (most notably the hologram) and counterfeiting in the USA remained at a low level until 1991 when counterfeiting in the Far East started to have a huge impact, particularly in California.

Newton (1995) pinpoints Thailand as the origin of Far East counterfeiting. Poor quality reproduction cards started to emerge from 1984 and in the space of five years evolved from primitive copies which needed the co-operation of a corrupt merchant, into more realistic copies with encoded magnetic strips which could be used at EPOS terminals.

Curiously, '[d]espite Thailand being the logistical centre of counterfeit card distribution for several years, law enforcement agencies never discovered an illicit factory facility there' (Newton 1995 p. 9).

Malaysia, it seems, produced better skilled counterfeiters. They quickly progressed from tampering with stolen cards to manufacturing complete counterfeits, but they mostly required merchant collusion. During the period of dominance of Malaysian counterfeiting, firm links were established with Hong Kong. In the early 1990s, Hong Kong became the centre for the most sophisticated counterfeiting, developing printing processes and hologram manufacture. To this day Hong Kong remains one of the major centres for counterfeit production.

One of the major growth areas in plastic fraud and, indeed, the aspect which has gained recent attention from the press, is the process known as 'skimming' or 'cloning'. This occurs when a fraudster copies the information held on a card's magnetic strip. The magnetic strip has long been recognised as one of the weakest security features on plastic cards (Levi 1991 p. 9). Portable magnetic coding machines which can copy the encrypted details from a genuine card's magnetic strip and impose them onto a fake card are legitimately available from electronics suppliers. This process requires the co-operation of someone who handles genuine cards - the example usually given is the waiter in a restaurant who takes the card away to process the bill and, while he is out of sight, makes a copy of the card details with the machine he has hidden under the counter.

That fraudsters are imaginative is undeniable. On the 15th September 1995, three men were found guilty of conspiracy to defraud clearing banks and building societies. This was the first reported case of a home-made cashpoint machine in the world. They had successfully built a cashpoint machine out of home-made parts and painted it to resemble a Halifax Building Society Automatic Teller Machine (ATM). The machine was placed in the foyer of a specially established mortgage broker's office in Bethnal Green, London, and it operated successfully there for six weeks until the scam was discovered by police. Customers who tried to get cash from the machine received a message that the machine was faulty – unbeknownst to them, the machine had actually recorded the encrypted data from the card's magnetic strip and the PIN. This information was passed to the criminals via modem and they used it to manufacture

fake cards. These cards were used by conspirators across the country to withdraw cash from genuine machines. The banks admitted to losing £130,000 to the fraudsters, but the police estimated the figure to be nearer £500,000 (Boycott 1995).

It is this kind of scam, together with the alarming rise in losses on counterfeit cards in the last two years, which has prompted the establishment of a unique police unit in 2002, the Dedicated Cheque and Plastic Card Unit. The focus of this unit, funded by APACS and the Home Office, will be on criminals heavily involved in counterfeiting. This initiative reflects the general widespread concern about counterfeiting.

4.2.2.5 Card not present

Transactions which take place via the telephone/mail/internet are usually 'card not present' transactions. An order is placed and the card details are provided – there is no way for the merchant to examine the card and there is no requirement for a signature. Thus, it is easy for a fraudster to make a purchase and it is not even necessary for him/her to actually have the physical card. Card details can be acquired from a variety of sources (for example from a discarded receipt or even by reading a card over someone's shoulder in a queue for a cashpoint – the so-called 'shoulder-surfing') and used effectively in card not present transactions.

When the Levi report was published in 1991, card not present transactions were not regarded as a serious problem. Losses on card not present transactions were lower than all other circumstances of loss. Hence, the report itself contains very little commentary on the problem of card not present transactions. However, Graph 5 shows a steady increase in losses on card not present transactions since 1995. There has been no period of decline and the 2001 figures are a staggering 75 times greater than the 1992 levels.

4.2.2.6 Fraud on lost and stolen cards

'It would be a mistake to see the rise in fraud solely as a 'new economy' issue: fraud on lost and stolen cards went up almost as much as card not present fraud' (Levi 2000, p. 3, referring to the 1999 figures).

APACS report that in 1998 (the most recent figures available), there were approximately 13,000 cards reported lost or stolen each day in the UK. Of these, around 3% were subsequently used fraudulently. This accounted for almost half of total fraud losses (48%) and cost almost £66 million (APACS, personal communication). In 2001, total losses on lost and stolen cards are almost double the 1998 figure, but it is not clear whether this is a result of more cards being used or simply larger frauds being committed on each card.

Although superseded by counterfeit as the largest source of card fraud in recent years, fraud on lost and stolen cards remains one of the major sources of loss. Graph 5 shows that despite a dramatic decline between 1992 and 1996 (to half the 1992 figure), losses on lost and stolen cards have increased steadily in the last four years.

4.2.3 The problem of prevention

One of the major problems with the prevention of plastic card fraud is that it is not clear who is, or should be, responsible (customers, retailers, banks, the police, etc.):

'Inevitably, there is a tension between the provision of services in a market society and the management of crime risks in both public and private sectors. As central media of exchange in global networks, credit, debit and charge cards can never avoid the risk of crime entirely: the primary goals of corporations are profit maximisation rather than maximum crime reduction. There will always be *some* conflicts of interest between the key private sector groups - card issuers, consumers (and individual crime victims), merchant service providers and retailers - and between individual firms within those sectors' (Levi 2000, p. 1).

The problem, of course is twofold. Not only is it important to develop clear crime prevention strategies to prevent the crimes in the first place, but also it should be demonstrated that individual incidences of fraud are adequately investigated and, where appropriate, prosecuted.

The Levi report in 1991 criticised the approach to cheque and credit card fraud by the police. One of the major criticisms was that there was great variability in the

approaches of different police forces in the recording of and dealing with incidents of fraud. Recommendations aimed at harmonising and improving fraud investigations were echoed in an ACPO Working Group report. Both reports called for regional Cheque and Credit Card Squads to be set up. In 1998, 25 out of the 43 police forces in England and Wales had a designated cheque and/or credit card squad. A quarter of these did not deal with plastic frauds and funding was a serious problem. The fact that card and cheque fraud tends to occur across regions, often nationally, suggests that co-operation between police forces is an essential response. However, regional collaborations are rare, and few formal links exist between adjoining forces, largely due to funding restrictions. In the last couple of years, however, moves have been made to improve the work of the police in this area. Funding remains a problem, but as we have seen with the Dedicated Cheque and Plastic Card Fraud Unit in London, collaborations with the banking industry are easing the problem (in this case, banks and building societies are funding 75% of the unit, with the Home Office providing £1.4 million).

The ACPO report recognised that a greater emphasis should be placed on crime prevention and specialist training for police officers. Recommendations that all forces should have a hand writing analyst have been on the whole implemented, and significant moves have been made to ensure that all officers understand their duties with regard to cheque and credit card investigations. Yet it remains the case that most investigations are reactive rather than proactive. More resources are clearly needed to improve measures aimed at prevention. Crime prevention measures do not have to be high tech - they can make use of more 'traditional' investigative methods such as fingerprints, CCTV and modus operandi information.

It is fair to say, however, that the industry comes under more public criticism than the police in the context of card fraud prevention strategies. When the Levi report was published in 1991, the major problem the industry was faced with was the loss occurring on genuine cards which had got into criminal hands and significant funds were channelled into initiatives addressing these problems. Fraud on lost and stolen cards, mail non receipt and fraudulent applications were prioritised and placed high on the prevention agenda. Initiatives to identify insecure addresses, encourage customer collection or secure delivery, encourage on-line authorisation at terminals and encourage the use of floor limits all proved to be successful. By 1995, total losses on

lost and stolen cards and mail non receipt had been greatly reduced, and fraud on applications hovered around the 1991 level.

A key breakthrough in preventing application fraud was made through initiatives aimed at encouraging the sharing of data. The competitive nature of the industry has hampered the development of information networks. These are crucial since the business depends so much on the verification of genuine application data which comes from a variety of sources. The Credit Industry Fraud Avoidance System (CIFAS) was created as 'a method of preventing fraud by allowing credit grantors to exchange details of fraudsters *if and when they are discovered*...CIFAS thus facilitates the dissemination of information on actual and suspected fraud to all its member credit reference agencies and credit grantors, showing that in this respect, there is no commercial competition in fraud.' (Levi *et al.* 1991, p. 13, emphasis in original). It marked the first step towards a culture of data sharing and co-operation.

However, this initiative is only effective against repeat offenders, although Levi *et al.* argue that '...the prevention of *continued* offending is as significant as the prevention of the initial offences' (Levi *et al.* 1991, p. 14, emphasis in original). In order to prevent many offences it is necessary to foster collaboration with other agencies. For example, the Royal Mail holds important information about addresses and requests to redirect mail. Similarly, the Driver and Vehicle Licensing Agency can provide information about lost and stolen drivers' licences, often accepted as a form of identification for a card application.

Mail non receipt fraud is arguably one of the easiest types of fraud to prevent and the prevention strategies aimed at this type of fraud were highly successful in the short term (up until the mid-1990s). However, prevention in this area of card fraud has suffered as a result of the uncommitted approach to the problem by banks and customers alike. Levi *et al.* (1991) discuss various approaches the card issuers *can* take to reduce fraud at this level. The easiest solution is to cut the mail system from the process altogether, making the customer come to the bank or store and collect the card, thus reducing the risk of loss before delivery. However, card issuers have been reluctant to take this approach in the name of customer convenience (customers who work do not have a great deal of time to spare to go to the bank during business hours). An alternative solution is to mail the card to the customer and follow it up with a letter confirming that

the card had actually been sent. The problem here is that the first class mail sometimes takes longer than anticipated to arrive, thus potentially causing confusion and inconvenience to the customer. Another solution might be to have a validation system. When a card is delivered, the customer must run the card through a machine at the bank/store to validate the card at its first use. However, this approach puts a huge cost burden on the issuer to provide the necessary technology in every branch. So, although fraud on mail non receipt is easy to prevent, prevention strategies have been hampered by the unwillingness of both banks and customers to compromise the convenience of their business relationships. It is perhaps not surprisingly that, since 1995, we have seen the losses on mail non receipt slowly creep back up to almost the 1992 level.

However, while the major focus of prevention was on losses on lost and stolen cards, mail non receipt and fraudulent applications, fraud on counterfeit cards and card not present transactions had started to rise. The potential of the counterfeit problem had been recognised in the Levi report, but the innovative designs of security features, such as biometrics and photos on cards, were not popular due to practicalities and expense. Similarly, card not present transactions were not seen to pose a serious threat. The industry focused on stopping genuine cards getting into criminal hands, rather than preventing the criminals from making successful transactions without using a genuine card and as a result the criminals adapted their methods.

Part of the problem was an over-confidence in existing security features on cards. Levi (1991 p. 8) notes that preventing counterfeiting is a case of making it difficult for fraudsters to deceive the people processing payment at a till point or other point of sale. This means that features of the card should be designed in such a way that to the average person it is obvious if the card has been tampered with. Effective security features have been a major aim for card manufacturers since cards were first introduced. Holograms, the signature panel and the magnetic strip are all features with which most card users are familiar, but the effectiveness of these features as security measures is questionable. As security measures, they are all dependent on the point of sale staff actually being vigilant enough to notice any tampering or a failed signature match.

Holograms were introduced in the UK in 1984 by the industry, at first for cheque guarantee cards. The use of holograms soon became widespread and they were adopted by MasterCard International and Visa International by 1986. Quick to adapt, fraudsters

in the Far East began reproducing the holographic images in the late 1980s. The quality of these copies was poor and it is likely that at this stage the fraudsters were reliant on merchant collusion. By 1991, when Hong Kong arrived on the scene, counterfeit holograms were of good quality. Newton (1995) suggests that holograms on counterfeit cards probably 'were manufactured, knowingly or unknowingly, by legitimate hologram manufacturers' (p. 10).

The last four digits of a card number are usually embossed in the hologram area in order to prevent tampering with the numbers. Criminals usually use a heat process to alter embossed card details but if heat is applied to a holographic image it is damaged. However, criminals have moved a step ahead of the technology and have found a method of applying heat to holograms without damage, by simply applying a chemical to protect it (Newton 1995).

The signature panel is arguably the most important security feature of a card since it is the only feature which allows the point of sale staff to verify the customer is indeed the cardholder. However, for card not present transactions, which do not allow for inspection of the card itself, the signature panel is rendered rather useless.

When cards were first introduced, criminals were quick to discover that signatures could simply be washed off. Naturally, the industry responded and refined the design of the signature panel. Today, signature panels lie flush with the card (rather than appearing raised) and if they are tampered with the background design either rubs off (making obvious that the strip has been tampered with), or more elaborately for some credit cards, the word 'void' appears. Criminals, however are quick to adapt and use a variety of methods ranging from using a simple pencil eraser (slowly), to easily available cleaning fluids.

The moral of the story is that, in order to develop effective crime prevention strategies, we need to stay one step ahead of, or at least keep up with, the methods used by the criminals themselves. Levi *et al.* argue, '[o]ne way of analysing the control problems is to review the ways in which cards or the functions of cards are successfully used by criminals and to suggest measures that can be expected to have most impact on them' (1998, p. 16). Surely this is the *only* effective approach?

Until a forward looking approach is adopted, we must, for the time being at least, be cautious of putting too much faith in prevention strategies and initiatives. The latest of these is the much heralded 'smart card'. The banking industry has responded to a massive increase in counterfeit fraud in the last few years with the roll out of smart chip-cards. Chip cards contain a microchip which has the ability to hold a vast amount of information. The main benefits of chip cards are said to be versatility and security. Chip cards started to appear in 1999, and it was the original intention that the UK 'bank owned infrastructure' will be processing chip cards by 2003 at an estimated cost to the industry £300 million. However, from an early stage the industry was met with resistance from retailers who objected to the cost of the installation of new terminals. Now, APACS predicts that the chip and PIN system will not be in place until 2005.

In terms of versatility, the use of chip cards opens many doors to changes in the way we use cards. APACS estimate that, '[i]f PINS are introduced to the retail point-of-sale environment, it will impact the UK's 42 million cardholders and necessitate a change in their behaviour at some 735,000 retail terminals' (APACS 2001, p. 7). It is suggested that chip readers will become part of our everyday life, appearing on our mobile phones, digital televisions, and personal computers (APACS 2001, p. 6). It is perhaps not too outrageous to suggest that the use of chip cards might revolutionise the way we make transactions. Of course, for some, the idea that so much information might be carried via these networks has raised alarm bells. The industry is assuring the customer that the chip will contain no more information than the magnetic strip on a normal card, but admits that it will be possible to add services such as loyalty schemes and electronic purses. Some commentators have gone as far as to suggest that biometric details, such as finger and iris scanning and voice recognition, could potentially be stored on the card.

Chip cards are attractive because they are technologically sophisticated and, although not likely to be counterfeit proof, they are being heralded as the answer to the world-wide problem of organised counterfeit. Chip cards, it is argued, will make counterfeiting more difficult and thus more expensive for the criminal. This begs the question: for how long?

4.2.4 Intervention by the law?

In response to these many changes in approach to the investigation and prevention of card fraud, there have been several calls to bring the law into line with modern developments. We have seen in chapter three that the law of theft has been criticised for being outdated and inadequate and this criticism has been particularly strong in relation to card fraud.

Figure 3: Offences of card fraud

Statute	Offence
Theft Act 1968 s.15	Obtaining property by cheque or credit card fraud
Theft Act 1968 s.16	Obtaining pecuniary advantage by cheque or credit card fraud
Criminal Justice Act 1987 s.12 and Common Law	Conspiracy to commit cheque or credit card fraud
Theft Act 1978 s.1-2	Obtaining services by cheque or credit card fraud
Theft Act 1978 s.15	Obtaining a money transfer by cheque or credit card fraud.

Incidents of cheque and credit card fraud are criminal offences under the statutes summarised in Figure 3. In cases of fraud where a machine (an automatic machine which is not operated by a permanent human operator, for example a fully automated computer server) is not used, a person who misuses a card to purchase goods or services is usually charged with obtaining goods or obtaining services by deception. This might be where that person is the genuine card holder (spending beyond the credit limit for example) or where the person is using a stolen or counterfeit card (or card details in telephone and mail transactions). In cases where a machine is used, the situation is less clear and the law is yet to be tested on the major issues.

Problems have also occurred when it has been argued that the deception would not have actually influenced the person being deceived, had s/he known about it. So, if a merchant processes payment by a credit card he may not care whether the customer's credit limit is exceeded or not since the bank will honour the transaction regardless. Can, then, we say that the goods were obtained by deception? The answer is yes, as

deception can be constructive. A merchant in this situation will have been described as having been deceived if, had s/he known that (in the above example) the credit limit had exceeded, s/he would not have accepted payment. Unsurprisingly, juries have had trouble grasping the concept. It has been suggested that we should abolish the concept of deception and create a new offence to cover these kinds of situations. 'Such an offence would properly identify the actual wrongdoing and the real victim, namely the bank' (Law Commission 1999, p. 104).

The general response to these problems has been the suggestion of the creation of a new offence relating to the misuse of card and financial information. Professor Sir John Smith has suggested:

'A person commits an offence if he intentionally causes a legal liability to pay money to be imposed on another, knowing that the other does not consent to his doing so and that he has no right to do so' (Smith 1996).

This would involve a threefold mental element: intention, knowledge of no consent and knowledge of having no right to impose the duty. The problem with this is that intention might be too tight a requirement. It is arguable that a fraudster does not intend to impose the liability for the debt on another since he does not care as long as he gets the goods.

The Law Commission has suggested a more specific offence relevant to payment cards but acknowledge that this may become dated quickly. An important question raised by the Commission is whether all unauthorised use of payment cards should be criminalised? If you use a cheque knowing that the money is not in the bank, you breach your contract with the bank. In the context of a continuing relationship (where it will be understood by both parties that the overdraft will be repaid to the bank) it is unlikely that the bank will take action. Indeed, the bank is likely to make money out of the situation. However, the dilemma is that if we exclude cases like this we are in danger of excluding clear cases of fraud by creating loopholes. It is possible to limit the offence to cases where the card was stolen/temporarily appropriated and the individual never had a right to use it. But that would exclude someone who applies for a card, runs up a huge bill and then absconds (especially where the card was obtained by deception).

So, the Law Commission suggests that it should be *the use of the card* which should be criminalised. It seems likely that the debate will continue for a considerable time.

4.3 Measuring plastic card fraud

In this final section, I consider the problem of measuring plastic card fraud. Throughout this chapter I have referred to industry figures provided by APACS, reporting the cost of fraud in terms of the amount of money lost each year. However, the use of these statistics comes with a serious health warning for two reasons. The first is that we do not know how much fraud goes unreported to the financial institutions by individual customers. Customers may either be unaware of a fraudulent transaction on an account or may be deterred from reporting the crime by the potential expense of time and effort. The second reason stems from the secretive nature of the industry itself. It is conceivable that the banks, since they are unwilling to present themselves to customers as a security risk, manipulate the amount of information released into the public domain. Unfortunately, the industry figures are the only detailed source of information available, '[w]e have little idea what the cost of crime control is in this area, since there are no industry aggregate costs, nor have the costs to the police, courts and penal system been calculated' (Levi 2000, p. 2). Therefore I conclude this section by discussing the potential value of information gathered by a national victimisation survey, in this case the BCS.

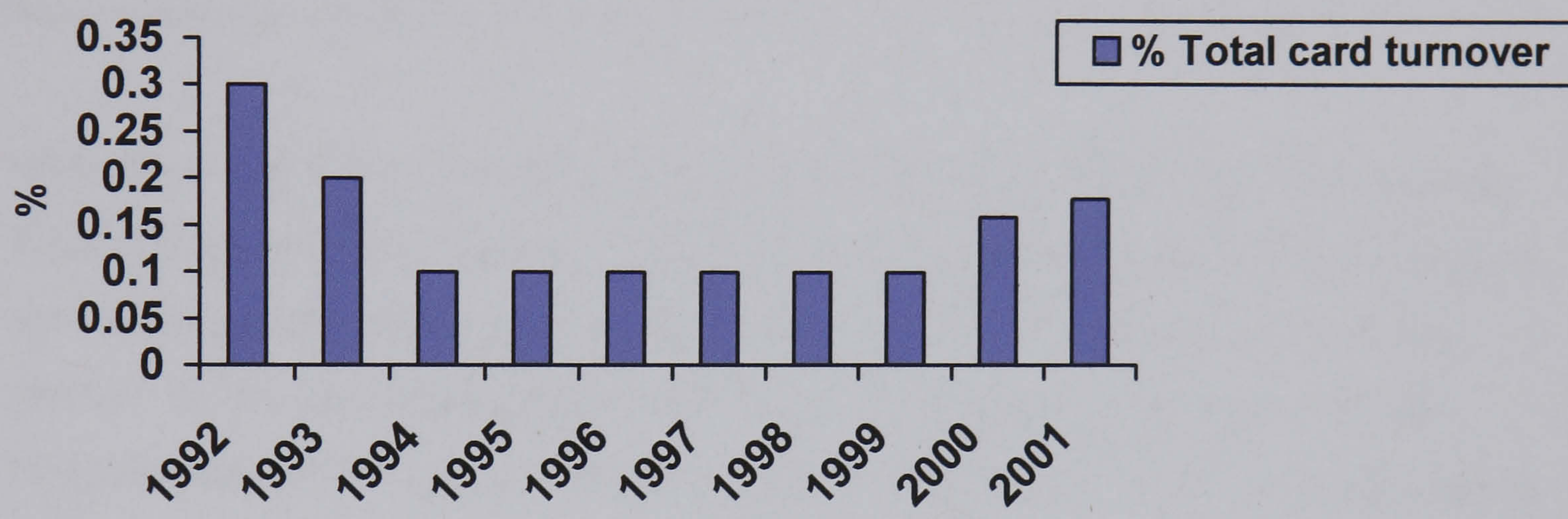
4.3.1 Industry data

Most of the data on plastic fraud are collected by card issuers and collated by APACS. There are different ways of expressing the data. In a briefing paper for the Home Office in 2000, Levi cites five ways of looking at the data (Levi 2000, p. 2):

1. Absolute numbers of stolen cards
2. Absolute fraud loss figures
3. Fraud to turnover
4. Fraud to profit
5. Fear of fraud

We have already seen that APACS produce figures on annual losses on lost and stolen cards. However, there is little information available on the numbers of cards reported lost and stolen each year. Where figures are presented, stolen cards are not usually differentiated from lost ones. This is a significant omission. If we do not know how many cards are lost and how many are stolen each year it is difficult to assess which is the most serious source of loss and tailor prevention strategies accordingly. The implications of this are serious since fraud on lost and stolen cards is one of the major sources of loss overall.

Graph 6: Plastic card fraud losses as a percentage of total card turnover (source APACS)



Absolute loss figures are presented by APACS according to circumstance of loss (method of fraud), and place of misuse (whether at ATM, bank counter or via transactions in the UK or abroad). Many have argued (especially those within the industry itself) that it is unrealistic to look at losses in absolute terms. Taken as a percentage of turnover, losses are low (see Graph 6). In 2001, losses were only 0.18% of the total turnover, just over half the 1992 peak of 0.33%. Arguably, losses to fraud are a mere drop in the ocean but Graph 6 clearly shows the growing trend over the last few years.

4.3.2 Credit/cheque card fraud recorded by the police

A potential source of information on stolen cards is crime statistics produced by the Home Office. Both the Recorded Crime Statistics (RCS) and the British Crime Survey (BCS) contain extensive data on thefts and the RCS contain data on fraud offences.

The statistics recorded by the police contain data on both the number of offences committed and the location of the offence. It has been argued, however, that these are not reliable sources of information. Levi comments, 'the fewer stolen rather than lost, the lower the recorded crime rate' (Levi 2000, p. 2). A major problem is that the counting rules are complicated and have become even more so with recent changes to counting and recording rules. In 1998, new counting rules were introduced and these had a significant effect on the methods for recording cheque and credit card fraud. The new rules allow the police to record an unreported offence of card/cheque fraud when it is discovered in a subsequent investigation. In some forces, the change in counting rules coincided with further changes in recording practices for cheque and credit card fraud offences. Thus, more *reported* offences have become *recorded* offences.

With this in mind, we must treat the recorded crime figures from 1998-2000 carefully. When the transition occurred in 1998, figures were released based on both the old and new counting rules. Thus, any attempt to analyse trends should be made with great caution. In the 12 months to September 1999, recorded fraud and forgery figures jumped a massive 29% on the previous 12 months. It is very likely that the changes in recording practice considerably influenced the increase. Moving on 12 months, to the 12 month period ending September 2000, the Home Office victoriously cite the 'smallest percentage increase since the counting rules were revised in 1998' (Povey *et al.* 2001 p. 4).

In 2001 (Povey *et al.* 2001), cheque and credit card figures were distinguished from the general fraud and forgery figures and this represented a positive move forward in the counting of card frauds. In the 12 months ending September 2000, 49% of the total fraud and forgery offences were cheque and credit card frauds (reported to be a fall of 1.3% on the previous 12 months).

All things considered, the information available does not allow for a great deal of commentary. Nevertheless, the figures can reveal points of interest. For example, the numbers of recorded notifiable offences by police force area can point at fraud hotspots. For example, in the 12 months ending September 2000, the City of London, Dorset, Bedfordshire and the Metropolitan police recorded the most fraud and forgery offences as a percentage of their total recorded offences (14%, 11.2%, 9.2% and 9.2%

respectively). Cumbria (3.4%), Humberside (3.5%), Northumbria (3.8%) and North Wales (3.8%) recorded that least fraud and forgery cases as a percentage of their total recorded offences.

In the case of stolen cards, the original theft of the card is counted *in addition* to any subsequent fraud committed using the card. As a general rule, a series of fraudulent transactions on one card are counted as *one offence for each identifiable owner of goods or services*: crudely, one offence per victim. So, a stolen credit card used to purchase goods in five different shops results in five recorded offences (plus the original theft of the card). In contrast, five cheques from a cheque book which are used in the same store and reported at the same time to the police are recorded as one offence. Separate branches of the same shop or bank are counted as separate 'owners'. However, where a card is used, say, in a supermarket and also in the petrol station situated within the same compound, one offence is recorded because they are considered to be two parts of the same branch.

The police require information about where the fraud occurred before it can be recorded and a crime reference number issued (the crime reference number is often requested by the card issuer before the customer is exonerated). For the card holder this can be very frustrating when the fraud has occurred via a card-not-present transaction and thus the 'location' is not known (internet transactions have received particular press attention for this reason, see Ayres 2000). The new counting rules state that for card not present cases, the address to which the ordered goods are to be delivered is recorded as the location. For fraudulent applications, the address from which the application is sent is the location. Where the fraudster has arranged for redirection of mail to a different address the re-direct address is the location. If the delivery address or the address from which the application is sent is unknown (as in the case of internet transactions or mobile pay phones), then the police force which first became aware of the offence records it in that location.

There are also reasons for not counting the crime. The counting rules state that, '[i]f a bank or credit card company is mounting a full investigation of a fraud with the aim of taking action against the offender, and the police are taking no action, then the police need not count. This however is likely to happen very rarely' (Home Office 2001, part

53A (2)). The effect of this rule is that many frauds are left uncounted and there is a blurred division of responsibility for the investigation of the offence.

The RCS are, then, of limited use when we are looking at plastic card fraud. A simple calculation hints at the extent of the 'dark figure' which lurks in this context. Of a total of 5,221,416 recorded offences in England and Wales in the 12 months ending September 2000, 328,306 (6.3%) were fraud and forgery offences. Only half (49%) of these were credit and cheque card offences (approximately 160,000 recorded card/cheque frauds per year which works out at approximately 440 a day).

When we consider these figures against a backdrop of the industry figures provided by APACS (based on figures for 1999), every day:

- 13,000 cards are reported lost and stolen to banks.
- £0.5 million are lost on card fraud in total
- £0.2 million are lost on lost and stolen cards
- £0.3 million are lost on frauds other than lost and stolen

Yet, each day only 440 cheque/credit card frauds were recorded by the police. The Government admits that it has made no estimates of the level of under-reporting but recognises that it is a significant problem. It seems, however, far from being an urgent political priority.

Conclusion

In this chapter, we have seen how the rapid expansion in the use of plastic cards has been accompanied by a rapid growth in the incidence of fraud offences. For a number of reasons, prevention strategies have proved to be ineffective and fraud levels show no sign of reduction in the near future. In order to keep on top of the problem, it is necessary to collect and analyse accurate data on the extent, nature and effect of the crime itself.

We have also seen, however, that the sources of information upon which we currently rely are inadequate, in more ways than one. In particular, the data collected by the

police provide us with little information about the extent of the problem of card fraud. Since one of the main purposes of the British Crime Survey is to complement the police recorded figures, it seems entirely sensible (and desirable) to include plastic card fraud as a BCS crime. It has already been shown (in chapter three) that the victims of card fraud are potentially suitable for inclusion and so we now move on, in the chapters which follow, to test the feasibility of doing so.

5. Fear, Fraud and the British Crime Survey

Introduction

Central to the overall research strategy for my PhD thesis was the opportunity to become actively involved in design and analysis of the BCS. My role in the development of the 2000 BCS began in 1998, and was specifically geared to improving the questions relating to the fear of crime. Participation in the 2000 sweep occurred in two stages: a design stage and, later, the phase of secondary analysis of the data.

At the design stage, I was first commissioned to conduct a comprehensive review of the recent literature on the fear of crime. In a series of meetings which followed, I presented a number of proposals for additions to the survey, most of which were discussed at length. Eventually, after piloting, 5 new questions were included in the final questionnaire. Several of these questions were designed to address methodological issues beyond the scope of this thesis and will be discussed elsewhere (in published articles). The primary focus, and indeed the most innovative contribution on my part, was the introduction of questions on plastic card fraud to the BCS.

This chapter begins with a discussion of the aims of, and a brief description of the question development process. Developmental work was necessary at theoretical and conceptual levels before the process of operationalisation could take place. This discussion is followed with an overview of the hypotheses and a description of the key variables used in analysis. In terms of methodology, there was little room for external input as the BCS operates according to a well established and rigid research design⁴⁶ which is well documented in both the Home Office and academic literature (e.g. Kershaw *et al.* 2000). Thus a description of the methodology and data collection does not form a major part of this chapter. However, for the reader who is not familiar with the research design, a detailed summary can be found in Appendix 2.

This chapter is a short chapter and is only intended to serve as an introduction to the analysis contained in chapter six (and the discussion of results which follows in chapter seven).

⁴⁶ Although recent moves have been made to evolve the research design in response to a vast increase in sample size and a move to an annual cycle, see Simmons (2000).

5.1 Aims and objectives

'it can be seen that theoretical casualness and empirical chaos has been the order of the day in studies of the fear of crime. Future work needs to avoid the same conceptual ambiguities and confusions if progress is to be made' (Hale 1996, p. 96).

With a view to developing the concept of fear of crime to include fraud, the major aim of the research was to test the feasibility of introducing plastic card fraud questions to the BCS. Under particular scrutiny were the processes of conceptualisation and operationalisation. In addition, it was hoped that card fraud data would give a new dimension to the existing data sources on plastic card fraud. The aims of the research are summarised below:

1. To develop 'worry about property crime' at a conceptual level.
 - To conceptualise 'crime' (to include financial crime).
 - To conceptualise 'worry' (beyond the 'very worried').

2. To test the feasibility of introducing plastic card fraud to the BCS
 - To design and operationalise questions about plastic card fraud.
 - To compare plastic card fraud with the other BCS crimes (in terms of worry and victimisation levels and demographic predictors).
 - To gather information about plastic card fraud (exploring the levels of plastic card fraud victimisation and worry) and evaluate the usefulness of this information in the study of plastic card fraud generally.

5.2 Conceptual development and operationalisation

In this study, there were three overlapping spheres of development - crime, plastic card fraud and fear/worry. In this section I discuss each in turn, highlighting the hypotheses which emerged from the conceptual stage, and discussing the process of operationalisation of each concept.

5.2.1 Crime: The division between property crime and personal crime

In chapter one, I stated that the major question driving this thesis is *what makes one crime different from another?* In the early stages on BCS question development it was necessary to make an attempt at answering this question. The first step in development of the crime concept was to identify the crimes covered by the BCS. The natural next step was to separate the property crimes from the personal crimes and to identify the distinguishing features.

Figure 1: Distinguishing features of property and personal crimes (all BCS crimes, including card fraud).

	Nature of the act	Intention of the perpetrator	Effect on victim
Property Crime Burglary Theft of vehicle Theft from vehicle Card fraud	Theft of (and/or damage) to victim's property.	To get away with property unnoticed (avoid victim).	Cost = money and inconvenience.
Personal Crime Mugging/robbery Attack Rape/sexual attack Being insulted	Offence against the person.	To inflict violence/terror on victim directly.	Physical and/or psychological harm.

Figure 1 shows how property crimes are different to personal crimes in terms of the nature of the act itself (what is harmed?), the intention of the perpetrator (relating to the nature of the contact with the victim) and the nature of the harm (the effect of the crime on the victim). A victim's experience of property crime is likely to be quite different from an experience of personal crime, as contact with the perpetrator is not an essential feature, and the post-crime implications are associated with the process of replacing the property. In contrast, the victim of personal crime suffers personal harm that is inflicted by the perpetrator directly and the victim is likely to suffer physical and psychological effects as a result. According to this framework, card fraud, as Figure 1 illustrates, can easily be categorised as a property crime.

Previous work has shown that property crime evokes reactions different to those experienced by victims of personal crime. The literature suggests that an individual's

attitude towards property crime and personal crime may be influenced by several perceptions: the perceived seriousness of the crime, the perceived likelihood of that crime occurring, and the perception of self-vulnerability (based on risk assessments, the type of loss which is likely to be suffered and the ability of the individual to recover from a victimisation, Skogan 1987, LaGrange and Ferraro 1987, Rountree 1998).

Previous work can be drawn together using four propositions:

1. Property crime evokes different reactions than personal crime (LaGrange and Ferraro 1987).
2. Property crime is more common than personal crime. Thus people are more worried about becoming victims of property crime (Skogan 1987).
3. Personal crime victimisation increases the fear of personal and property crime, but property crime victimisation only increases the fear of property crime (Rountree 1998).
4. The most serious crimes do not necessarily generate the highest fear (LaGrange and Ferraro 1987).

These findings, then, informed the development of hypotheses (discussed in section 5.3).

5.2.2 *Plastic card fraud*

At an early stage, two issues were raised by the BCS team, illustrating the reluctance to include fraud in victimisation surveys (discussed in chapter three). Firstly, that it was quite possible that victimisation levels would be too low to allow for any meaningful analysis. Secondly, that respondents might not show any significant level of concern and that, as a result, nothing would be gained by the inclusion of plastic card fraud on the survey. Nevertheless, the team did tentatively agree to introduce questions on plastic card fraud. So, this was essentially a process of testing the water but it was hoped that the data would allow for some substantive analysis.

As we have seen in chapter four, there are several methods of committing (and thus becoming a victim of) plastic card fraud: fraud using application details, fraud using a plastic card (genuine or counterfeit) and fraud using card details (no physical card). In addition, it is important to distinguish between cases where a genuine card holder has

been simply *mischarged* during a genuine purchase and cases where a crime has occurred. Measures of victimisation need to differentiate each of these elements if they are to yield valuable data.

Worry about plastic card fraud is likely to be influenced by a myriad of factors, including the many (proposed) correlates of worry about other crimes (for example, respondent's characteristics and lifestyle). Some additional factors relate only to plastic card fraud:

- How many cards the respondent has.
- What the card/s is/are used for (borrowing (credit) vs. a mere method of payment (debit)).
- How often the card/s is/are used.
- Where the card/s is/are used (restaurants, shops, internet, bill payments, cashpoints).
- How vigilant the user is (checking statements, keeping receipts).
- Is the card holder insured against loss/fraud?
- Experience of card fraud (direct or indirect).

Clearly, careful consideration of these issues was required at the stage of question design. However, due to space restrictions on the questionnaire, it was necessary to confine the plastic card fraud section to two questions only. These questions were placed in one of the follow-up questionnaires rather than the main questionnaire (i.e. not together with the other worry and victimisation screener questions). These victimisation questions, therefore, were not followed up by a victim form.

A comprehensive search of the literature on plastic card fraud revealed no examples of survey questions used previously to measure victimisation, or fear of plastic card fraud. The International Crime Victim Survey (ICVS) includes a question on consumer fraud (*“has someone, when selling something to you or delivering a service cheated you in terms of quantity or quality of the goods/services?”*) but nothing on plastic card fraud specifically. Thus, the questions were subjected to rigorous development and piloting. The first stage of question design produced the following two questions:

1. People can steal money from other people's debit and credit cards, either by overcharging them or by copying down their card details/PIN and using them to buy things or withdraw cash. In the last year, has someone stolen money from you in any of these ways?
 - a) Yes - overcharged
 - b) Yes - card details/PIN used
 - c) No
 - d) Don't use cards

2. How much do you worry about someone overcharging you on your credit/debit card or using your card details/PIN to buy things or withdraw cash?
 - a) Very worried
 - b) Fairly worried
 - c) Not very worried
 - d) Not at all worried
 - e) Insured against losses

However, after initial pilots⁴⁷, these questions were rejected for two reasons. Firstly, in an attempt to incorporate as many of the conceptual considerations as possible into two questions, the questions themselves had become too complicated and in danger of being misinterpreted. Secondly, it was decided that, in order to make the results directly comparable with the other BCS crimes, the wording needed to match (as far as possible) more closely the wording of the existing BCS questions.

Therefore, the following two questions were designed:

1. As far as you know, including anything we have already talked about, since the first of January 1999 has anyone used your credit card or bank card, or your card details, such as your PIN, to buy things or withdraw cash without your permission?
 - a) Yes
 - b) No

⁴⁷ Approximately 15 pilot interviews were conducted in an informal setting on colleagues (not from a criminological background). Reactions to the questions were noted, focussing specifically on any difficulties of interpretation or answer selection.

2. How worried are you about someone using your credit card or bank card details, such as your PIN, to buy things or withdraw cash without your permission?
 - a) Very worried
 - b) Fairly worried
 - c) Not very worried
 - d) Not at all worried
 - e) (N/A - don't use cards)

Both questions were piloted as part of the formal BCS piloting exercise which occurs before the sweep is conducted (Hales *et al.* 2000). The questions piloted well and no further changes were necessary. The narrow scope of the questions reduced the range of possible hypotheses (for example, it would have been interesting to add card fraud to the list of 'likelihood of victimisation questions' to include risk perceptions in the final analysis) but the final set of hypotheses reflected the overarching aim which was, if we recall, to test the feasibility of introducing plastic card fraud to the survey.

5.2.3 *Worry*

Previous work on the fear of crime has too often neglected to embrace the full spectrum of the worry concept (Williams *et al.* 2000). Traditionally, although not exclusively, researchers have tended to focus their analysis on the 'very worried' group of respondents, guided by the belief that it is the 'very worried' who are our 'problem group'. It is often argued that concentrating on the 'very worried' gives a more 'discriminating' measure of worry and it is this measure that much of the BCS analysis is based on (Kershaw *et al.* 2000, p. 44).

In the BCS, the respondent has a choice of four responses (very worried, fairly worried, not very worried, not at all worried) for each worry question. Recently, concerns have been raised about the problems of using four-item Likert scales:

'We should now be beyond commonly used four-item Likert scales and headed toward better interval level measurement. The fact is that multi-point, metric-ordinal rating scales yield lower measurement error and provide a closer approximation of true response positions' (Williams *et al.* 2000 p. 7).

It would be fair to say that the structure of the BCS worry questions is set in stone, but this does not preclude improvement at the analysis stage. If respondents have a choice of four answers in a worry question it seems shortsighted only to focus on one (the very worried). At the conceptual level, then, it is important to decide how to work with the concept of worry to determine how the 'worriers' could best be identified (the 'very worried' or the 'very' and 'fairly' worried) and to attempt to discover when worry becomes a problem? Preliminary analysis of the worry data allowed for a thorough investigation into the nature of worry for individual crimes.

Table 1: Percentage 'very worried' and 'not at all worried' across crime types.

	% Very Worried	% Not at all worried
Property Crime		
Burglary	19	8
Theft of Vehicle	20	11
Theft from Vehicle	15	12
Card fraud	18	20
Personal Crime		
Mugging/robbery	17	15
Rape	19	41
Attack	18	19
Insulted/pestered	9	25

Looking at the 'very worried' column of Table 1, we can see that more respondents (20%) are very worried about vehicle theft than any other crime type. Burglary and rape also attract a high number of very worried responses (19% each), and being insulted/pestered in public has the lowest 'very worried' level. Generally speaking, respondents are more likely to be very worried about property crime but the distinction is not clear, with rape in particular scoring highly. Interpretation of these figures would suggest that we have a problem with worry about vehicle theft, burglary and rape.

Table 2: Percentage worriers and non-worriers across crime types.

	% Worried	% Not Worried
Property Crime		
Burglary	57	43
Theft of Vehicle	56	45
Theft from Vehicle	51	49
Card fraud	49	51
Personal Crime		
Mugging/robbery	44	57
Rape	32	69
Attack	42	58
Insulted/pestered	32	68

Now, if we include the 'fairly worried' in our group of 'worriers', a quite different picture emerges. Looking at Table 2, we see a much more marked difference in worry levels between the property crimes and personal crimes, in that there are more property crime worriers than personal crime worriers. Worry about rape, which was positioned high on the 'very worried' list suddenly drops to the bottom of the scale, attracting the same percentage of worriers as being insulted in public. In addition, returning to Table 1, another perspective is gained through the consideration of the 'not at all worried' respondents. Looking at those who are not at all worried, and returning to our example of rape, we see that respondents are most likely to be not at all worried about rape. So, to say that worry about rape is a serious problem for our sample is not entirely true as 41% are, in fact, not at all worried.

Without wishing to labour this point, the choice of measure is an important one. Looking at the 'very worried' as the 'problem' group neglects to take into account many of the nuances of worry as a concept. While it may, in some circumstances, be appropriate to focus on a binary measure of worry - the worriers and the non-worriers - we can draw a lot more from the data if we look at the four levels of worry, focusing specifically on the 'very worried' the 'not at all worried' when necessary.

5.2.4 Operational concerns

At the operational level, there are two possible points of concern. Firstly, the possibility that the formation of the seven worry questions (one after the other, all phrased identically) might cause respondent fatigue. Secondly, and subsequently, the fact that the worry about plastic card fraud question is separated from the 'worry flock' may

mean that respondent approaches it in a different manner (whether this is a negative or positive issue is not important, the important point is that the response needs to be comparable with the other worry questions).

The range of responses used for all crimes ('very worried', 'fairly worried', 'not very worried' and 'not at all worried') was analysed for all respondents. Using all eight worry questions, then, the total number of each of the four responses was counted.

Table 3: Responses used for all eight worry questions.

	Number of times response used								
%	0	1	2	3	4	5	6	7	8
Very	59	13	9	7	5	4	2	1	(0.4)
Fairly	26	20	20	16	10	5	2	1	(0.2)
Not very	20	18	16	15	13	8	5	4	1
Not at all	46	23	11	8	5	3	2	1	1

Looking at Table 3, we can see that the 'very worried' response was used least often and that respondents made more use of the middle responses ('fairly worried' and 'not very worried'). Of the respondents who did use the 'very worried' response, most used it only once (13%). Similarly, of the respondents who did use the 'not at all worried' response, most used it once (23%). In comparison, few respondents failed to use the middle responses and the majority used either of the two responses once (20% and 18%), twice (20% and 16%) or three times (16% and 15%).

So, those who choose one of the extreme responses are not likely to do so more than once or twice. Respondents are likely to use the middle responses more often. This suggests that most respondents are giving different answers to the different crime types, thus offering no indication of attempts at response consistency by respondents. This reinforces the suggestion above that worry should be viewed beyond the 'very worried'. Thus, for the purposes of analysis, it was decided that worry should be interpreted in different ways at different stages of analysis. As a general rule, at univariate and bivariate stages of analysis, worry was considered to be a multi-factorial concept and thus it was inappropriate to focus only on the 'very worried' as the problem group.

At the multivariate stage, since logistic regression was selected as the major analytic procedure, it was necessary to interpret worry as a binary variable. However, in order to capture all dimensions of worry, worry was recoded to focus on the 'worried' (the 'very'

worried plus the 'fairly' worried), the 'very worried' and the 'not at all worried' (full details are provided in Appendix 2).

5.3 Key variables

The process of selection of the key variables began with a close examination of models previously developed by other researchers. Rountree (1998), for example, argues that a good multidimensional model of fear needs to be wide ranging to include socio-demographics, lifestyle patterns, routine activities, target attractiveness, guardianship, previous victimisation and perceived incivilities. Similarly, Hough (1994), who conducted analysis on BCS data, included worries about non-criminal misfortunes, risk perceptions, feelings of safety when out alone at night, physical size and ability to defend oneself, and perceived levels of disorder in the neighbourhood. However, due to the restrictive nature of the data in this pilot study, the selection of dependent variables was restrained by the structure and content of the survey questionnaire.

Two variables were selected as the key variables; the 'plastic card fraud victimisation' variable and the 'worry about plastic card fraud' variable. In addition, 7 variable sets were constructed; 5 demographic sets, a worry set and a victimisation set.

1. Respondent Basic Demographics

- Gender (male, female)
- Age (16-29, 30-59, 60+)
- Marital status (married (living de facto), not married)

The variables in this set provide the respondent's demographic characteristics. Age and gender, of course, are particularly important since they are so often cited as significant correlates of fear.

Ethnic origin was not included in the analysis. The main reasons for this decision were purely practical. Firstly, by the time the ethnic minority booster sample has been divided up to accommodate the two follow-up questionnaires, the number of respondents in the booster sample who actually answered the two plastic card fraud questions was reduced. Secondly, the ethnic minority booster sample is only used when one wishes to make specific statements about ethnicity. Therefore, in the context of this

study, it would be necessary to conduct analysis on two different samples, using only the core sample where ethnicity is not the focus (Hough 1994). This can cause confusion and, since the main aim of the study was to test feasibility rather than detect explanatory variables, complex analytical processes seemed unnecessary. All things considered, it was decided that the analysis should be carried out on the core sample of the BCS only.

2. Socio-economic Factors

- Household income (under £5K, £5K under £15K, £15K under £20K, £20K+)
- Managing on income (well and saving, getting by, in difficulty)
- Highest qualifications achieved (secondary, further, higher)

According to Hough (1994), the relationship between anxiety about crime and social class is robust and persistent. In BCS analysis, social class is usually measured using the Registrar General's standard classification of the head of household's socio-economic group which is based upon occupational standards (for example, professional or unskilled occupations). However, in the context of plastic card fraud, income and education were identified as variables of specific interest and, since both variables correlate with the social class variable, it was omitted from analysis.

The variables in this set not only provide information on the respondent's education history but also the financial position of the household as a whole.

3. Respondent's Health and Lifestyle

- House left unoccupied during the day (less than 3 hours, more than 3 hours)
- Drinking alcohol (rarely, often)
- Member of the household smoker (yes, no)
- General health (good, bad)

The variables in this set provide information about the respondent's health and lifestyle. They give some indication of how active the respondent is.

4. Household Demographics

- Tenancy (owners, renters)
- Number of adults in household (1, 2, 3+)
- Number of children in household (0, 1+)

The household demographics provide information about the respondent's home. For example, we can use the information to identify those who live alone, or with a family and the type of accommodation a respondent lives in.

5. Area Demographics

- Neighbourhood type (neighbours help each other, neighbours go their own way, mixture)
- Area (inner city, urban, rural)

The variables in this set provide information about the area generally and, at a smaller level, the respondent's own perceptions of the neighbourhood. The social environment in which households are located is classified in the BCS using 54 ACORN categories. However, the ACORN variable (in both its 54 category form and its 17 category breakdown) was unsuitable for the analytic procedures selected and thus the 'Area' variable, which is derived by combining elements of the ACORN classification with the BCS classification for inner cities, was the favoured measure of area type (see also Hough 1994).

6. Victimization Set

- Since 1/1 1999, have you personally been a victim of....?
 - Burglary
 - Theft of vehicle
 - Theft from vehicle
 - Credit/debit card fraud
 - Mugging (theft from the person)
 - Attack (deliberate force or violence)
 - Sexual attack

7. Worry Set

- How worried are you about...?
 - Burglary
 - Theft of a vehicle
 - Theft from a vehicle
 - Credit/debit card fraud
 - Mugging or robbery
 - Rape
 - Attack
 - Insulted/pestered in public

5.4 Construction of hypotheses

Reflecting back on the overall aims of the research, the following hypotheses were designed (they are expressed here in sets for ease of interpretation and will be discussed further in chapter seven). All hypotheses are expressed here in the null form.

HYPOTHESES SET 1: Testing feasibility

- 1.1 Inadequate numbers of respondents report being a victim of card fraud in the last year
- 1.2 Respondents all fall into the non-worried categories.

HYPOTHESES SET 2: Worry: comparisons across crimes

- 2.1 There is no variation in worry distribution across specific crimes.
- 2.2 Worry about property crime is no greater than worry about personal crime.

HYPOTHESES SET 3: Worry: association between crimes

- 3.1 Worry levels for individual crimes are not interrelated.
- 3.2 Worry about property crime is not associated with worry about personal crime.

HYPOTHESES SET 4: Demographic predictors of worry and victimisation

- 4.1 Worry is not related to demographic variables.
- 4.2 Victimisation is not related to demographic variables

HYPOTHESES SET 5: Relationship between worry and victimisation across crimes

- 5.1 Worry is not related to victimisation (all crimes).
- 5.2 Personal crime victimisation does not increase worry about personal crime.
- 5.3 Personal crime victimisation does not increase worry about property crime.
- 5.4 Property crime victimisation does not increase worry about personal crime.
- 5.5 Property crime victimisation does not increase worry about property crime.

6. Results

Introduction

This chapter contains the analysis of the BCS 2000 data. The analysis was carried out in a methodical way, following the structure of the hypotheses sets (see chapter five). At all stages of analysis, the emphasis was on *making comparisons* between worries about specific crimes. In particular, I was interested in exploring the relationships that worry about card fraud has with other variables and comparing these to the relationships exhibited by the other crimes. This approach is distinct from an attempt to find the best explanation, statistically at least, for worry about each crime. Indeed, this would have been a protracted task and to embark upon it would be to lose sight of the original aim of the research which was to test the potential for introducing card fraud to the survey. Moreover, such an approach to analysis would inevitably exceed the capability of the card fraud data. In short, I do not strive to explain worry about each crime individually through vigorous independent analysis. Rather, my approach is to conduct simple comparisons, treating each crime in the same way, and comparing the relationships across crimes. By extracting the common (and distinct) trends and themes, I can make recommendations for future development of questions on card fraud.

I begin with the overarching aim of the research - testing the feasibility of using card fraud as a BCS crime (section 6.1). We will see that the numbers of victims and worriers for card fraud proved to be comparable with the other crimes, thus I conclude that card fraud performs well operationally as a BCS crime. In addition, I discuss the characteristics of the card users vs. the non card users, highlighting the different factors associated with card ownership. Next (in section 6.2), univariate analysis of the worry data for each of the eight crimes suggests that worry about card fraud has a similar distribution to its property crime counterparts but is more dispersed. Thus, at an early stage I suggest that worry about card fraud displays different properties to the other crimes.

The next stage of analysis focused on the association between worries (section 6.3). Worry about card fraud, it seems, has a weak association with the other worries, suggesting that it might have unique characteristics and relationships. Indeed, moving

on to demographic predictors (section 6.4), those who are worried and not worried about card fraud are distinct in many ways from the other worriers and non-worriers. Of particular interest are the multivariate models which suggest that demographic factors are less predictive of worry about card fraud than the other crimes.

Moving on to the victims (section 6.5), again card fraud proves to be distinct from the other crimes. Those who are more educated, better off and more healthy and active are more likely to become victims of card fraud and these features contrast with the characteristics of the victims of other crimes. Again, at a multivariate level, demographic factors are less predictive of card fraud victimisation than victimisation of the other crimes.

Finally, in section 6.6, I consider the relationship between worry and victimisation for each crime. Card fraud victims prove to be an interesting group, worrying significantly about rape but not about property crimes. In contrast, victims of vehicle crime, mugging and attack were significantly more worried about card fraud.

In order to avoid an information overload in this (already long) chapter, supplementary information can be found in the Appendices (2-7). Methodological issues and data considerations are discussed in Appendix 2. Supplementary tables for the corresponding sections of this chapter can be found in the following appendices (all are clearly signposted throughout the chapter).

6.1	Testing feasibility of introducing card fraud	Appendix 3
6.2	Comparing worry across crimes	N/A
6.3	Association between worries	Appendix 4
6.4	Demographic predictors of worry	Appendix 5
6.5	Demographic predictors of victimisation	Appendix 6
6.6	Association between worry and victimisation	Appendix 7

6.1 Testing feasibility

The first stage of analysis was to address the pivotal aim of the research, namely to evaluate the operationalisation of the card fraud questions. This first section contains the basic descriptive level statistics for the two card fraud questions and these initial results allow us to conclude that card fraud performs well as a BCS crime. Also, at the end of this section, I consider the characteristics of card holders, comparing them with their non-card using counterparts in terms of their demographic characteristics, worry levels and victimisation levels.

6.1.1 Do adequate numbers of respondents report being a victim of card fraud?

If we recall, the major argument against the inclusion of fraud victims in the BCS was that victims simply would either a) not be aware of the victimisation, or b) not consider it significant and fail to report the event. However, the analysis of the victimisation data allows us to reject the hypothesis that there are inadequate numbers of victims of card fraud. Table 1 shows that 2% of respondents had been a victim of card fraud in the last year, on a par with victimisation levels for theft of a vehicle and mugging/robbery. Victims of card fraud, it seems, *are* aware of their victimisation and *do* report the event to the interviewer.

Table 1: Percentage victims for each crime

	% Victims (N)
Burglary	3 (485)
Card Fraud²	2 (198)
Theft of vehicle¹	2 (357)
Theft from vehicle¹	9 (1362)
Mugging/robbery	2 (463)
Violent attack	4 (734)
Sexual attack	0.4 (78)

¹Car owners only (N=14,976)

²Card holders only (N=8,191)

6.1.2 Are respondents distributed across all worry levels or do they all fall into the non-worried categories?

A further misgiving needed to be addressed at the early stages of analysis. Is card fraud something people *actually* worry about, or would inclusion in the survey be fruitless? Again, the results allowed for rejection of the null hypothesis.

Table 2 shows the distribution of respondents across worry levels for card fraud. Just under half of respondents (49%) were worried about card fraud to some extent (very worried or fairly worried). Indeed, it was encouraging, and somewhat unexpected, to find that 'very worried' levels (used by the Home Office as an indicator of fear) for card fraud were comparatively high (18% of respondents were very worried about card fraud). The distribution and dispersion of worry about card fraud will be discussed further in section 6.2 when compared with the other BCS crimes.

Table 2: Worry about card fraud

	N	%
Very worried	1,451	18
Fairly worried	2,558	31
Not very worried	2,553	31
Not at all worried	1,633	20
Total	8,195	

6.1.3 Who are the card users and non-card users?

It is possible to distinguish between those who do and do not use payment cards (the method for doing so is discussed in Appendix 2) and it is appropriate at this point to discuss the characteristics of those two groups. In total, 16% of the card fraud sub-sample selected the 'do not use cards' option; 84%, then, were assumed to be card users for the purposes of analysis.

Generally speaking, card users are younger⁴⁸, female⁴⁹ and married (or living de facto)⁵⁰. They are more likely to own a home⁵¹ in urban areas⁵² and have larger households⁵³. Card users were better off financially in terms of both household income⁵⁴ and the ability to manage on that income⁵⁵. They were also more likely to be better educated⁵⁶. Finally, most card users reported being in good health and lived active lifestyles⁵⁷. Chi square values are significant ($p < 0.005$) for all demographic variables except the perception of the neighbourhood. In terms of association, card ownership is most strongly related to income and least strongly associated with gender and having a smoker in the household.

These results suggest that card ownership is a middle-upper class characteristic but not exclusively so. Indeed, 38% of card users were on lower incomes and 59% had not been educated beyond the Further level. It is likely that the distribution across socio-economic levels is a reflection of the three typologies of card user as discussed in chapter four: those who use cards to borrow money and those who use cards for financial management and business users. Those on low incomes, educated to lower levels may be using the cards to borrow or gain credit. Those on higher incomes are perhaps using the card for convenience, simply as a method of payment.

⁴⁸ More than half (57%) of non card users were over the age of 60 years old whereas the majority of card users were less than 60 years (74%; 57% are aged 30-59 years).

⁴⁹ Non card holders were slightly more likely to be female (60% compared with 53% of card holders).

⁵⁰ 63% of card users were married, compared with only 38% of non users.

⁵¹ Three quarters of card users owned their property (78%) but less than half (44%) of non-users were owners.

⁵² The majority of respondents generally lived in areas classed as 'urban' (67% of non card users and 62% of card users). Those who lived in rural areas were more likely to use cards than those who lived in the inner cities (91% of rural dwellers were card users, compared with 75% of inner city dwellers).

⁵³ A quarter of card users reported being the only adult in the household, compared with 50% of non card users. Similarly, a larger proportion of non card users lived in childless households (78% compared with 69% of card users).

⁵⁴ Just less than half of card holders (48%) had a household income of more than £20K but only 8% of non card holders were in the same income category. Overall, 87% of non card users had a household income of less than £15K (a third (33%) earned less than £5K) compared with 38% of card users.

⁵⁵ Of the card users, 61% reported to be managing well on the income (and saving) but for non users the majority (58%) were just getting by on that income (and not saving).

⁵⁶ Half of non card users had been educated only to Secondary level (51%) and only 4% had pursued their education to Higher level. Card users were more likely to have experienced Higher education (41%) but more than a third (36%) were educated only to a Secondary level.

⁵⁷ 78% of card users reported being in good health, 75% were away from the home most of the day, 61% reported drinking alcohol often. In comparison, non card users were more likely to report bad health (49% bad health) and were less active (45% were away from the home during the day and 60% rarely drank alcohol).

Low socio-economic status, inactive lifestyles and bad health all seem to be common characteristics of those who do not use cards but are also, of course, characteristics of those in old age. Since more than half of the non card users are over the age of 60 years, it is arguable that the income and lifestyle characteristics are just as much an indication of the effect of age as representative of the group of non-card using respondents. However, when a logistic regression model is built using demographic variables to predict card ownership, the effect of higher socio-economic status (higher education and higher income) is more powerful than age, although being young is still a strong predictor (see Table 3).

Table 3: Demographic predictors of card ownership

	Card users
Most predictive	Income £20K+
	Higher education
⇓	Income £15-20K
	Being aged 16-29
⇓	Managing well on income and saving
	Being female
	Away from home 3+ hours a day
	Being aged 30-59
	Owning property
⇓	Being married
	1+ children in household
	Living in rural area
	Income £5-15K
	Often drink alcohol
Least predictive	No smoker in household
	Living in urban areas

6.2 Comparing worry across crimes

Looking at Tables 4 and 5, one can clearly see that the distribution of worry levels varies across crime type. Table 4 shows the percentage of respondents in each worry group for all specific crimes and property and personal crime generally. Table 5 shows distribution and dispersion data for property and personal crimes.

6.2.1 Variation in worry distribution across specific crimes

When each crime is taken individually, at first glance worry about card fraud seems to be more similar to the property crimes than the personal crimes. Looking at Graphs 1-8 (and Table 4), one can see that the shape of the distributions for all four property crimes is similar. The majority of respondents occur in the middle two categories, with an almost equal share of respondents in each category (for example, for burglary 38% are fairly worried and 35% are not very worried). Worry about card is, however, distinguishable from the other property crimes in terms of the balance between the extreme categories. For card fraud there are a few more respondents who are 'not at all worried' than 'very worried' (for burglary and vehicle crime more respondents are 'very worried' and the difference in proportions is larger).

Table 4: Percentage worried by crime type

	% Very worried	% Fairly worried	% Not very worried	% Not at all worried
All property crime	3	31	52	14
Burglary	19	38	35	8
Theft of car	20	36	33	11
Theft from car	15	36	36	12
Card fraud	18	31	31	20
All personal crime	5	20	41	34
Mugging	17	27	42	15
Rape	19	13	28	41
Attack	18	25	39	19
Insult	9	23	44	25
All crime	11	25	47	17

Graph 1: Worry about burglary



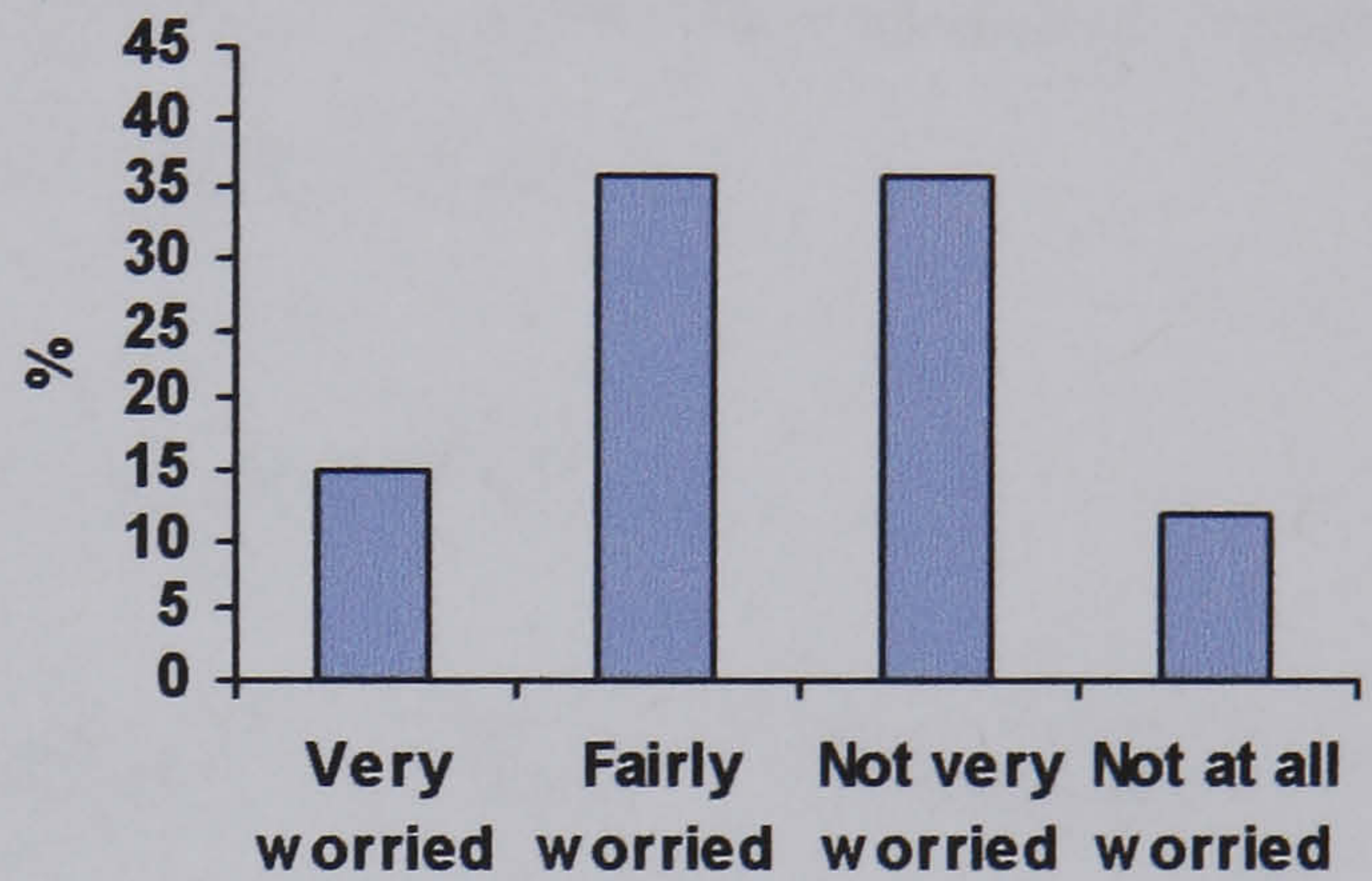
Graph 2: Worry about card fraud



Graph 3: Worry about theft of vehicle



Graph 4: Worry about theft from vehicle



Graph 5: Worry about mugging



Graph 6: Worry about rape



Graph 7: Worry about attack



Graph 8: Worry about insults



However, when one looks more closely at the distributions and dispersion values (Table 5), it becomes clear that worry about card fraud does not fit snugly into the property crime mould. Firstly, looking at the average values (mean and mode) for worry about card fraud compared with the other crimes, we can see that the averages for card fraud are closer to the personal crime averages, reflecting the lower levels of worry for those crimes. Indeed, the distributions for worry about burglary, theft of vehicle and theft from vehicle are positively skewed but card fraud, like the four personal crimes, is negatively skewed (but the skewness is notably smaller than for the other personal crimes). Furthermore, card fraud has a higher value of variance and thus, in terms of dispersion, is more similar to worry about rape and attack than the other property crimes (which are less dispersed and more clustered around the average).

Table 5: Distribution and dispersion of worry variables.

	Skewness (S.E.)	Kurtosis (S.E.)	Mean	Mode	Variance
All property crime	-.014 (.030)	-.469 (.060)	9.7	10	7.56
Burglary	.069 (.018)	-.751 (.035)	2.3	2	.77
Theft of vehicle	.086 (.021)	-.850 (0.41)	2.4	2	.85
Theft from vehicle	.006 (.021)	-.752 (.041)	2.5	2	.80
Card fraud	-.024 (.027)	-1.065 (.054)	2.5	3	1.00
All personal crime	-.413 (.018)	-.714 (.037)	10.8	12	11.10
Mugging	-.205 (.018)	-.854 (.035)	2.5	3	.88
Rape	-.597 (.018)	-1.071 (.037)	2.9	4	1.28
Attack	-.212 (.018)	-.960 (.035)	2.6	3	.96
Insult	-.418 (.018)	-.554 (.035)	2.9	3	.80
All crime	-.327 (.031)	-.318 (.062)	20.8	21	28.10

To summarise, then, at a crime specific level one can conclude that there are distinct differences in the distribution and dispersion of respondents across crimes. Card fraud has a similarly shaped distribution to its property crime counterparts but the respondents

are well dispersed across the four worry categories, a feature more strongly associated with the personal crimes (especially attack and rape).

6.2.2 Is worry about property crime greater than worry about personal crime?

When one looks at the aggregate levels of worry for property and personal crime (Table 4) the data shows that, for property crime, respondents are more likely to be in the middle worry categories ('fairly' or 'not very' worried) whereas they are more likely to be not worried about personal crime (either 'not very' or 'not at all'). Respondents are more likely to select one of the extreme responses ('very' or 'not at all') for personal crime. This suggests that respondents, on the whole, are:

- a) Generally more not worried than worried
- b) more likely to be worried about property crime than personal crime
- c) more likely to be very worried or not at all worried about personal crime

6.3 Association between worries

In this section, we consider the relationships *between* the worry measures. First the bivariate relationships between each worry variable are considered (looking at chi square values and measures of strength of association). Next we look at the multivariate relationships using logistic regression.

6.3.1 Are worry levels for individual crimes interrelated?

Chi square tests reveal significant relationships between all individual worries (see Appendix 4, Table 1). Table 6 (in this section) contains the Cramer's V values for the relationships between each individual crime. Summing across the matrix (see Table 7), we see that worry about attack and mugging score the highest totals, suggesting stronger relationships with other worries. The total score for card fraud is notably lower than for the other crime types. Thus, worry about card fraud seems to have different inter-worry relationships than the other crimes.

Table 6: Cramer's V values for worry by worry

Burglary								
Theft of vehicle	.334							
Theft from vehicle	.294	.607						
Card fraud	.248	.234	.222					
Mugging	.415	.302	.251	.261				
Attack	.344	.270	.236	.256	.524			
Rape	.286	.214	.171	.219	.422	.544		
Insult	.268	.247	.236	.211	.359	.454	.332	
Cramer's V								
	Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Rape	Insult

All are significant at $p < 0.0001$

Table 7: Total Association Score for each crime type.

Crime	Total association score
Burglary	2.189
Theft of vehicle	2.208
Theft from vehicle	2.017
Card fraud	1.651
Property crime	1.939
Mugging	2.534
Attack	2.628
Rape	2.188
Insult	2.107
Personal crime	2.635

6.3.2 Is worry about property crime associated with worry about personal crime?

Analysis of the crosstabulations reveals that worry about personal crime is more likely to affect worry about property crime than the other way round. So, those who are worried about personal crime are more likely to be worried about property crime (71% of worried about personal crime are also worried about property crime) than those who are worried about property crime are to be worried about personal crime (44% of those worried about property crime are also worried about personal crime).

In terms of strength of association, worries about the personal crimes are more strongly associated with each other than worries about the property crimes are inter-associated. Generally speaking, the relationships *between personal crimes* (shown in green in Table 6) are stronger than relationships *between property crimes* (shown in blue). The strength of relationships *between property and personal crimes* (shown in yellow) are more varied; for example, worry about mugging and attack are more strongly related to worry about burglary than the other property crimes and worry about rape is more weakly related to worry about property crime than the other personal crimes are.

So, bivariate analysis suggests that worry about personal crime is a stronger predictor of worry about property crime than worry about property crime is a predictor of worry about personal crime. However it is clear that the picture is more complicated than that; rape, card fraud, mugging and burglary all seem to have different relationships with other worries which need exploring. This can be done by using logistic regression techniques.

Tables 8 and 9 show the logistic regression models for worry about each crime (full results are provided in Appendix 4). The independent variables are listed in order of predictive power (most predictive at the top) and the variables which failed to make a statistically significant contribution to the logistic regression model are shown in shaded cells ($p < 0.005$).

Table 8: Worry about Property Crime Models (logistic regression)

Burglary	Card Fraud	Theft of vehicle	Theft from vehicle
Mugging	Theft from vehicle	Theft from vehicle	Theft of vehicle
Theft of vehicle	Burglary	Mugging	Burglary
Theft from vehicle	Insult	Burglary	Card fraud
Card fraud	Theft of vehicle	Insult	Insult
Attack	Mugging	Card fraud	
Insult			
Rape	Rape	Rape	Rape
	Attack	Attack	Attack
			Mugging

Table 9: Worry about Personal Crime Models (logistic regression)

Rape	Attack	Mugging	Insult
Attack	Rape	Attack	Attack
Mugging	Mugging	Burglary	Mugging
Insult	Insult	Rape	Rape
	Burglary	Theft of vehicle	Card fraud
		Insult	Theft of vehicle
		Card fraud	Burglary
			Theft from vehicle
Theft from vehicle	Theft from vehicle	Theft from vehicle	
Theft of vehicle	Theft of vehicle		
Card fraud	Card fraud		
Burglary			

The logistic regression models give us an idea of the complex inter-worry relationships. Worry about property crime is not necessarily a significant predictor of worry about personal crime (for example, worry about property crime is not a significant predictor of worry about rape but worries about all property crimes except theft from a vehicle are predictors of worry about mugging). Similarly, worry about personal crime may not

necessarily be a significant predictor of worry about property crime (worry about rape is not a significant predictor of worry about any of the property crimes).

6.4 Demographic predictors of worry

6.4.1 Bivariate relationships

6.4.1.1 Respondent characteristics

Generally speaking, the respondent characteristics were significantly related to worry across crime types. Gender was more strongly related to worry about personal crimes than property crimes, and had a stronger association with worry about rape than for other crimes. On the whole, women were slightly more worried than men about all crimes but to a greater extent for the personal crimes than about property crime. Age was inversely associated with worry about all crimes except mugging; generally speaking the young were more worried but for mugging those in the older age group (60+) had higher worry levels. Age was most strongly associated with worry about rape and attack. The relationships between worry and marital status varied according to crime type. For the property crimes, those who were married (or living *de facto*) were more worried; for personal crimes, those who were married were less worried. Marital status was most strongly associated with worry about card fraud.

6.4.1.2 Household characteristics

Worry about all crimes was significantly related to all household characteristics but association was slightly weaker for worry about property crimes than for worry about personal crimes. Type of tenancy was more strongly related to worry about personal crimes than the property crimes proving to be particularly strongly associated with worry about mugging and attack. Those who lived in rented property were generally more worried about crime, although for card fraud it was the property owners who were more likely to be worried. The number of adults in the household, although significantly related to all worries, was not more weakly associated with worry about the personal crimes. In contrast, worry about the property crimes did have a stronger association (but still weak), the more adults living in the house, the less worried the respondent was likely to be. The effect of having children in the household was less

clear. Having children in the house was associated with higher worry levels for burglary and the personal crimes.

6.4.1.3 Area characteristics

Worry about all crimes was significantly related to area characteristics. However, worry about card fraud had particularly weak association with area characteristics. Those who lived in more rural areas were generally less worried about crime, the association being stronger for vehicle theft and mugging. Those who perceived their area to be less 'neighbourly' tended to be more worried about crime although the associations were weak (but strongest for burglary).

6.4.1.4 Socio-economic characteristics

Worry about all crimes was significantly related to education, household income and ability to manage on that income. Worry about mugging, attack and rape were more strongly associated with socio-economic factors than were worries about the property crimes. Those who were more educated, earning higher incomes and not in financial difficulty are less worried about crime. However, for worry about card fraud those on higher incomes have greater levels of worry. Worry about card fraud is more strongly associated with household income than any other crime, yet its association with the ability to manage on that income is the weakest of the eight crimes.

6.4.1.5 Health and lifestyle

Generally speaking, those in poor health were more worried about crime than those in good health. The association was stronger for burglary and mugging and was weakest for rape and card fraud. Smoking and drinking habits were significantly related to worry about all crime, but association was not significant for card fraud. Alcohol consumption was more strongly associated with worry about personal crimes (those who drink more often are less worried) and having a smoker in the household was more strongly associated with attack (those living in a smoking household were more worried). More active respondents were generally less worried about personal crime. Those who left the house unoccupied for more than 3 hours a day were significantly more worried about vehicle crime (theft of and theft from) and card fraud. In contrast, those who left the house unoccupied for more than 3 hours a day were less worried about mugging.

6.4.1.6 Summary

The modal 'very worried about vehicle crime' and 'very worried about card fraud' is female, aged 30-59 years and lives in a self-owned property in an urban area with a partner and no children. She is educated to Further level, is managing well on a high income, and has an active and healthy lifestyle. In contrast, the modal 'very worried' for burglary and the personal crimes is also female, aged 30-59 years and living in an urban area with a partner and no children, but is less educated (to Secondary level), is just getting by on a mid-level income and is active and healthy but rarely drinks alcohol.

The modal 'not at all worried' about card fraud is female, aged 30-59 years, living in a self-owned property in an urban area with a partner and no children. She is managing well financially but has a mid-level income and has a low educational level (Secondary). The modal 'not at all worried' about burglary is male, aged 60+ years and lives alone. He is managing well on a mid-level income and is educated to Further level. For all other crimes, the modal 'not at all worried' is male, aged 30-59, living in a self-owned property in an urban area with a partner and no children. He is managing well on a high income and lives an active and healthy lifestyle.

6.4.2 Logistic Regression Models

A detailed description of the logistic regression results are given in Appendix 5. Tables 10-15 in this section show the models for worry about each individual crime using the demographic variables. Only significant predictors are shown in these tables and they are ordered by strength of association (the strongest predictor at the top). Several sets of models are presented in this section based on different dependent variables. The first set of models was constructed to predict the worried respondents ('very' or 'fairly'). The other two sets focused on the two extreme worry groups - the very worried and the not at all worried.

- Worry about all crimes (**worried** vs. **not worried**) (Tables 10 and 11)
- Very worried about all crimes (**very worried** vs. all others) (Tables 12 and 13)
- Not at all worried about all crimes (**not at all worried** vs. all others) (Tables 14 and 15)

6.4.2.1 The worried vs. the not worried (Tables 10 and 11)

The immediate observation one makes when looking at these Tables is that worry about card fraud model looks very different to its counterparts, in terms of both the number of significant predictors, and the nature of the predictors. Only being married, owning property, getting by on the household income and having no children in the household are significant predictors of being worried about card fraud.

The following general observations can be made about the remaining three property crime models (burglary and the vehicle crimes). Firstly, living in an inner city or urban area is the strongest predictor of worry about property crimes. Respondent characteristics are not strong predictors, only being in the younger age group (16-29) appears to predict worry. Similarly, household characteristics⁵⁸ and health and lifestyle factors⁵⁹ are not, generally, significant. Socio-economic factors are strong predictors; having a low income and either just getting by or struggling on that income are significant predictors, and education to secondary or further level seem to influence worry.

For the personal crimes, the models display different themes. Respondent characteristics are much more important, being female is the strongest predictor for all personal crimes and being young (16-29) is an important factor for all crimes except mugging (where age is not significantly associated). In addition, health and lifestyle factors are more consistently significant across personal crimes (as compared with property crime); low alcohol consumption and being in bad health are predictors of worry about personal crime. As for the property crimes, household characteristics are not important, only living in a multiple adult households has an effect on worry about personal crime. Living in the inner city and socio-economic factors (income and education) are significant predictors of worry about personal crime.

⁵⁸ Having no children in the household is associated with worry about vehicle crime and being an owner, rather than a renter, is likely to influence worry about burglary.

⁵⁹ Having a smoker in the household was a predictor of vehicle crime and being in bad general health was a factor for worry about burglary.

Table 10: Demographic predictors of worry about property crime (significant only)

Burglary	Theft of vehicle	Theft from vehicle	Card Fraud
Living in inner city	Living in inner city	Living in inner city	Married/living de facto
Being married	Income under £5K	Age 16-29	Property owner
Income < £5K	Being aged 16-29	Income under £5K	Getting by on income
Being aged 16-29	Living in urban areas	Living in urban areas	No children in household
In difficulty on income	Secondary education	Age 30-59	
Secondary education	Further education	3+ adults in household	
Being aged 30-59	Income £5K - 15K	Getting by on income	
Income £5-15K	In bad health	Being male	
Neighbours go own way	Income £15K - 20K	Further education	
Getting by on income	Getting by on income	No children in household	
Owning property	House unoccupied 3+ hours	Smoker in household	
Living in urban areas	No children in household	Neighbours go own way	
In bad health	Smoker in household		
Being female	Rarely drinking alcohol		
Rarely drinking alcohol			
Further education			

Table 11: Demographic predictors of worry about personal crime (significant only)

Mugging	Attack	Rape	Insult
Being female	Being female	Being female	Being female
Living in inner city	Aged 16-29	Aged 16-29	Living in inner city
Secondary education	Living in inner city	Aged 30-59	In difficulty on income
Income < £5K	Income < £5K	Secondary education	Aged 16-29
3+ adults in household	Secondary education	Further education	In bad health
Further education	Further education	Living in inner city	Income < £5K
In bad health	3+ adults in household	In difficulty on income	Living in urban area
Living in urban areas	Getting by on income	Income under £5K	Getting by on income
Income £5K - 15K	In bad health	3+ adults in household	Further education
Income £15K - 20K	Aged 30-59	Rarely drinking alcohol	Secondary education
In difficulty on income	In difficulty on income	Getting by on income	Rarely drink alcohol
Getting by on income	Income £5K - 15K	Income £15K - 20K	Income £5K - 15K
2 adults in household	Rarely drinking alcohol	Income £5K - 15K	3+ adults in household
Neighbours go own way	Income £15K - 20K	Living in urban areas	Neighbours go own way
Rarely drink alcohol	Living in urban areas		Aged 30-59
Renting property	2 adults in household		
No children in household	Neighbours go own way		

6.4.2.2 Predicting the 'very worried' (Tables 12 and 13)

As one might expect, there are many similarities between the models for the 'worried' (discussed in the previous section) and the 'very worried' which we turn our focus to now. However, there are differences between the models which give a different perspective on the sorts of characteristics which are associated with worry.

Beginning with the property crimes, there are fewer differences between the models for burglary than there are for the vehicle crimes and card fraud. For burglary, living in the inner city and being on a low income are strong predictors of being both 'worried' and 'very worried'. The major difference between the burglary models is the rising importance of low educational achievement which emerges as a strong predictor of being 'very worried' about burglary and card fraud. For the vehicle crimes, the strongest predictors for being 'very worried' are notably different to those in the 'worried' model. Age (being young) becomes less important in the 'very worried' model and income becomes the strongest predictor. Moreover, for vehicle crime, having several adults in the household emerges as a strong predictor of being 'very worried'.

For card fraud too, the model predicting the 'very worried' looks quite different from that predicting the 'worried'. Not only are there a few more significant predictors of the 'very worried' but there is also an increased emphasis on the importance of socio-economic factors. Low education is the strongest predictor of being very worried about card fraud but education did not feature as a significant factor associated with worry generally. 'Getting by' on the household income remains important but for the 'very worried' we can see that being on a moderate income (£15-20K) is also a predictor.

Moving on to the personal crimes, there are fewer differences between the models for the 'worried' and the 'very worried'. For both attack and rape, being female and young (16-29) remain the strongest predictors for the 'very worried', with low education continuing to be an important factor. Indeed, there is little difference between the two sets of models for attack and rape. For mugging and insult, however, the predictors in the two sets of models do vary. In particular, low education is the strongest predictor of being 'very worried' about mugging, superseding being female, which is the strongest predictor of being 'worried'. For insult, low income and living in households with more than three adults are stronger predictors of being 'very worried'.

Table 12: Demographic predictors of 'very worried' about property crime (significant only)

Burglary	Theft of vehicle	Theft from vehicle	Card fraud
Living in inner city	Income < £5K	Income < £5K	Secondary education
Secondary education	Living in inner city	Living in inner city	Rarely drinking alcohol
Income < £5K	Living in urban areas	3+ adults in household	Living in inner city
Being aged 16-29	Income £5-15K	2 adults in household	Further education
In difficulty on income	3+ adults in household	Living in urban areas	Getting by on income
Further education	2 adults in household	Aged 16-29	Income £15-20K
Being aged 30-59	Secondary education	Income £5-15K	
Living in urban areas	Being aged 16-29	Living in rented property	
Income £5-15K	Further education	In bad health	
Being married	Rarely drinking alcohol	Further education	
Bad general health	Living in rented property	Smoker in household	
Being female	Income £15-20K	Being male	
Rarely drinking alcohol	Getting by on income		
Getting by on income	In bad health		
Neighbours go own way	Smoker in household		
House unoccupied 3+hours	Being female		
	Mixed neighbourhood		

Table 13: Demographic predictors of 'very worried' about personal crime (significant only)

Mugging	Attack	Rape	Insult
Secondary education	Being female	Being female	Being female
Being female	Being aged 16-29	Being aged 16-29	Income < £5K
Living in inner city	Secondary education	Secondary education	3+ adults in household
Further education	Income < £5K	Being aged 30-59	Living in inner city
Income <£5K	Living in inner city	Further education	Secondary education
3+ adults in household	Further education	Living in inner city	Income £5-15K
Rarely drinks alcohol	Income £5-15K	Income < £5K	Being aged 16-29
Income £5-15K	Being aged 30-29	Rarely drinking alcohol	Further education
Being aged 16-29	Rarely drinking alcohol	3+ children in household	In difficulty on income
In bad health	Income £15-20K	Income £15-20K	Rarely drinking alcohol
Living in urban areas	Being married	Getting by on income	Income £15-20K
House unoccupied <3 hours	Getting by on income		Getting by on income
	Living in urban areas		Living in urban areas

6.4.2.3 Predicting the 'not at all worried' (Tables 14 and 15)

The immediately noticeable difference between the models for the 'not at all worried' and those for the 'worried' and 'very worried' is the smaller number of significant predictors in the 'not at all' models. In addition, although one might expect the predictors of the 'not at all' to be the 'opposites' of the predictors for 'very worried' (so if being female is a strong predictor of being 'very worried' about rape, we might expect being male to be a strong predictor of being 'not at all worried'), this is not always the case.

For the property crimes, being 'not at all worried' is strongly associated with respondent characteristics (age, gender and marital status) and the area characteristics. For burglary, for example, being not married, older (60+) and living in rural areas are the strongest predictors of being 'not at all worried'. Similarly, for theft of a vehicle, living in rural areas and being male are the strongest predictors and for theft from the vehicle, being old (60+) and living in a close-knit neighbourhood are most strongly associated with being 'not at all worried'. For both crimes, being at home for most of the day is also a predictive factor.

Unlike the models for the 'very worried' about property crimes, income is generally not significantly associated with being 'not at all worried' about property crime. However, for card fraud, having a low household income is the strongest predictor of being 'not at all worried'. Interestingly, having a household income of between £15-20K is associated with both being 'very worried' and 'not at all worried'.

For the personal crimes, being not at all worried is also strongly associated with respondent characteristics (age and gender) and the area characteristics. Being male is the strongest predictor of being 'not at all worried' about personal crime and being old (60+) is a strong predictor of being 'not at all worried' about all personal crimes except mugging; for mugging, age is not a significant predictor of being 'not at all worried'. Living in rural areas is a strong predictor of being 'not at all worried' about mugging and attack, but not rape or insult.

Table 14: Demographic predictors of 'not at all worried' about property crime (significant only)

Burglary	Theft of vehicle	Theft from vehicle	Card fraud
Being not married	Living in rural areas	Being aged 60+	Income < £5K
Being aged 60+	Being male	Neighbours help each other	Income £5-15K
Living in rural areas	House unoccupied <3 hours	House unoccupied <3 hours	Being aged 60+
Living in rented property			Living in rented property
Being male			Smoker in household
Neighbours help each other			Income £15-20K
Mixed neighbourhood			House unoccupied <3 hours
Smoker in household			Rarely drinking alcohol

Table 15: Demographic predictors of 'not at all worried' about personal crime (significant only)

Mugging	Attack	Rape	Insult
Being male	Being male	Being male	Being male
Living in rural areas	Being aged 60+	Being aged 60+	Being aged 60+
Mixed neighbourhood	Living in rural areas	Being aged 30-59	Neighbours help each other
Neighbours help each other	Mixed neighbourhood	Being not married	In good health
Being not married	Neighbours help each other	House unoccupied <3 hours	Secondary education
Living in urban areas	Being aged 30-59	Mixed neighbourhood	Smoker in household
2 adults in household	Living in urban areas	Higher education	
Secondary education		Drink alcohol often	
Smoker in household			

6.5 Demographic predictors of victimisation

6.5.1 Bivariate relationships

6.5.1.1 Respondent demographics

Respondent demographics, particularly gender and age, were more strongly associated with personal crimes than with property crimes. Gender was related to victimisation of personal crime (mugging, attack and sexual attack) and card fraud only; women were more likely to be victims of mugging and sexual attack, but men were significantly more likely to be victims of attack and card fraud. The association between gender and victimisation was strongest for sexual attack. Age was significantly related to victimisation of all crimes, and, generally speaking, likelihood of victimisation

decreases with age. The association between age and victimisation was stronger for attack and sexual attack. Marital status was significantly related to all crimes except vehicle crimes. For burglary and personal crime, those who are not married are more likely to become victims. In contrast, for card fraud, the association was reversed, suggesting that victims of card fraud are more likely to be married.

6.5.1.2 Household demographics

Household characteristics were more strongly related to victimisation of personal crimes than of property crimes. Type of tenancy was significantly related to victimisation of all crimes. Generally speaking, those in rented accommodation were more likely to be victimised. However, for card fraud it was those who owned their property who were more likely to be victimised. For all crimes, those living in homes with no children were the least victimised. Association between victimisation and the number of children in the household was not significant for card fraud and mugging, but strong and significant for sexual attack and attack. The number of adults in the household was significantly related to all crimes except card fraud. For burglary and personal crime, those living alone were more likely to be victimised. For vehicle crimes (theft of and from), the chances of victimisation increased with the number of adults in the household.

6.5.1.3 Area demographics

The relationships between area characteristics and victimisation were of varying significance. For example, perception of the neighbourhood was significantly related to victimisation of all crimes except card fraud and theft of vehicle. Those who said that their neighbours 'go their own way' were more likely to be victims, and the association was stronger for attack and sexual attack. Area type, on the other hand, was significantly related to all crimes except for card fraud and sexual attack. Those living in urban centres and inner cities were more likely to be victims of crime, and the association was stronger for vehicle theft and burglary. However, none of the area characteristics were significantly related to card fraud victimisation.

6.5.1.4 Socio-economic characteristics

Socio-economic characteristics had mixed relationships with victimisation. Income proved to be more significant than education history, and both factors were most strongly associated with card fraud victimisation. Education was significantly

associated with victimisation of theft of a vehicle, card fraud and attack. For vehicle theft and attack, those who were more educated were less likely to become victims but for card fraud the reverse was true. The association was significantly stronger for card fraud.

Income was significantly related to all crimes except theft of a vehicle and mugging. For burglary, attack and sexual attack, association between income and victimisation was negative - those with lower household incomes were more likely to be victimised. For theft from a vehicle and card fraud, however, it was those on higher incomes who were significantly more likely to become victims. Income was more strongly associated with victimisation of card fraud and attack. Interestingly, the ability to manage on the household income was positively associated with victimisation of all crimes except card fraud. Those who were managing better on their income were generally less likely to become victims of crime, but it was those who were managing well and saving who were most likely to become victims of card fraud. The association was stronger for attack and sexual attack.

6.5.1.5 Health and lifestyle characteristics

Health and lifestyle factors were not strongly or consistently related to victimisation. Good general health, regular alcohol consumption, and being away from the house during the day were more strongly associated with card fraud victimisation than victimisation of the other crimes. Indeed, the healthy and active respondents were more likely to become victims of card fraud.

6.5.1.6 Summary

The modal victim of theft from a vehicle and card fraud is male, aged 30-59 and married. He lives with his partner in property which they own, in an urban area. He lives comfortably (and managing to save) on a higher income and is educated to Further level. He is healthy and leads an active lifestyle. The modal victim of attack is also male and aged 30-59 but is not married and lives alone in rented property. He is getting by on a reasonably high income and is educated to Further level. He is active and healthy and regularly smokes and consumes alcohol.

The modal victim of burglary is female, aged 30-59 and not married. She shares rented accommodation with a friend/housemate. She is managing well on a good income and is educated to Secondary level only.

The modal victim of sexual attack is also female, aged between 30-59 and not married. Living in rented accommodation with a child but no partner, she is getting by on a lower income. She is active and in good health and regularly smokes and consumes alcohol.

6.5.2 Logistic Regression models

As for the worry data, logistic regression was used to build models for victimisation of crimes, using the demographic variables as independent factors. The models are presented in Tables 16 and 17. Again, only significant predictors are shown in these tables and they are ordered by strength of association (the strongest predictor at the top).

For the property crimes, age (being younger) was consistently one of the strongest predictors of victimisation. Household characteristics and area factors were also significantly associated with property crime victimisation. For card fraud and burglary, living in rented accommodation was a strong predictor of victimisation and for vehicle crime the number of adults in the household (3+) and the area type (inner city/urban) were more strongly associated. It should be noted that for card fraud, only age (being younger) and living in rented accommodation were significantly associated with victimisation.

Income was associated with vehicle crime victimisation generally but there was an interesting difference between the models for theft of a vehicle and theft from a vehicle. For theft of a vehicle, having an income of less than £5K was a predictor of victimisation. In contrast, having a high income (£20K+) was associated with having had something stolen from a vehicle. This may be explained by the fact that those on lower incomes are less able to secure their vehicles, leaving them vulnerable to theft, whereas those on higher incomes, although more likely to have secure vehicles, are more likely to have desirable possessions (mobile phones, car stereos, valuables) inside the car.

For the personal crimes, gender and education were associated with victimisation, and for mugging and attack health/lifestyle factors were also significant. For mugging and sexual attack, being female was a strong predictor of victimisation, but for attack being male was associated with victimisation. Being young was a strong predictor of being a victim of attack and sexual attack, but age was not significantly associated with becoming a victim of mugging.

Table 16: Demographic predictors of property crime victimisation (significant only)

Burglary	Theft of vehicle	Theft from vehicle	Card Fraud
In difficulty on income	Age 16-29	Age 16-29	Age 16-29
Renting property	Age 30-59	Age 30-59	Age 30-59
Age 16-29	3+ adults in household	Income £20K+	Renting property
1 adult in household	Income <£5K	Living in inner city	
Neighbours go own way	Living in inner city	In difficulty on income	
Smoker in household	Living in urban area	3+ adults in household	
		Living in urban area	
		Further education	
		Renting property	
		House unoccupied 3+ hours	

Table 17: Demographic predictors of personal crime victimisation (significant only)

Mugging/robbery	Attack	Sexual attack
In bad health	Age 16-29	Age 16-29
Being female	Age 30-59	Being female
Higher education	Not married	Age 30-59
Not married	Being male	Higher education
Renting property	In difficulty on income	Further education
Smoker in household	1+ children in household	
	Smoker in household	
	In bad health	
	Further education	

6.6 Relationships between worry and victimisation

6.6.1 Is worry related to victimisation (individual crimes)?

For each individual crime, victims of each specific crime are significantly more likely to be worried about *that* crime. So, for example, victims of burglary are more likely to be 'very worried' about burglary than non-victims of burglary (42% compared with 18%). Similarly, non-victims are more likely to be 'not at all worried' about the crime (for burglary 9% of non-victims and 5% of victims are 'not at all worried'). In terms of strength of association, theft of a vehicle, card fraud and sexual attack victimisation are most strongly related to worry about that crime (see appendix 7).

Table 18: Distribution and dispersion of worry for victims and non-victims of each crime

	Victims					Non Victims				
	Mode	Mean	Variance	Skewness (SE)	Kurtosis (SE)	Mode	Mean	Variance	Skewness (SE)	Kurtosis (SE)
Burglary	1	1.9	.79	.72 (.11)	-.38 (.22)	2	2.3	.76	.56 (.02)	-.74 (.04)
Theft of vehicle	1	1.7	.72	1.03 (.13)	.29 (.26)	2	2.4	.84	.07 (.02)	-.84 (.04)
Theft from vehicle	2	2.1	.77	.41 (.07)	-.58 (.14)	3	2.5	.78	-.03 (.02)	-.73 (.04)
Card fraud	1	1.9	.80	.73 (.17)	-.41 (.34)	3	2.6	1.00	.04 (.03)	1.06 (.06)
Mugging	3	2.3	.89	.11 (.11)	-.99 (.23)	3	2.6	.88	-.21 (.02)	-.85 (.04)
Attack	3	2.5	.95	-.05 (.09)	-1.01 (.18)	3	2.6	.96	-.22 (.02)	-.96 (.04)
Sexual attack	1	2.2	1.15	.28 (.27)	-1.25 (.54)	4	2.9	1.28	-.60 (.02)	-1.10 (.04)

Looking at Table 18, we can see that the victims of card fraud have similar worry distributions to the victims of the other property crimes - they are more clustered around the top end of the worry scale and more likely to be very worried. Victims of mugging and attack are less worried than victims of property crime, differing little from their

non-victim counterparts in worry levels and variance across levels. Rape victims, however, are considerably more worried than non-victims but, interestingly, more dispersed across worry levels than the victims of the other crimes.

6.6.2 Are the victims of one crime more worried about other crimes?

If we compare victimisation with all worries (so, for example, are victims of burglary more worried about mugging?), three interesting relationships emerge which point towards a possible alliance between card fraud and rape/sexual attack:

- a) Card fraud victimisation is only significantly related to worry about card fraud itself and rape.
- b) Victimization of sexual attack and card fraud are not significantly related to worry about property crimes.
- c) Worry about card fraud is significantly related to victimisation of card fraud, theft from vehicle, mugging and attack.

In addition, there is a possible further relationship between the personal crimes and card fraud which, although not significant using the measures of association here, may prove to be interesting on further investigation. Card fraud victimisation, as we have seen, is not significantly related to worry about personal crimes (except rape). Although statistically insignificant, it is worth noting that the gamma values for worry about mugging and insult are positive, indicating a reduction in worry rather than an increase. Similarly, victimisation of attack and sexual attack are positively (although, again, not significantly) associated with worry about card fraud, indicating a decrease in worry.

These initial findings are interesting from two perspectives. Firstly, from the card fraud victims' perspective, property crime victimisation is generally not significantly related to worry about rape, so one needs to ask why the card fraud victims *are* more worried about rape. What makes card fraud victims more worried about rape than the victims of, say, burglary and vehicle crime? Similarly, why are the victims of card fraud and sexual attack not significantly more worried about property crime generally? Secondly, from the perspective of the card fraud worriers - why are victims of theft from a vehicle and mugging specifically more worried about card fraud? And why are the victims of attack significantly less worried about card fraud?

Logistic regression was again used to construct models of worry about crimes (worried vs. not worried) using the demographic variables and victimisation for all crimes as independent variables. The results (shown in Tables 19 and 20) show that previous victimisation (in the last year) is a strong predictor of worry about property crime but has no significant effect on worry about personal crime (except for being insulted which is strongly associated with being a victim of sexual attack). Indeed, for all four property crimes, being a victim of that crime is more strongly associated with worry than any other factor. For attack, mugging and rape, being female, young and living in the inner city remain the strongest predictors of worry.

The logistic regression models throw some light on the questions raised at the stage of bivariate analysis, in particular the curious relationship between card fraud victimisation and worry about rape. It seems that the victims of card fraud are more likely to be younger and many are female, and since it is those people who are most likely to be very worried about rape it is arguable that the relationship is simply a product of the effect of age and gender. If one looks at the model for worry about rape (which includes demographic and victimisation variables), victimisation does not feature as a significant predictor of worry; age and gender remain most greatly associated with worry. This suggests that it is, indeed, age and gender which links the card fraud victims with high levels of worry about rape. Therefore, based on this model at least, we cannot say that it is the victimisation that is associated with worry about card fraud, independent of all other factors.

The model for worry about card fraud (including victimisation) also raises an interesting issue. Being a victim of attack significantly reduces worry about card fraud, controlling for the effect of age and gender (young males are most likely to be victims of attack). So we cannot simply say that those who are not worried about card fraud are not worried simply by virtue of the fact that they are young males; similarly, we cannot say that non victims are more worried because they are female or older. It may be that there are other factors in play (not picked up in this model) but the important point is that this is a unique feature to the card fraud model.

Table 19: Predictors of worry about property crime (demographics and victimisation, significant only)

Burglary	Theft of vehicle	Theft from vehicle	Card Fraud
Burglary victim	Theft of vehicle victim	Theft of vehicle victim	Card fraud victim
Married/de facto	Theft from vehicle victim	Theft from vehicle victim	Not a victim of attack
Income <£5K	Living in inner city	Income <£5K	Married/de facto
Living in inner city	Income <£5K	Living in inner city	Owning property
Being aged 16-29	Married/de facto	Being aged 16-29	
Being aged 30-59	Income £15K - 20K	Being aged 30-59	
Owning property	Income £5K -15K	Living in urban area	
Income £5K-15K	Being aged 16-29	Income £5K-15K	
Secondary education	Living in urban area	No children in household	
Further education	Secondary education	Smoker in household	
No smoker in household	Being female	Income £15K - 20K	
	Smoker in household	Further education	
	Rarely drinking alcohol		

Table 20: Predictors of worry about personal crime (demographic and victimisation) (significant only)

Mugging	Attack	Rape	Insult
Being female	Being female	Being female	Sexual attack victim
Living in inner city	Income < £5K	Being aged 16-29	Being female
Income <£5K	Living in inner city	Being aged 30-59	Being aged 16-29
In difficulty on income	Further education	In difficulty on income	Income <£5K
Getting by on income	In difficulty on income	Living in inner city	Living in inner city
3+ adults in household	Secondary education	Secondary education	Being aged 30-59
Living in urban area	Being aged 16-29	Getting by on income	Being in bad health
Further education	Getting by on income	Income £5K - 15K	Income £5K -15K
Income £15K - 20K	3+ adults in household	Further education	Further education
Income £5K -15K	Income £5K -15K	Income £15K - 20K	Getting by on income
Rarely drinking alcohol	Being aged 30-59		Living in urban areas
No children in household	Income £15K - 20K		
Secondary education	Neighbours go own way		

Conclusion

To summarise, then, the feasibility test for the introduction of card fraud to the BCS was a success. Perhaps the most interesting theme to emerge from the data was the fact that card fraud does seem to behave differently to the other BCS crimes. Worry about card fraud has weak associations with the other worries and seems to have different relationships with the demographic variables to the other worries. Similarly, the victims of card fraud are quite different in terms of their demographic characteristics and their worries about crime to the victims of other crimes. The implications of the results presented in this chapter are discussed in chapter seven where we consider what the findings tell us about both the fear of crime and plastic card fraud itself.

7. Discussion and conclusions: What does plastic card fraud tell us about the fear of crime?

Introduction

In this chapter, I take a step forward and consider what plastic card fraud might actually tell us about the fear of crime. I begin by summarising the results presented in the previous chapter, emphasising in particular the findings relating to card fraud. I conclude that that incorporating card fraud into an understanding of worry about crime entails a reconsideration of the central question of this thesis: *what makes one crime different from another?* What has become clear is that card fraud does not behave like other property crimes. It is clearly different in terms of its relationships with other worries, experience of crime and demographic factors. This suggests that there is something different about card fraud: something more complex which forces us to look beyond the nature of the act, the contact with the perpetrator and the nature of the harm.

In the next section I consider how the findings relating to card fraud might inform a broader theoretical framework for the fear of crime. I begin by considering previous explanatory models which have highlighted the importance of vulnerability. In the discussion which follows, I suggest that the key issue which is yet to be considered in depth is that of seriousness; what makes one crime more serious than another crime in the eyes of the potential victim?

This leads me to ask what has become exposed and violated in the event of a criminal victimisation? I will argue that crime is essentially a violation of autonomy. Working from the perspective that it is an individual's autonomy which may be exposed to harm and thus is in need of preservation, I intend to illustrate that vulnerability can be understood within a broader framework of well-being.

I conclude by returning to the question of what card fraud can tell us about the fear of crime. Using card fraud as an explanatory tool, I illustrate how we can move towards understanding fear by interpreting it within the framework of autonomy. I have shown that people *do* worry about card fraud and, in this final chapter, I attempt to provide an

explanation of that worry. I intend to show that the most compelling explanation is the suggestion that people are actually worried about having their information ‘stolen’ or misused. I analyse the value which is attached to information and suggest that information may be valued intrinsically as part of an individual’s self perception of identity. Thus, personal information is a more important element of an individual’s autonomy and well being than one might think.

Primarily, the anchor and focus of this thesis is the fear of crime, or more specifically the challenge of measurement of the phenomenon. At the end of this final chapter, on reflection, it might appear that the thesis is about a number of other things – white collar crime, fraud, technological crimes, crime surveys and even jurisprudence. The final conclusion is intended to pull all of the threads together and clearly state the concluding thesis.

7.1 Summary and discussion of major findings

7.1.1 Testing the hypotheses

In chapter five, I stated that card fraud was similar to the other property crimes and thus should be included with them in the analysis and testing of hypotheses. However, when one works through the sets of hypotheses, it becomes clear that it is often not meaningful to include card fraud with the other property crimes.

Hypotheses Set 1: Testing feasibility

- 1.1 Inadequate numbers of respondents report being a victim of crime in the last year.**
- 1.2 Respondents all fall into the non-worried categories.**

Adequate numbers of respondents reported experience of card fraud and respondents were distributed across all worry levels (rather than all falling into the not worried categories). Therefore we can reject null hypotheses 1.1 and 1.2.

Hypotheses Set 2: Comparing worry across crimes

- 2.1 There is no variation in worry distribution across specific crimes.**
- 2.2 Worry about property crime is no greater than worry about personal crime.**

Worry levels for the property crimes are distributed differently than worry levels for the personal crimes, for the property crimes more respondents are concentrated in the middle two categories (fairly and not very worried) and for the personal crimes more respondents are not worried (not very or not at all). Therefore we can reject the null hypotheses 2.1 and 2.2. However, although the distribution of respondents for worry about card fraud is shaped like the other property crimes, a larger proportion of respondents are not worried about card fraud.

Hypotheses Set 3: Association between crimes

- 3.1 Worry levels for individual crimes are not interrelated.**
- 3.2 Worry about property crime is not associated with worry about personal crime.**

Worries are inter-related but, although significant, the association between worries is not very strong. Worries about personal crimes have stronger associations with other crimes. Therefore, we can reject the null hypotheses 3.1 and 3.2. However, worry about card fraud has a particularly weak association with other crimes.

Hypotheses Set 4: Demographic predictors of worry and victimisation

4.1 Worry is not related to demographic variables.

4.2 Victimization is not related to demographic variables

Worry is related to demographic variables but these variables alone do not explain worry. For worry about property crimes, age, area and income are stronger predictors; for the personal crimes, age and area are also important factors but gender is stronger. Therefore we can reject the null hypothesis 4.1. However, for worry about card fraud, demographic factors, although related to worry, were not as predictive of worry as for the other crimes. The model for worry about card fraud was unique in terms of size and content.

Experience of crime was also found to be related to demographic factors, although, again, victimisation cannot be explained by demographic variables alone. For the property crimes, age and the household characteristics were stronger predictors of victimisation. For the personal crimes, age, gender and education were more important factors. Again, card fraud was distinguishable from the other crimes. For card fraud only being younger and living in rented property were significant predictors of victimisation.

Hypotheses set 5: The relationship between worry and victimisation

5.1 Worry is not related to victimisation (all crimes).

5.2 Personal crime victimisation does not increase worry about personal crime.

5.3 Personal crime victimisation does not increase worry about property crime.

5.4 Property crime victimisation does not increase worry about personal crime.

5.5 Property crime victimisation does not increase worry about property crime.

For individual crimes, worry was related to victimisation of that crime. Thus, we can reject null hypotheses 5.1.

Victims of personal crime are significantly more worried about personal crime than non-victims (so, we can also reject null hypothesis 5.2). However, personal crime

victimisation is not necessarily related to worry about property crime; victims of mugging and attack are more worried about property crimes, but the victims of sexual attack are not significantly more worried. Similarly, the victims of property crime are significantly more worried about mugging and attack but not about rape and being insulted. Thus we cannot reject the null hypotheses 5.3 and 5.4. Finally, we can only reject null hypothesis 5.5 if card fraud is excluded from our generalisations; victims of property crimes are more worried about property crime than non-victims but the victims of card fraud are only significantly more worried about card fraud and rape.

7.1.2 Discussion

The major finding is that plastic card has performed well as a BCS crime. In short, we have enough victims and enough worriers to make meaningful comparisons with the other crimes. The data allows us to dispel earlier fears that questions on card fraud would tell us nothing substantial about the fear of crime.

In chapter four, I discussed the problems surrounding the measurement of plastic card fraud. It became clear that the main source of data is industry administered and this was deemed problematic for two main reasons. Firstly, the industry focuses on a measure of losses in monetary terms. This fails to give us an insight into magnitude of the fraud problem, obscuring useful data such as the number of frauds carried out, the number of victims (and repeat victimisations) and the scale of the losses to individuals. Secondly, we are forced to rely upon the various banks and financial institutions to provide accurate information about those losses. In publicly admitting a vulnerability to fraudsters, these institutions run the real risk of losing customers. Thus, although industry data provides a useful picture of the plastic card market, it does not give us reliable information about the nature and extent of card related crime.

The discussion also illustrates that crime based statistics, in the current form of Recorded Crime Statistics, serve only to muddy the waters further. A combination of recent changes in counting rules and the continued disparity of counting procedures across individual forces hinder any productive interpretation of card fraud data and trends. Thus, I concluded that chapter with the argument that data from a victimisation survey may go some of the way towards providing an accurate picture of the extent of card fraud.

At this point, then, it is appropriate to reflect on this argument in the light of the findings from the 2000 BCS. The most striking finding is simply the number of card fraud victims. As we have seen in chapter six, 2% of respondents reported being a victim of card fraud in the last 12 months. That figure takes on a more significant meaning when one interprets it in the wider context. Firstly, if one compares that 2% with victimisation rates for other crimes, we see that the same proportion of the sample reported being a victim of vehicle theft and mugging/robbery. Both crimes feature highly in crime prevention priorities and this suggests that card fraud victimisation may be a more serious ‘crime problem’ than previously suspected. Consequently, that card fraud victimisation has been found to be so prevalent, we may reconsider the overall picture of the extent of card fraud. Whilst only 0.2% of total card turnover is lost to fraud each year, and only 3% of offences recorded by the police are cheque and credit card related, the fact that 2% of the BCS sample reported victimisation hints at a considerable ‘dark figure’ of card fraud. The implications of this suggestion are potentially far reaching.

In addition, the data allows us to say a little about the characteristics of card holders and non card holders. Card ownership is generally a young-middle aged, middle-upper class characteristic but, importantly, is not exclusively so. Focusing on these characteristics we can draw parallels with the typologies of card user discussed in chapter four, distinguishing between those who use cards for borrowing and those who use them for convenience/financial management. We must be careful, however, not to draw too many conclusions from these findings as we have no way of distinguishing between those who use credit cards, debit cards or both. I suggest, therefore, that future questions on card fraud should incorporate detailed questions about card type ownership. Then, it may be possible to cross match the card user typologies with worry levels.

7.1.2.1 Worry about card fraud compared with other crimes

In terms of distribution, worry levels for card fraud were very similar to worry about the other property crimes. Very worried levels for card fraud were surprisingly high and the wide dispersion of the respondents suggested an interesting and quite balanced mix of worriers and non worriers. The implications of this should not be overlooked. From

the perspective of fear of crime reduction (be it prevention or cure), it is not appropriate to treat card fraud like its property crime counterparts. For property crimes, the majority of respondents have moderate worries, sitting on the fence between worried and not worried, and of the remainder more are very worried. In contrast, for personal crimes, fewer respondents are in the middle worry categories, and more are not at all worried. Thus, it may be possible to develop strategies for reducing a more common fear of property crime and a less common (and thus quite different) fear of personal crime. Indeed, in the case of personal crimes, we might learn just as much about reducing fear from those who are not worried. To include card fraud with other property crimes in such an approach, focusing mainly on the worried respondents, would fail to take into account the relatively high proportion of the not at all worried.

7.1.2.2 Worry associated with other crimes

Whilst worry about card fraud had many similarities with the other crimes at a descriptive level, it has been shown to have a weak association with the other worries. One might expect worries about different crimes to be associated with one another, for example it would not be unreasonable to expect those who are particularly worried about mugging to also be worried about attack. Indeed, the results show that the personal crime worries were more strongly associated with all other crimes; not only were personal crimes more strongly *inter-related* than property crimes, but they were also found to be stronger predictors of worry about property crime than property crime worriers were of personal crime worries. This suggests that those who are worried about personal crime are more likely to be worried about several crimes, or even crime generally. In contrast, those who are worried about property crime are less likely to have multiple worries.

Worry about card fraud is generally not strongly associated with other worries but does have stronger associations with worry about mugging and attack. Of particular significance is the fact that worry about card fraud has the weakest total association with other worries. This suggests that worry about card fraud is quite independent from the other worries and may have different causes and correlates. Again, in order to develop an accurate understanding of worry or fear generally, we should adopt a crime specific approach, questioning why some worries are associated and why some are not.

7.1.2.3 Demographic predictors of worry

The relationships between worry about card fraud and the demographic characteristics raise a number of important points.

Firstly, the area characteristics were not strongly related to worry about card fraud. In contrast, area characteristics were strongly related to worry about other crimes (more strongly so for the property crimes). So, we might say that worry about crime is characteristic of those living in towns or cities, but card fraud gives us a quite different perspective. At bivariate and multivariate levels, having a high income, owning property and being married were strong predictors of worry about card fraud.

Secondly, socio-economic factors seem to have an interesting effect on worry about card fraud. It is not simply the well off who are worried. Whilst those on higher incomes are more worried, those who perceive themselves to be managing well (and saving) on their income are less likely to be 'very worried'. It seems that those who are 'getting by' on their income are significantly more likely to be worried. Moreover, having an income of between £15-20K is a significant predictor of being both 'very' and 'not at all' worried. It seems that there is a curious relationship between income and worry about card fraud and it would be interesting to know more about the finances of the worriers. Future research should explore this issue further.

Finally, then, perhaps the most interesting finding at the multivariate stage of analysis is the difference between the worry models. The models for being 'worried' and 'very worried' about card fraud contain fewer significant factors than for the other crimes, suggesting that one cannot predict worry about card fraud using the traditional demographic factors. In chapter one I discussed the often unconvincing evidence of covariates of fear, and highlighted a number of controversial findings relating to many of the explanatory variables. The findings here add another dimension to the discussion, suggesting that for card fraud we may need to look beyond simple personal, household and area characteristics for an explanation of fear. Again, we must conclude that a study of fear should be crime specific.

7.1.2.4 Victims

The results also tell us something about the victims of card fraud and how they compare with the victims of other crimes. In terms of demographics, the victims of card fraud are different in several ways.

Household and area characteristics are not significantly related to card fraud victimisation. More important are the respondent's personal characteristics, socio-economic status and health and lifestyle. In contrast to the victims of the other crimes, card fraud victims are more likely to be male, unmarried, well educated, well off and healthy and active. However, we must keep in mind the characteristics of the card holders themselves - we have seen that they tend to be younger, middle-upper class and often married females, but not exclusively so. It is significant, therefore, that the multivariate model for card fraud victimisation contains only two significant factors - being young and living in rented property, when all other variables are controlled for. In terms of crime prevention, it seems that card fraudsters do not discriminate against certain types or individuals. Accordingly, all card users are at risk of victimisation. Crucial, then, must be the element of exposure. Risk is likely to be increased by frequent or careless card use and these are the features of vulnerability, rather than, say, physical ability or frailty.

The implications of this become evident when we consider the relationships between worry and victimisation. The victims of card fraud are considerably more worried about card fraud than non victims, suggesting that direct experience of the crime has a significant effect on the victim. Indeed, when victimisation is included in the worry model, it is the most significant predictor, controlling for all other variables. Why 'not being a victim of attack' features as a strong predictor remains unclear.

We must be careful to untangle the appearance of a relationship between card fraud and the personal crimes (especially rape). Of particular interest is the finding that card fraud victims are significantly more worried about rape (and no other crime, except card fraud). Looking at the other crimes, it is only the victims of personal crimes who are significantly more worried about rape. Generally speaking, the victims of personal crimes are young and female; for attack the victims are more likely to be male and the association with worry about rape is less strong. Age, of course, has been shown to be a

strong predictor of card fraud victimisation. Those who are worried about rape are significantly more likely to be female and young and, when victimisation of all crimes is entered into the worry about rape model, these factors remain strong and card fraud victimisation is not significant. Worry about rape, then, is associated with being young and female, rather than being a victim of card fraud.

The victims of card fraud and sexual attack are the only victims who are not significantly more worried about property crimes. In both cases, the victims are more likely to be young and, generally speaking, age, although a significant predictor, is a less important predictor of worry about property crime than income and area characteristics.

7.2 Reconsidering the fear of crime

7.2.1 The conceptual development of worry about property crime.

We can conclude that incorporating card fraud into an understanding of worry about crime involves a great deal more thought than simply adding it to the list of existing crimes. If we recall, in chapter five, I attempted to identify *what makes one crime different from another?* The natural way to proceed, I argued, was to separate property crimes from personal crimes, and identify the distinguishing features.

I discussed how property crimes are different to personal crimes in terms of the nature of the act itself (what is harmed?), the intention of the perpetrator (relating to the nature of the contact with the victim) and the nature of the harm (the effect of the crime on the victim). A victim's experience of property crime is likely to be quite different from an experience of personal crime; contact with the perpetrator is not an essential feature and the post-crime implications are associated with the process of replacing the property. In contrast, the victim of personal crime suffers personal harm that is inflicted by the perpetrator directly and is likely to suffer physical and psychological effects as a result of that act. According to this framework, card fraud can be categorised as a property crime.

I moved on to explore the differences between fear of property crime and fear of personal crime. Previous work has shown that property crime evokes different reactions

than personal crime and I chose to focus on the following four propositions which formed an analytical framework:

1. Property crime evokes different reactions than does personal crime (LaGrange and Ferraro 1987).
2. Property crime is more common than personal crime. Thus people are more worried about becoming victims of property crime (Skogan 1987).
3. Personal crime victimisation increases the fear of personal and property crime, but property crime victimisation only increases the fear of property crime (Rountree 1998).
4. The most serious crimes do not necessarily generate the highest fear (LaGrange and Ferraro 1987).

What has become clear is that card fraud does not behave like the other property crimes. It is clearly different in terms of its relationships with other worries, experience of crime and demographic factors. This suggests that there is something different about card fraud - something more complex than simply the nature of the act, the contact with the perpetrator and the nature of the harm. In this sense, card fraud brings a new perspective to the fear of crime. The interesting question which arises is: *why do some people worry about card fraud?* We have already seen (in chapter four) that individuals rarely suffer financial loss in the event of fraud, it is usually the retailer or the financial institution which bears the risk. It seems that there are two possible explanations for this apparent paradox: either cardholders are under the misconception that they, as individuals, are liable for the cost of the fraud, or they are worried about some other aspect of the crime, something beyond the simple loss of money.

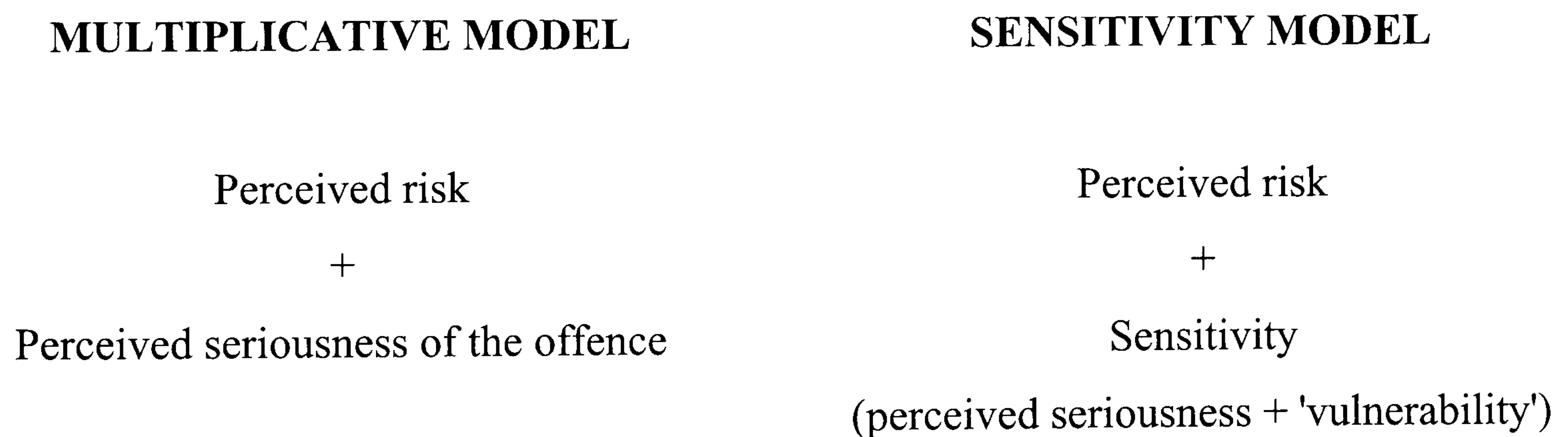
Card fraud, then, gives us a different dimension to the fear of crime, and this challenges us to think further about the complex relationships between explanatory variables and dimensions of fear. As we have seen in chapter one, a variety of explanatory frameworks have been imposed on the fear of crime in the past. The relationships between fear and the various demographic variables (at individual, area and societal levels) remain, at best, uncertain and only a few commentators have channelled their efforts into a developing a broader explanatory framework which allows for variance between individuals. In the next section I consider how the findings relating to card fraud might inform a broader theoretical framework.

7.2.2 Towards a broader theoretical framework: fear, risk and vulnerability

'The task for research is now to specify more clearly the determinants of perceived risk, crime seriousness and sensitivity' (Hale 1996, p. 110)

Warr (1984, 1985, 1987) proposes two different models of fear which he argues are closely related but built on two different units of analysis - crimes and individuals. In the first, the Multiplicative Model, fear is based on two perceptual characteristics of the offence (perceived seriousness and perceived risk). An offence may be viewed as both serious and likely. Fear, then, is a multiplicative function of the two. The second model, the Sensitivity Model, focuses on the individual - on perceived risk, and sensitivity to that risk. Sensitivity to risk, according to Warr (1984, 1987), consists of two elements: the perceived seriousness of the offence, and vulnerability. He argues that sensitivity is the key to understanding why individuals from two groups will not display equal fear when confronted with equal levels of apparent risk.

Figure 1: Warr's Multiplicative and Sensitivity Models (Warr 1984, 1985, 1987).



Warr himself acknowledges the overlap between the two:

'The reader may now see a fundamental link between the multiplicative and sensitivity models of fear. Under the multiplicative model, the fear associated with any offense is determined by the perceived risk and perceived seriousness of that offense. Under the sensitivity model, fear is determined by the perceived risk and the sensitivity to risk for that offense. Holding age and sex constant, however, the major determinant of

sensitivity to risk for any offense is the perceived seriousness of that offense. Hence the models can be reduced to the same variables' (Warr 1985, p. 244).

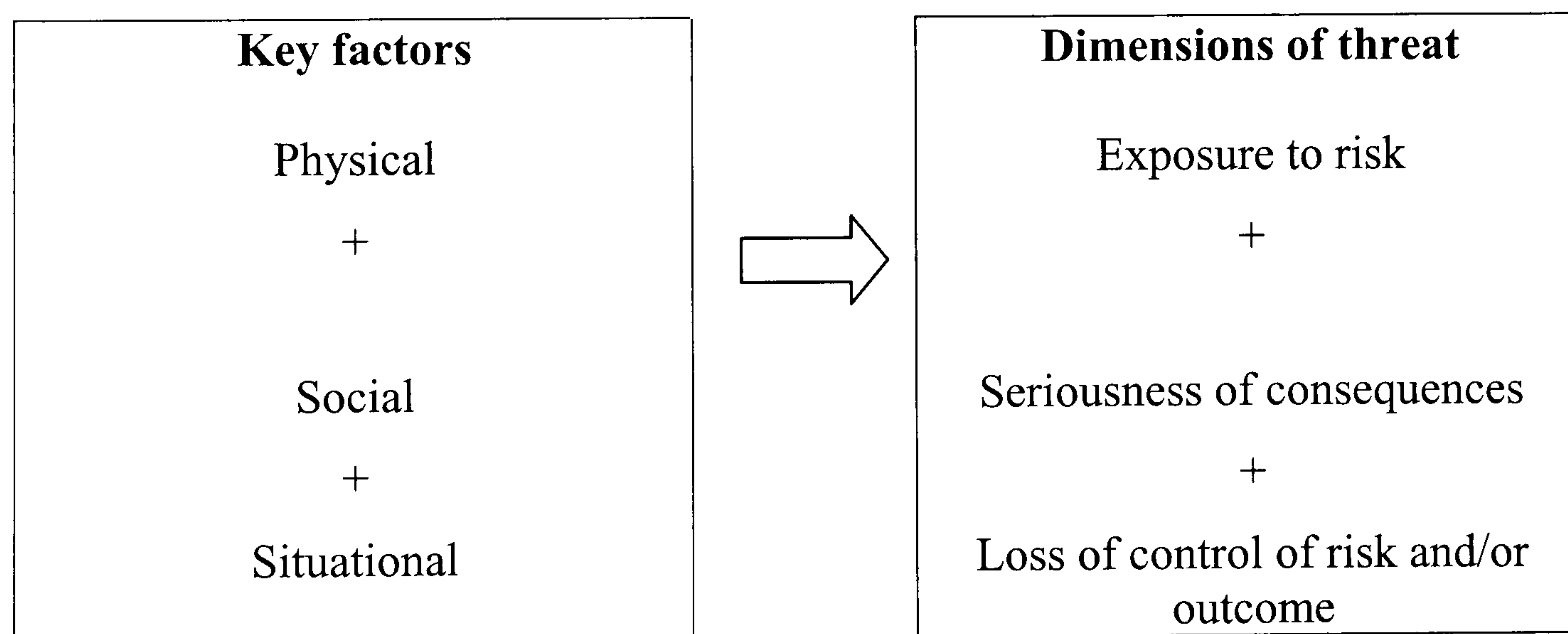
However, he maintains that a distinction between the two is useful. Both models incorporate differences in fear from one crime to another, but the sensitivity model allows one to go a step further and analyse differences in fear between groups (e.g. men and women). Thus, the sensitivity model is a more general and united framework for analysing the fear of victimisation and the multiplicative model is useful when you simply want to understand why 'offence x is feared more than offence y in city z' (Warr 1987, p. 42). Sensitivity explains the relationship between fear and risk, and so behaves as a variable in its own right. But he fails to make a convincing attempt to explain in detail what sensitivity is constructed of, and how it can be measured. It seems that central to the sensitivity model is the concept of vulnerability but there are few clues as to what that might mean.

Indeed, the concept of vulnerability is one of those terms which has been bobbing at the surface of the pool of explanations for fear for many years, yet no one has really fished it out and had a good look. Hale posits that, '[a]ny model trying to explain fear will include some notion of vulnerability' (Hale 1996, p. 97). However, at a conceptual level vulnerability has not been convincingly developed beyond that level of a 'notion'. In most existing research, "vulnerability" has been measured through sex and age as proxy variables, with women and the elderly being deemed the most vulnerable groups. A few studies have also addressed more specifically the respondent's ability to flee or resist in the case of an attack and this ability has been used as an indicator of vulnerability (Killias 1991).

Undoubtedly, it is Killias who has ventured furthest in the development of an analytical framework of vulnerability. He argues that vulnerability is a product of three factors; exposure to non-negligible risk, the seriousness of the consequences of victimisation, and the perceived ability to control or protect oneself (Killias 1990). Each of these dimensions is related to a combination of physical, social and situational factors. Killias' model shares the two essential features of Warr's Sensitivity Model (how likely a victimisation is and how bad/serious it would be). However, Killias' third factor, control, is the important distinction.

Unfortunately, the weakness in Killias' model is that it fails to unpack the relationship between control and vulnerability. He chooses to focus on measures of an individual's ability to escape or resist a physical attack, identifying a person's size (weight and height), health status, household and area characteristics, self confidence and likely vulnerability in the case of a hypothetical attack as key variables. Control is assumed to be the ability to protect oneself from physical harm; it assumes that it is only the threat of physical harm which makes a person feel vulnerable. If vulnerability is, as Killias himself argues, the key to understanding disproportionate fear levels among different groups, to exclude property crime from the analytic framework of vulnerability is a nonsense. For example, it may be appropriate to focus on physical harm in the context of explaining women's disproportionate fear of rape but not in the context of explaining men's higher fear of vehicle theft. Control in the first of these contexts may be construed as being the ability to run away or fight back in the event of a physical attack. But in the second, the ability to control victimisation, may rest more heavily on the means to insure and secure the vehicle. It would be wrong to assume that vulnerability amounted to the same thing in both circumstances.

Figure 2: Killias' model of vulnerability.



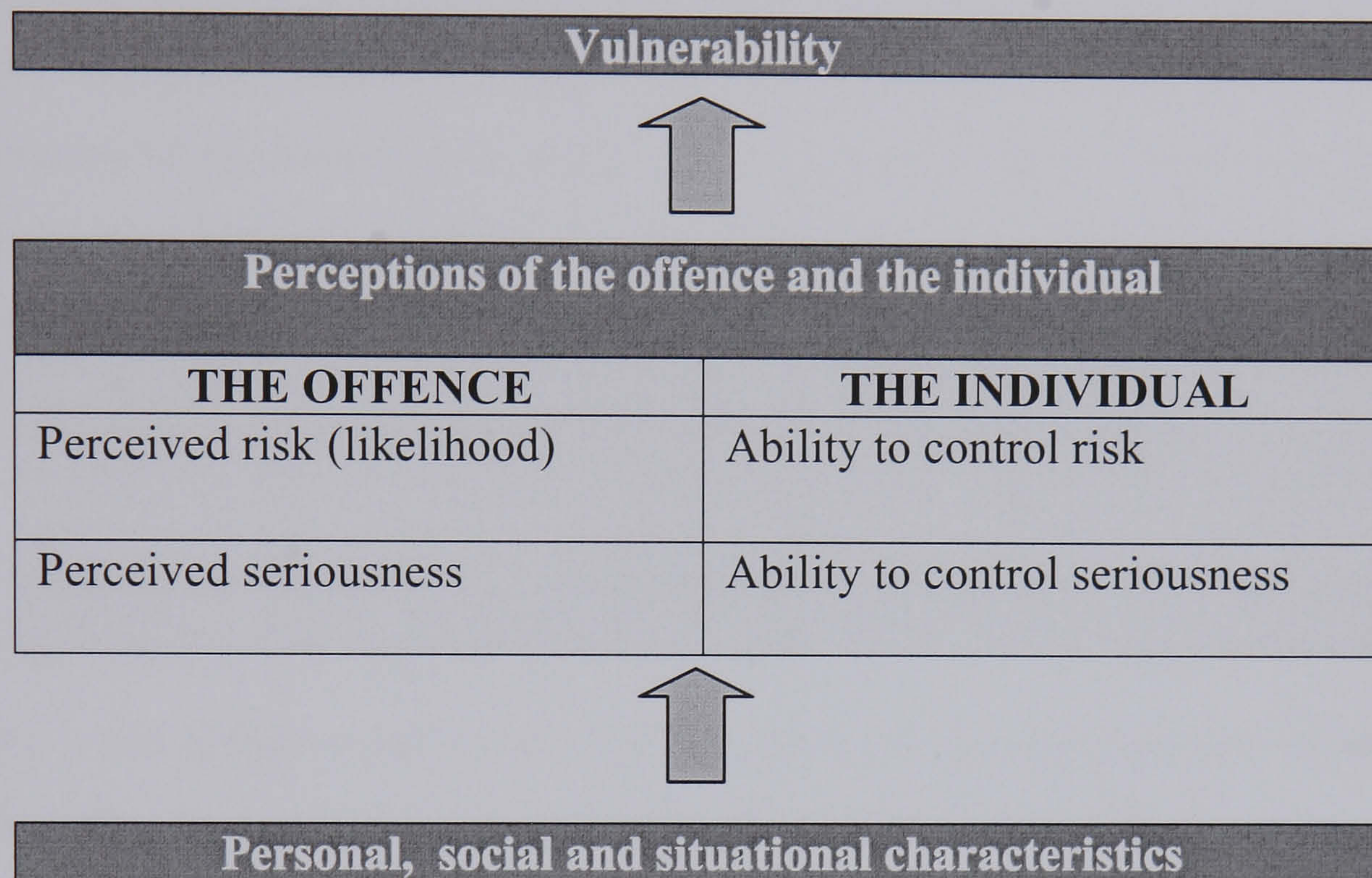
7.2.3 The emergence of a new model

Warr, then, produces a well structured model of fear, but it is incomplete in that it fails to define what is meant by vulnerability. Killias' attempt to fill the gap, whilst commendable, ultimately falls short because he does not consider exactly what it is we

wish to control. An attempt was made in this study to develop a new model of fear incorporating the strengths of the models by:

- a) using the crime specific approach of Warr's Sensitivity Model
- b) using Killias' concept of vulnerability, expanding on the idea of control.

Figure 3: Emergent model of fear



The model shown in Figure 3 illustrates how the two models fit together to form a broader framework based on vulnerability. Elements from both models are clearly identifiable but are combined to form a model which is both offence specific, and focused on the individual's ability to control. An individual's vulnerability consists of two separate (but inextricably linked) elements - the perception of both him/herself, and of the offence. Both perceptions are based on two further elements - risk and seriousness. Risk can be understood in this context to simply mean the perceived likelihood of the offence occurring. What becomes clear is that, when stripped down to the nuts and bolts, our problem lies in the fact that the meaning of 'seriousness' is unclear.

Pursuit of this idea of 'seriousness' eventually leads us back to the question of *what makes one crime different from another?* In order to provide an answer, we must consider the following question: In the event of a criminal victimisation, what has become exposed and violated? In this section I will argue that crime is essentially a

violation of autonomy. Working from the perspective that it is an individual's autonomy which may be exposed to harm and thus is in need of preservation, I intend to illustrate that vulnerability can be understood within a broader framework of well-being.

Much of the work which has been done on the concept of autonomy has been in the field of philosophy. Thus it is necessary to begin construction of an analytical framework at a philosophical level and build up the framework in the context of the fear of crime at the next stage. At the philosophical level, I draw from the work of Alan Gewirth⁶⁰. Primarily, Gewirth is concerned with the epistemological and philosophical debates surrounding theories of morality and ethics and I will not be providing an in depth analysis of his work. Indeed, I do not even strive to reach out to the boundaries of his extensive enterprise. Rather, I intend to focus on his conceptualisation of autonomy and well-being and develop these ideas in the context of fear of crime.

Our starting point must surely be a definition of autonomy. Literally, 'autonomy' means being a law (*nomos*) unto oneself (*auto*), or setting one's law for oneself. For Gewirth, autonomy is **the ability to act independently towards the achievement of self selected goals**. Thus it is the notion of *action* which is central to his theory.

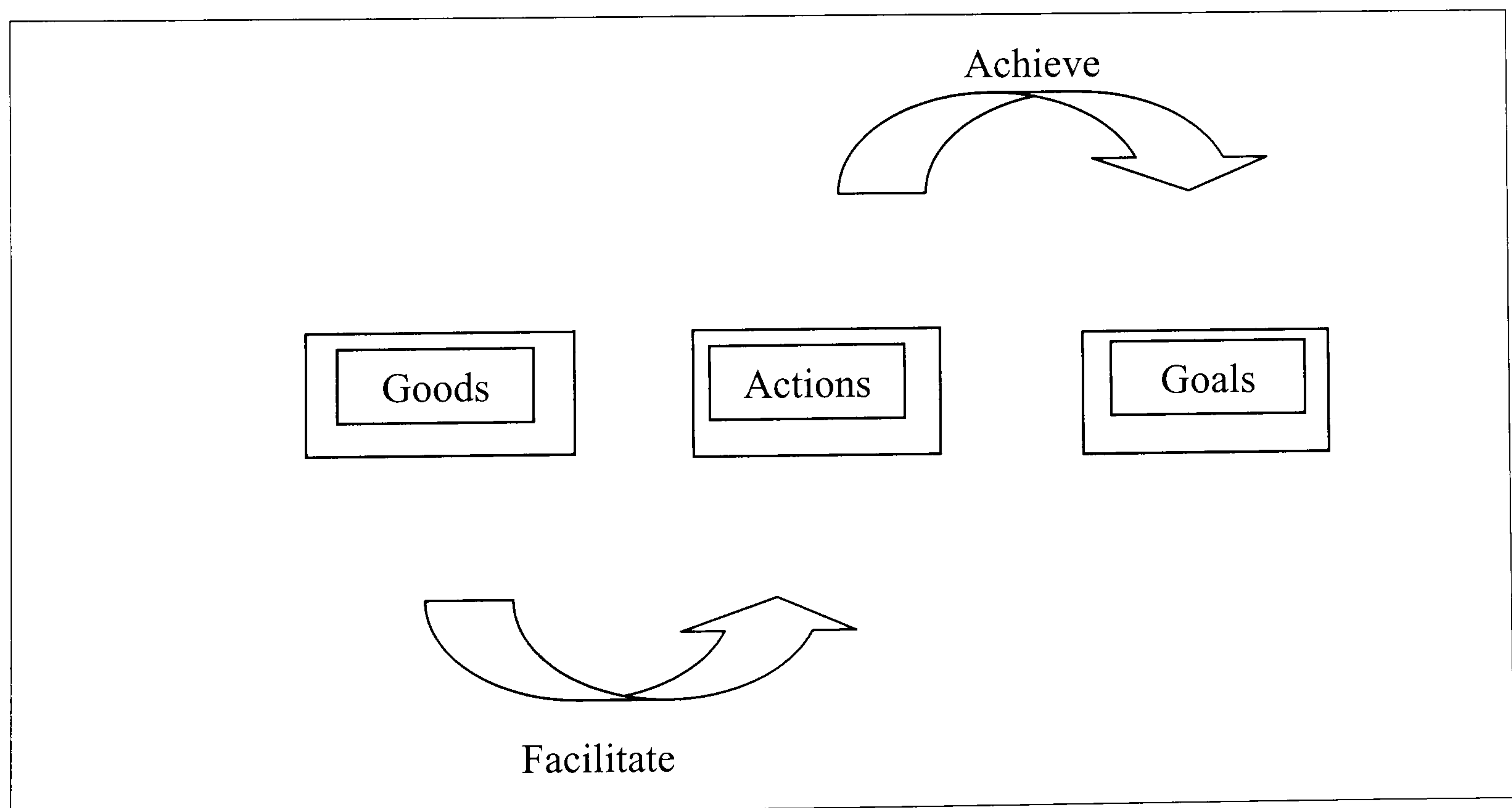


Figure 4: Gewirth's model of Autonomy

⁶⁰ Alan Gewirth is a Professor of Philosophy at the University of Chicago

7.2.3.1 The importance of goals

Gewirth emphasises that an individual can only be said to be autonomous if s/he is able to act in order to attain something s/he regards as 'good'⁶¹. Crucially, autonomous action must be

- a) purposeful,
- b) voluntary and
- c) valuational.

So, each individual constructs an intricate web of goals or purposes (which apply to the immediate or distant future) and attaches a different level of value to each one. It follows, then, that different individuals have different priorities and different value systems. Any threat to purposiveness or freedom (a and b above), then, is a threat to an individual's control over his/her own autonomy,

'[h]e not only controls his behaviour, but he wants to control it with a view to such attainment, so that any threat to this control is perceived as a threat to his getting what he regards as good' (Gewirth 1978 p. 52).

So, it could be argued that, in the event of a criminal victimisation, it is an individual's autonomy that is violated. Different sorts of violation will be considered more or less severe, according to the value attached to the purposive action by the individual. The value will depend on two things: the **value of the goal** and the **nature of the action**.

7.2.3.2 Value of the goal

How serious a violation of autonomy is will depend upon the value attached to the ultimate goal or purpose of an individual's acts. According to Gewirth, goals must be worth pursuing and worth constitutes a 'valuing' on the part of the individual. So, if you choose to do an action, you attach value to attaining it by applying whatever criteria you think appropriate. These criteria may be wide-ranging, from momentarily gratifying reasons to more extensive and long-range social goals. Importantly, goals can be either wanting something for its own sake (intrinsic) or wanting it as a means to getting something else (instrumental).

⁶¹ Even if the 'good' is merely the performance of the task

The achievement of goals is facilitated by conditions which Gewirth calls 'goods'. 'Goods' in this sense are not necessarily items of tangible property but are generic features which characterise or facilitate autonomous action. So, for example, membership of my local video club is a 'good' - I could not rent videos if I were not a member. Similarly, I want to finish my thesis as soon as possible but I cannot write while I am asleep, so being awake is a 'good' for my goal.

Gewirth argues that there are three types of goods which are all necessarily involved in all purposive action;

1. Basic goods
2. Nonsubtractive goods
3. Additive goods

Basic goods are the preconditions of purposive action and consist of those things necessary to maintain physical integrity, mental 'equilibrium' and a general feeling of confidence as to the possibility of attaining one's goals. So, basic goods could be items such as food, clothing and shelter or conditions such as knowing how to cook or the ability to communicate with other people. Non-subtractive goods are goods which you already have and regard as good, thus you wish to retain them (to lose them is to have one's level of purpose-fulfilment lowered). For example, a man who cycles to work everyday so as to avoid traffic congestion (and get to work quicker) is going to have his level of purpose fulfilment lowered if his bike is stolen. In contrast, additive goods are gained when one acts for a purpose and gains something which one considers to be good (thus one increases one's level of purpose-fulfilment). So, someone who opens a credit card account to help pay for Christmas presents gains an additive good. As Beyleveld and Brownsword (1994) note, basic goods take precedence over non-subtractive goods which take precedence over additive goods.

Each of the three types is involved in the value judgements that express one's view of the goodness of the purpose for which one acts. Gewirth argues that when purposiveness is extended to the general conditions required for success in achieving one's purposes, it becomes a more extensive condition which he calls 'well-being',

'Viewed from the standpoint of action, then, well-being consists in having the various substantive conditions and abilities ranging from life and physical integrity to self-esteem and education, that are required if a person is to act either at all or with general chances of success in achieving the purposes for which he acts.' (Gewirth 1983, p. 15)

So, in its basic form, autonomy is simply the ability to act independently towards the achievement of self selected goals. Any threat to an individual's ability to control his/her autonomy is likely to result in exposure to some degree. As soon as one begins to consider what actually happens in the event of a violation (what harm is done and what effect it has) one must broaden the perspective to encompass a sense of well-being. The seriousness of the harm and the seriousness of its consequences can only be assessed in the context of the value attached to the goals and actions. Some goals will be more essential/valuable than others and thus violation of autonomy will be deemed to be more serious.

7.2.3.3 Nature of the action

I have argued so far that different sorts of violation will be considered more or less serious, according to the value attached to the purposive action by the individual. We have seen that the value will depend on the value attached to the goal and now we move on to the second important factor - the nature of the action.

Every action involves the use of both physical and psychological abilities. An action consists of both the physical act itself and the mental state which accompanies it. For example, a person walks home from work one night, taking a short cut down a back street. The physical act is walking from A to B along the particular route.

Psychologically, that person feels safe walking down the back street because it is well lit. Now, suppose that street was not well lit and that person is afraid of the dark? The psychological state which accompanies the act in the latter example is quite different. Again, how serious a violation of autonomy is will depend upon the value attached to the ultimate goal or purpose of an individual's acts. In the example given above, the person may still take the short cut despite the fear of the dark, simply because s/he is in a desperate hurry to get home. The psychological state and the ultimate goal are inevitably linked but are distinct.

So, there are two elements to all action - the act itself and the state of mind which accompanies it. All crimes will affect the act to some degree but it is the effect on the psychological state which is distinguishing. The psychological state accompanying the act may be based on,

- a) Self preservation (feelings of safety and health) AND/OR
- b) Self fulfilment (feelings of enjoyment/satisfaction)

Personal crime is more likely to have a greater effect on the first of these states (self preservation) and property crime is more likely to have a greater effect on the second (self fulfilment). Some examples may help to illustrate this argument. When viewed as a violation of autonomy, car theft violates the ability to drive to work every day. The act of driving to work is more likely to be accompanied by a strong sense of self-fulfilment than self preservation (the car is not essential to your survival and safety). In contrast, a mugging is more likely to violate the act at a level of self-preservation (the act of simply walking along is probably not likely to be of great fulfilment).

It is not, however, safe to assume that violation of self-preservation will necessarily be more serious than violation of self-fulfilment. Perhaps, however, those crimes which effect action at both the self-preservation and the self-fulfilment level will be regarded as more serious. This, of course takes us back to the value attached to goal.

7.2.3.4 The seriousness of crimes within the framework of autonomy

The model developed in Figure 3 incorporated the major components of the models of Killias and Warr but left open two important questions with regard to the meaning of 'seriousness'. In terms of the perceived seriousness of the offence, we need to what actually happens (what is harmed) and what effect that event has.

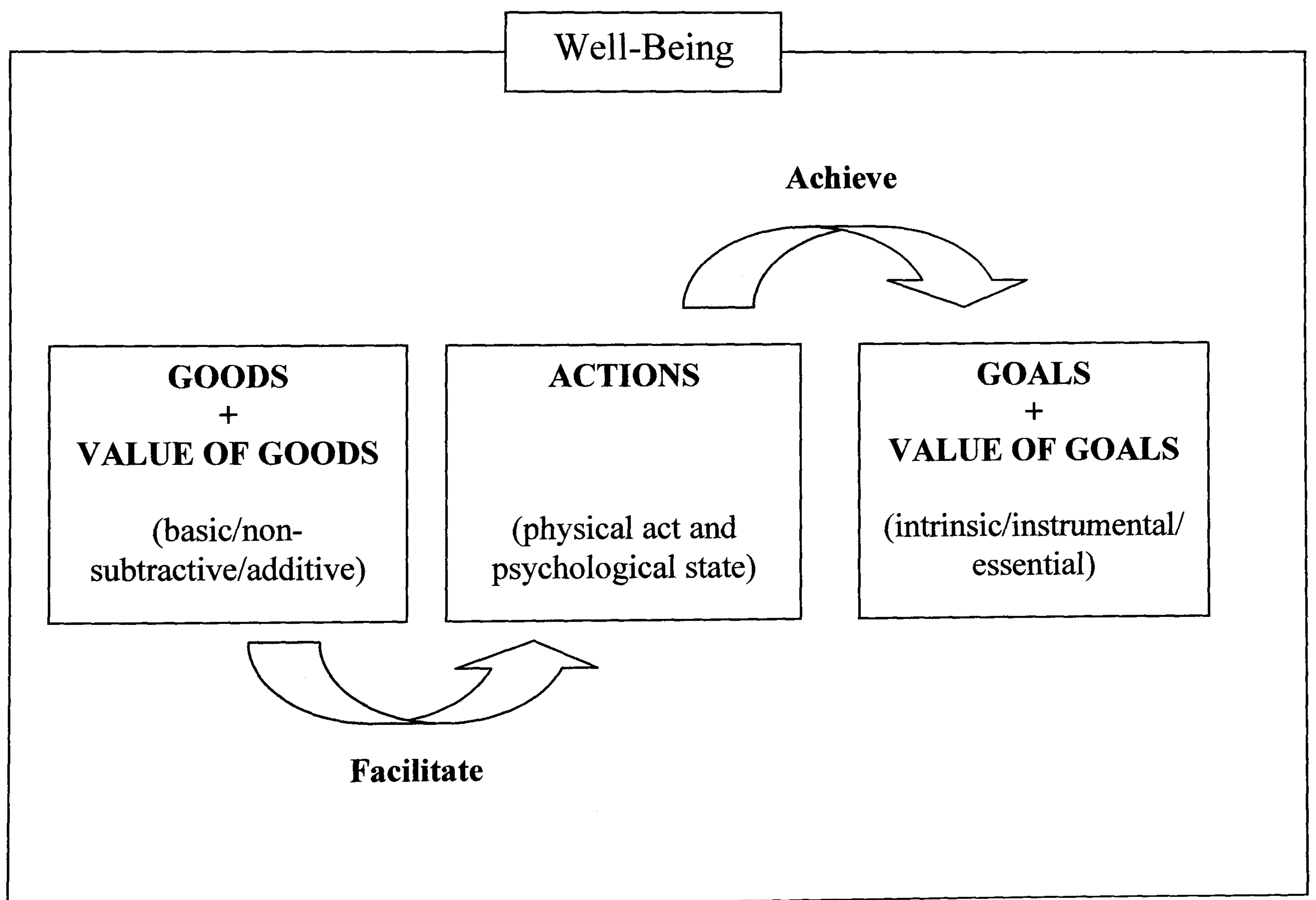
Seriousness, I suggest, can be interpreted within a framework of autonomy. To summarise, looking at Figure 5, crime is a violation of autonomy and, because autonomous action is necessarily value laden, a violation of autonomy impinges on an individual's well-being. I am suggesting, then, that the fear of crime should be examined in the broader context of general well-being. This of course is by no means an original suggestion. Several authors have suggested that the fear of crime cannot be understood unless it is projected onto a broader framework of 'well-being' or 'quality of

life'. Garofalo and Laub (1978), for example, link the fear of crime to the broader concept of quality of life. Quality of life, they argue, may be objective (relating to economic and social indicators) and subjective (relating to individual happiness, satisfaction and personal well being).

The perceived seriousness of the offence is determined by the value attached to the goal and good by each individual and the nature of the action which is being violated.

Therefore, by placing crime in the framework of autonomy we should not ask whether it is the property or the person which has been violated or harmed - it is the autonomy which has been violated. Instead, we must look at the action which is being violated and classify the offence according to the nature of that action.

Figure 5: Autonomy and well-being



This approach moves us away from the traditional division between property and personal crime, but that need not necessarily be a bad thing. It is an age-old problem that, when one attempts to pigeon-hole specific crimes into the property/personal categories, grey areas emerge. This is a particular problem in cases such as theft with

an additional element (for example violence). Mugging/robbery, for example, is usually referred to as a personal crime but has a clear element of property crime (theft) to it. Similarly, it is not easy to class burglary as simply a property crime since it may have some distinct personal elements to it (victims of burglary often report feelings of being personally violated especially when they have been in the house at the time of the burglary). Thus, some subtle but important factors may be lost when one abides by the classical division.

7.2.3.5 Summary

Fundamentally, my ultimate argument in this thesis is that the concept of 'seriousness' is the key to answering the question of *what makes one crime different from another?* But, this is only one step to understanding the wider issue of vulnerability. In order to move towards a concept of vulnerability, it is necessary to consider how the perceived seriousness of an offence relates to risk and control.

To summarise the discussion so far, I have argued that an individual's vulnerability consists of two separate (but inextricably linked) elements - the perception of him/herself and the perception of the offence (see Figure 6). Both perceptions are based on two further elements - risk and seriousness. The perception of the offence is based on the perceived nature of the offence (how likely it is and how serious it would be if it happened). The individual's perception of him/herself is based upon his/her ability to control both the risk and the seriousness of the offence.

Moreover, I have suggested that, in order to interpret the perceived seriousness of an offence, it is helpful to consider seriousness within a framework of autonomy. An individual's perception of seriousness can be determined, at a theoretical level, by asking the following questions:

1. **What is being exposed to violation/harm?**
 - Autonomy: Identify goods, actions and goals.
2. **What effect will the violation/harm have?**
 - How important is the goal?
 - Level of violation: Value of goods?
Nature of action?

In terms of the individual's perceived ability to control both the risk and seriousness, we need to know both how the individual rates his/her ability to control *and* how important

it is to that individual to maintain control over the 'thing' which is likely to be harmed. It is not enough to simply ask the individual how s/he rates the ability to resist or protect him/herself against the crime. This naturally refers us back to the value attached to autonomy and draws us within the boundaries of the concept of well-being.

Inevitably, the three 'pillars' of seriousness, control and risk are likely to form a complex web. An example helps to illustrate how the elements may be inter-linked. If we place vehicle theft within a framework of autonomy, the seriousness of the theft (the violation) can be interpreted by looking at the nature and the effect of the violation. Let us assume that, for one individual, the goal is to be able to move from A to B. The action is driving the car and the psychological state relating to the action is probably self fulfilment (but there could be an element of self preservation if, for example, the individual could not get out to buy food without the car as transport). If the car is stolen, the effect of the crime is to prevent the achievement of the goal (via the removal of the good – the car). The effect the crime has on the well being of the individual depends on the value attached to the goal and good.

However, high value does not necessarily entail high vulnerability. In order to maintain control over the risk of having the car stolen the individual may have security devices which are intended to protect the car from theft. In addition, in order to maintain control over the seriousness of the offence, the individual may have the car insured. So, in the event of a theft, the insurance policy may allow for a quick replacement and the individual retains the ability to pursue the overarching goal. Whether or not that individual is worried about car theft may depend on how that individual processes the individual elements of his/her vulnerability.

It is not my intention here to explore the ideas of control and risk in much depth, to do so would draw us away from the point of the discussion. Instead, I wish to conclude this part of the discussion by relating back to the issue of the measurement of fear and its correlates. The catalyst for exploring the possibility of developing a broader theoretical framework of fear was the conclusion (based on the analysis of the BCS data) that worry about card fraud is different to other worries in terms of its distribution and correlates. I have suggested that in order to understand these differences, it is necessary to unpack the complex nature of the perception of vulnerability. In the context of this thesis, which is focused on the question of *what makes one crime*

different from another? I have developed the concept of 'seriousness' within a framework of autonomy. Seriousness, I conclude, is the key to understanding crime specific attitudes and, taken together with the perceptions of risk and control, may go some of the way to explaining disparity in fears at an individual level.

This leaves open an important question: when a respondent is asked how worried s/he is about a crime, does s/he undertake an instinctive mental calculation of vulnerability by weighing up the perceptions of seriousness, risk and control? Or does s/he simply answer the question from one perspective, either risk ('it will not happen to me, so I am not at all worried'), seriousness ('it would not have a serious impact on my well being, so I am not at all worried') or control ('I can protect myself from it, so I am not at all worried'). In short, are the survey questions eliciting a complex form of fear or simply just different views of the same cathedral?

Figure 6: Framework of vulnerability

Perception of the Offence	Perception of the Individual
Risk	Control of risk
Seriousness	Control of seriousness

7.3 Towards an explanation of worry about card fraud: placing card fraud within the concept of autonomy

In the first part of this chapter, I concluded that card fraud gives us a different dimension to the fear of crime, and this in turn challenges us to think further about the complex relationships between explanatory variables and dimensions of fear. Worry about card fraud is an interesting case for two reasons. Firstly, card fraud has been shown to have different patterns of worry than other crimes. The second reason relates to the apparent irrationality of worry about card fraud itself. We have already seen, in chapter four, that individual card holders rarely lose money in the event of a fraudulent transaction occurring. If banks and financial institutions absorb the cost of fraud, why should the card holder be worried at all? The answer to this question could be

answered, at least in part, by interpreting the potential victimisation within the framework of autonomy.

Ultimately, the most intriguing question to arise from the research is why do some people worry so much about card fraud? Indeed, I have alluded to the fact that the discovery of high worry levels for card fraud were unexpected, both to myself and to the British Crime Survey team. I have suggested three possible answers to that question and I would like to pursue those further now.

Firstly, I have perhaps peeled back the lid of a can of worms by suggesting that the worry levels for all crimes are inevitably a product of measurement. By exploring the concept of vulnerability I have been led to question whether different respondents interpret the word 'worry' from different perspectives of seriousness, risk and control. Thus, for example, those who say they are not at all worried about card fraud may perceive themselves to be at low risk of victimisation. Alternatively, a very worried card user may be particularly concerned about the seriousness of a victimisation, perhaps in terms of the potential long term affects on his/her credit rating. It is, of course, arguable that this spotlight on methodological shortcomings is neither strikingly original nor helpful but it must, in my opinion, at least be raised as a potential line of enquiry. The benefit of doing so is to emphasise the importance of a vigorous interrogation of the study of the fear of crime, a phenomenon which is in danger of becoming stale at levels of conceptualisation and operationalisation.

Ultimately, it does not matter in the short term whether respondents *are* interpreting worry in different ways. The aim of this project was to makes comparisons across crimes and, since worries for all crimes were measured in the same way, we can reasonably deduce that different crimes evoke different reactions. Card fraud is, it seems, perceived to be a serious threat, concern or problem to a significant number of people, in the same way that burglary or mugging is perceived as such. This must edge us towards a search for possible explanations.

One explanation, and the second answer that I have offered to the question of why people might worry about card fraud, is that a large proportion of card users (i.e. the worriers) are under the impression that they, as individuals, will be liable for all costs following a fraudulent transaction. We have seen that, in actual fact, it is the card issuer

or the retailer who is most likely to absorb the cost of frauds. Indeed, many card companies are happy to publish this fact, recently transforming it into a fraud guarantee to actively recruit new customers. Therefore, it seems unlikely, although admittedly not impossible, that a large number of card users are misinterpreting their risk of personal financial loss.

This leads me to consider the realistic possibility that card fraud victimisation is perceived to carry more serious implications for the victim than simply the loss of hard cash. I have suggested that an incident of card fraud actually represents the individual's loss of control over his/her personal information and it is this which fuels worry. This is the third and, for me, the most convincing explanation for worry about card fraud.

7.3.1 Identity and the value of personal information

In this final section I intend to argue that, when an individual attaches value to personal information, that information becomes part of that individual's identity. Information, I suggest, may be 'valuable' in two ways; intrinsically and instrumentally.

In terms of instrumental value, I suggest that, since information facilitates certain autonomous actions, it can be seen as a necessary element of an individual's autonomy. Thus, it is important for the individual to retain control of that information and maintain personal privacy. Loss of control of information, via criminal misuse of that information, is viewed in this sense as impinging on the individual's ability to act autonomously (i.e. an action-based approach to harm).

Personal information, I go on to argue, may also have intrinsic value. Using Goffman's analysis of 'self', I illustrate that being a victim of information theft may more deeply effect an individual's well-being than one might expect. By losing control of one's personal information, one may lose control of one's 'identity' in many social contexts. The value of information may, then, go beyond the simple instrumental level and may contribute to an individual's sense of identity within society (i.e. an identity-based approach to harm).

Essentially, whether information has instrumental value, intrinsic value or both kinds of value, it becomes inextricably linked with the concept of identity. Autonomy and

perceptions of 'self' can be shown to be essential elements of an individual's identity. In this sense, criminal acquisition of information does, in effect, become 'identity theft'. I conclude by reconsidering the term 'identity theft' and suggest that we need to develop more fully the concept and its potential implications.

7.3.1.1 Instrumental value: Privacy and autonomy

If we interpret card fraud within the context of autonomy, we find that a fraudulent transaction occurring on a card holder's account is a violation of that individual's autonomy, in the form of the exclusive use of that account and the information which controls that account. The card holder may or may not eventually suffer the loss of money, but all victims will suffer the violation of exclusive use of the account. The effect of such a violation will depend on the value attached to the goal (to operate one's personal financial identity) and the importance of that value will vary between individuals.

The ability to control the flow of one's personal information, arguably the central tenet of the concept of privacy, may be understood as a necessary good for autonomous action. It is well documented that the desire for privacy is deeply rooted in natural (human and animal) instincts. Westin (1967) describes in some depth the role privacy plays in both the animal kingdom and function of primitive societies, suggesting that the need for privacy results in social norms which are evident in most societies. For Westin, the individual's ability to control the flow of information about him/herself is the key to understanding social structure in all societies,

'The point is that kinship rules and interaction norms present individuals with a need to restrict the flow of information about themselves to others and to adjust these regulations constantly in contacts with others. This need is fundamental to individual behaviour with intimates, casual acquaintances, and authorities' (Westin 1967, p.14).

Privacy, then, is an essential component of individual autonomy, at least in a democratic society (Alldridge and Brants 2001, Roberts 2001). In addition, it is multi-functional. For Roberts (2001), the main function of privacy is to provide the emotional, cognitive and moral space in which an individual can determine his/her own goals and commitments without being exposed to the risk of violation or victimisation. Roberts

explains that once one accepts that privacy is the basis of autonomy, one begins to understand why many individuals are uneasy about electronic databases, CCTV and spy satellites

7.3.1.2 Intrinsic value: Perceptions of 'self'

At one level, then, an individual may wish to protect his/her personal information for practical and functional reasons which relate to autonomous action. Theft of one's passport, for example, is undesirable since it might prevent the ability to travel freely. Similarly, fraudulent transactions on one's credit card may harm one's credit rating. However, if personal information is regarded as part of an individual's perception of 'self', violation of the control of that information may be understood as being of far greater significance to the victim.

The potential significance of this type of victimisation can be illustrated through the analysis of 'self' provided by Goffman (1971, 1990, 1991). It is not necessary to present Goffman's work in great detail here but a summary of his work on personal identity illustrates how the misuse of personal information may be of substantial harm to an individual's well being.

Central to Goffman's theory is the concept of 'self' which he explains is the personal identity which emerges out of social interaction. One adopts a 'self' depending on the social role required by each individual social situation and by doing so one assumes a 'moral career' (Goffman 1991). According to Goffman (1990), moral careers may be adversely affected by stigma, characteristics which we see as 'defects' which we have relative to others. Thus, we develop different ways of conveying social information to hide our stigma in social interactions. He argues that, as part of the process of social interaction, an individual wishes to exercise information control about his/her personal identity. Social information is conveyed with identifiers or symbols and we, as individuals, are classified by 'identity pegs' which include our biographical and financial details (Goffman 1971).

Although this is almost an inexcusably crude summary of Goffman's complex theoretical perspective, it serves to illustrate the potential implications of criminal misuse of an individual's personal information. By understanding the value of personal

information within a context of social interaction, we appreciate the wider reaching effect of what might initially be viewed as simply a 'one-off loss' for the victim. The perpetrator in this kind of crime takes over the 'identity pegs' of the victim, leaving the victim less able to control his/her identifiers in social situations. Thus, a victim may feel vulnerable or, in more extreme cases of 'identity theft', powerless in the course of his/her everyday life. Moreover, victimisation of this type of crime may carry with it a distinct kind of stigma. The fact that one has been a victim of information theft may suggest that one is more stupid, negligent or weaker than one's peers. Indeed, this type of reaction would echo the findings of previous studies on the victims of fraud (Levi and Pithouse 1992).

7.3.1.3 Reconsidering 'identity theft'?

Essentially, I am suggesting here that, regardless of what kind of value we attach to information, accepting that information actually has value inevitably leads us to consider the concept of identity. The concept of identity has a long academic and political history and I do not intend to review the extensive literature at this stage of the thesis. Rather, I wish to simply suggest that the theft of information may be construed as 'identity theft' but we should exercise great caution in using the term.

We have already seen how identity theft (or identity fraud) is being hailed as a new crime problem and is creeping its way up the political agenda. Moreover, the term itself is being used to envelope a multitude of criminal activities from credit card fraud, through to passport forgery, illegal immigration and drug trafficking. The costs of such crimes are commonly presented as financial or inconvenient.

There is, however, an important distinction to be made between the act of theft or fraud by the criminal and the effect on the victim. The perpetrator of this kind of crime is simply using information, raw data, in the course of his/her criminal activities. By assuming control of information which does not 'belong' to him/her, s/he takes advantage of the pure instrumental value of the information. In contrast, the victim who loses control of the information attaches both instrumental and intrinsic value to that information and this impacts on the victim's identity. In short, the criminal act is simply the 'theft of identifying information' but the victim suffers 'theft of identity'.

This distinction, although subtle, is important. If we are to understand the implications of information related crimes we must think carefully about both the motivations and effects. Similarly, if we are to understand the 'fear' of such crimes, we must consider the potential seriousness of the offences from the perspective of the well-being of the individual. Such a perspective of well-being, I would argue, must include an understanding of an individual's perception of autonomy and identity.

It is necessary to take a step back and ask whether the discussions contained in this thesis tell us anything new about crime or the fear of crime. It is not my intention to claim that crimes involving information and identity are new. On the contrary, I have demonstrated in previous chapters that criminals have been misusing identity as a tool throughout history. In this sense, then, there is nothing new or exciting about the misuse of card details and personal identifying information. However, I would strongly argue that the issues introduced in this thesis do culminate in a solid agenda for future research which places information related crimes firmly in the centre of modern criminology.

The issues of privacy, autonomy and the misuse of identity are being pushed to the forefront of sociological, political and legal debates by the evolving features of the modern society. Thus, it seems appropriate for discussions relating to future changes in society to infiltrate criminological thinking. Inevitably, we must turn to history in order to gain an appreciation of changes in the modern world. Indeed, Pelsler (2001) argues that discussions about crime and privacy cannot even take place without turning to history. What becomes clear is that societal development brings with it uncertainty and a blurring of boundaries,

'...we live in confused and confusing times, perhaps about values in general, certainly about the value of privacy' (Roberts 2001, p.50).

What places a sense of urgency on the current debate is the increasing speed at which these boundaries are becoming blurred. Urbanisation, the increased anonymity and mobility of every day life and new instruments of data surveillance are all features of globalisation which can be seen to be working against the individual and against the achievement of privacy. Thus the significance of privacy issues in the context of crime and crime control are more significant now than they have ever been. Developments in

technology are challenging the relationship between privacy and the criminal law. There is an ongoing debate of surveillance policing versus suspects' rights taking place against a back drop of increasingly proactive policing (manifesting in its current form in the recent strikes at drug trafficking and organised crime). Finally, claims of an all-encompassing right to personal autonomy are becoming more commonplace and, perhaps, are being argued more vociferously.

In short, the threat of card fraud victimisation represents a shift in the nature of crime. The value of identity and information is certainly not a new realisation to 'the criminal', it has simply become a more accessible tool in the modern world. For the potential victim, then, the control of personal information is fast becoming a concern. Not only is there an increase in the amount of information available, but there is also an increase in the number of uses, and importantly misuses, for that information. In an increasing public awareness of the potential for harm, a fear of these kind of crimes is likely to evolve with greater speed. Thus, it is necessary to ensure that future work on the fear of crime pursues some of the lines of enquiry raised in this thesis.

Conclusion

As stated earlier, the aim of this final chapter is to draw a final concise thesis from the discussion which has taken place up until this point.

The research agenda was clearly set in chapter one. My aim was to reconsider the concept of 'crime' in order to understand more fully the fear of crime with a view to improving the measurement of the phenomenon. This led me to ask the central question: what makes one crime different from another? The literature hinted at the division between personal and property crime and that was identified as a suitable starting point.

Having paused to place the debate in the context of a forward looking approach to the study of fear of crime, what became clear was a divide between the traditionally accepted range of crimes studied by fear of crime researchers and the emergent nature of crimes of the future. It seemed that certain crimes which have traditionally been excluded from survey based measurement of the fear of crime were likely to be some of the largest crime problems in the coming years. Of particular concern was the exclusion of fraudulent and financial offences from the victimisation survey.

This led me to consider whether the exclusion of financial crimes actually matters and, thus, question the usefulness of pursuing this line of development. The answer was 'yes' for two reasons. Firstly, it became apparent that the pigeon-holing of all frauds as white collar crimes is fundamentally flawed at theoretical and practical levels. Indeed, it was demonstrated that the victims of personal frauds are subjects worthy of and appropriate for study. Secondly, having selected the challenge to focus on the victims of plastic card fraud, the rapid increase in victimisation levels in recent years soon became obvious, reinforcing the sense of urgency for a modern perspective on attitudes towards crime.

The introduction of card fraud to the BCS has, of course, been the empirical focus of this study. Card fraud has been shown to perform well as a BCS crime and has told us something about the fear of crime. Having identified that the problem with current fear of crime research is the failure to consider the effects of individual crimes, it becomes clear that the important question is what makes crimes different. Including card fraud

has shown that it goes beyond the simple property and personal crime division. Thus we must consider fear within a broader interpretive framework and I have suggested that should be autonomy and well being. The key to unlocking the relationship between fear and vulnerability is the concept of seriousness.

I have shown that people *do* worry about card fraud and, in this final chapter, I have initiated a search for an explanation of that worry. I have shown that the most compelling explanation is the suggestion that people are actually worried about having their information ‘stolen’ or misused. I have argued that this is not necessarily a new phenomenon, rather that in today’s society more value is attached to identity and thus is a more important element of an individual’s autonomy and well being.

To claim a reinvention of the fear of crime here would be overstating the thesis. My contribution to the debate, albeit a small one, is simply one of steering direction: in order to move towards an understanding of the fear of crime, one must look to the future of crime itself.

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Appendix 1: Card Fraud Losses (Additional Tables)

This section contains additional tables for chapter 4.

Table A1.1: Annual Fraud Losses by card type (£ millions) (Source: APACS)

	1992	1993	1994	1995	1996	1997	1998	1999
Credit cards	76.7	57.6	43.5	38.3	43.7	60.4	68.8	100.9
Charge Cards	16.2	13.9	11.6	10.0	14.2	16.6	16.1	23.6
Debit cards	43.9	35.8	23.9	20.0	25.4	33.9	39.6	54.9
Cheque cards	75.6	20.6	16.4	13.8	12.8	10.4	10.0	9.1
ATM cards	*	*	*	*	*	*	*	0.3
Eurocheque cards	2.6	1.9	1.4	1.2	1.0	0.7	0.5	0.4
Total	165.0	129.8	96.8	83.3	97.1	122.0	135.0	189.4

* Figures not available

Table A1.2: Absolute annual fraud losses (£millions) by place of misuse (UK transactions) (Source: APACS)

	1992	1993	1994	1995	1996	1997	1998	1999
ATM	3.4	2.5	3.2	3.5	4.4	8.2	9.7	12.3
Cash withdrawal at bank counter	8.6	6.9	5.0	4.8	3.9	4.3	4.7	6.5
Card not present transactions	1.0	1.3	2.2	4.3	6.0	8.2	11.0	22.5
Other merchant transactions	130.2	95.8	65.5	49.5	57.3	72.2	74.8	93.5

Table A1.3: Absolute annual fraud losses (£millions) by place of misuse (Source: APACS)

	1992	1993	1994	1995	1996	1997	1998	1999
UK transactions	143.2	106.4	75.9	62.1	71.6	92.9	100.1	134.8
Transactions abroad	21.8	23.4	21.0	21.2	25.4	29.2	34.9	54.6

**Table A1.4: Plastic card fraud losses as a percentage of total card turnover
(Source APACS)**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
% of total card turnover	0.29	0.20	0.13	0.09	0.09	0.10	0.09	0.12	0.16	0.18

**Table A1.5: Absolute annual fraud losses (£millions) by circumstances of loss
(Source: APACS)**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lost/stolen	123.2	98.5	71.1	60.1	60.0	66.2	65.8	80.1	101.9	114.0
Mail non-receipt	29.6	18.2	12.6	9.1	10.0	12.5	12.0	14.7	17.7	26.7
Counterfeit	8.4	9.9	9.6	7.7	13.3	20.3	26.8	50.6	107.1	160.3
Application fraud	1.4	0.9	0.7	1.5	6.7	11.9	14.5	11.4	10.5	6.6
Card not present	1.3	1.6	2.5	4.6	6.5	10.0	13.6	29.5	72.9	95.7
Total	165.0	129.8	96.8	83.3	97.1	122.0	135.0	189.4	317.0	411.4

Appendix 2: BCS Methodology and Statistical Analysis

A2.1 BCS methodology

This section relies heavily on the information contained within the Technical Report for the 2000 BCS (Hales et al. 2000). Details are summarised as far as is possible but the interested reader is referred to the Technical Report for further discussion.

A2.1.1 Sampling

A2.1.1.1 *Size and structure*

The 2000 sweep of the BCS had a larger sample size than its predecessors; the *target sample size* was 20,000 core interviews plus a booster sample of 4,000 black and Asian adults (the ethnic minority booster sample). Thus, the *issued core sample* was 28,992 (making allowances for 'unproductive outcomes') and the *issued ethnic booster sample* was 14,925 (this was a comparatively large sample because it contained a reserve sample in case the method for estimating the 'yield' of postcode areas based on the dated 1991 census data was flawed).

The core sample of 28,992, then, was drawn from 906 sample points. The sample points were located across the 43 Police Force Areas (PFA) in England and Wales, ensuring a maximum of 300 achieved core interviews per PFA. Each PFA was classified as either 'small' or 'large'.

A2.1.1.2 *Selection of postcode sectors*

The sample size for the 'small' PFAs (17 of the 43) needed to be increased so as to ensure a minimum of 300 achieved interviews. In each of these PFAs, 14 postcode sectors were selected from a list which had been sorted to classify sectors according to population density and socio-economic group of the head of households. In total, 4 of the 17 PFAs achieved a sample below the target number of 300 (achieving samples of 282, 297, 299 and 299).

Postcode sectors in the 'large' PFAs were sorted in the same way as for the 'small' PFAs. A fixed sampling interval was used to extract the remainder of the 906 sampling points, thus the reduction in sample size was distributed proportionately across all of the large PFAs.

A2.1.1.3 Selection of addresses and respondents

In each of the 906 sample points, a quarter of each of the 14 postcode sector was selected at random. A set of 32 addresses (Small User Delivery Points, i.e. addresses which receive less than 20 letters a day so as to exclude businesses) were drawn from each quarter sector using a random starting point and then a fixed interval of 128 addresses.

For multi-household addresses, a single household was selected using random selection. One adult (aged 16 years or over) per household was selected for interview using a Kish grid. No substitution was allowed.

A2.1.1.4 The ethnic minority booster sample (EMB)

The core sample provides a small number of black and Asian respondents (265 and 405 respectively in 2000). The EMB sample was drawn from two types of area in 2000; 'focused enumeration in core sample points' and 'high density ethnic minority areas'. Two thirds of the sample (66.3%) was obtained from high density ethnic minority areas; 33.7% were obtained from focused enumeration in core sample postcode areas.

The high density ethnic minority sample points were selected by constructing a set of postcode areas in which the percentage of ethnic minority households was 19% or greater and sorting them according to PFA and percentage of head of households in certain occupational groups. Sectors were then selected using a random start point and a fixed interval. Sectors were divided into 4 and one from each was selected at random. Then, from each quarter sector, a set of 75 addresses was selected (again using a random start point and fixed interval).

Focused enumeration has the advantage of requiring less additional work to the core sample than sampling from high density ethnic minority areas. At interview points in the core sample, the interviewer asked each respondent if there was a black or Asian person living in the two dwellings adjacent to his/her dwelling on either side. If the respondent was unable to give information on his/her neighbours' ethnic origin, the interviewer approached the addresses on either side to try and establish a contact.

A2.1.1.5 Final sample size

The final issued core sample size was 28,914 addresses. Of these, 9% (2,623) were ineligible for interview (empty, demolished, untraceable or not a private household). Of the 26,291 valid addresses, 19,457 interviews were returned by interviewers as 'productive' interviews; 19,411 interviews were finally used for analysis by the British Crime Survey analysts (a response rate of 74%).

A2.1.1.6 Weighting

Because the BCS is intended to give a representative cross section of households in England and Wales and the adults living in them, the data is weighted according to the type of analysis being carried out. There are three types of weight: weight a, weight b and weight i.

Weight a: Used for individual based analysis - when you want to make a statement about the characteristics, attitudes or experiences of adults in the sample.

Weight a = individual weight * inner city weight * dwelling unit weight

Weight b: Used for household based analysis - when you want to make a statement about the characteristics or experiences of households in the sample.

Weight b = inner city weight * dwelling unit weight

Weight i: Used for incident based analysis when you want to look at the nature of specific offences or you want to compare different types of offence.

Weight i = weight a (or weight b) * series weight.

Weighting is usually used for bivariate analysis but not multivariate analysis (Budd 1999). However, the decision was taken at an early stage of analysis *not* to weight the data for any of the statistical procedures carried out on the data. This was mainly for reasons of consistency but also convenience. The use of three different weights makes analysis complicated and results can be confusing to present (percentages are given on weighted data but raw n's are given on unweighted data to avoid unmanageably large numbers). In addition, bivariate analysis allows us to determine which variables to include in the multivariate modelling, thus removing all weights allows the whole process of analysis, at bivariate and multivariate levels, to be consistent. The major drawback of this decision is that we cannot make statements which are representative of the population of England and Wales as a whole¹. Therefore all results and discussion must be digested with this in mind. However, the variables used in the construction of weights are included in analysis.

A2.1.2 The interview process

The interviews were organised and carried out by a survey company (National Centre for Social Research in 2000) using a system called Computer Aided Personal Interviewing (CAPI) in the respondent's home. Interviews took place between January and July, the majority being completed by the end of May (96%).

A2.1.2.1 The structure of the interview

There are six parts to the BCS questionnaire:

- 1. Main questionnaire (all respondents)**
- 2. Victim forms (victims only - maximum 6 per person)**
- 3. One of two follow up questionnaires (split sample - Follow up A *or* Follow up B)**
- 4. Fires in the Home (all respondents)**
- 5. Demographic questionnaire (all respondents)**
- 6. Self completion questionnaires (all respondents under 60 years old - domestic violence and drugs)**

¹ This problem raises issues of comparability with other BCS analysis (and publications) and it is acknowledged that the bivariate results would probably need to be recalculated for publication. The Home Office would, of course, be consulted in any event.

For the purposes of this research, analysis was conducted on data contained mostly in the main questionnaire and the demographic questionnaire. The main questionnaire contains introductory questions and victimisation screener questions. The introductory questions focus on the characteristics of the respondent's household and the area in which s/he lives. The victimisation screener questions focus on the respondent's personal experience of crime since 1st January 1999, ensuring that all incidents (however minor) are included and counted only once. The screener questions cover 'household experience' (e.g. damage to a car or vandalism of the house) and 'personal experience' (e.g. respondent was personally a victim of robbery). Incidents which were identified by the screener questions are followed up in detail using a victim form. The demographic questionnaire contained questions on the respondent's own characteristics and lifestyle, including occupation and health. The card fraud questions were included in the Follow up A questionnaire.

A2.2 Statistical analysis and methodological choices.

A2.2.1 The Samples

A2.2.1.1 The main sample and ethnic minority booster sample

The analysis which follows is carried out on the *main sample* of the BCS which does not include the ethnic minority booster sample. The booster sample is only used when making specific statements about ethnicity and thus is set aside for the analysis here. Ethnicity is not included as a variable in the main analysis for this reason.

A2.2.1.2 The sub-samples

Car Owners

All analysis of questions relating to vehicle crime is based on vehicle owners only. The BCS contains a question about household vehicle ownership which allows us to identify the vehicle owners.

House movers

When identifying the victims of burglary, the BCS separates off those who have moved home in the last year from those who have not moved. Those who have

moved are asked about burglary victimisation in their last home *and* their new home across the one year period (since 1st January 1999). For the purposes of my analysis (which does not use victim form information) both house movers and non movers are counted together as a single group and classed simply as victims or non-victims (regardless of how many times and location).

Card users

Card holders need to be distinguished from non-card holders in the same way that car owners are identified for the questions about vehicle crime. However, whereas existing BCS questions allow us to identify the car owners, credit/debit card users are not identified by a filtering question. The worry question does contain a fifth response option - 'N/A - Don't use cards'. Although it is not an ideal measure, since we are relying on the respondent to choose the option rather than just select one of the others, it gives us some indication of who does or does not use cards.

A2.2.2 The selection of statistical tests

A2.2.2.1 Bivariate analysis

At all stages of analysis, the emphasis was on *making comparisons* between worries about specific crimes. In particular, I was interested in exploring the relationships that worry about card fraud has with other variables and comparing these to the relationships displayed by the other crimes. This approach is distinct from an attempt to find the best explanation (statistically at least) for worry about each crime. Indeed, this would have been a massive task and to embark upon it would be to lose sight of the original aim of the research which was to test the potential for introducing card fraud to the survey. Moreover, such an approach to analysis would inevitably exceed the suitability of the data.

At the bivariate level, a number of statistical tests were used. Primarily, the chi square test was used to determine statistical significance. Since the chi square statistic does not tell us a great deal about the strength or the direction of the relationship, measures of association were also used to help to determine the nature of bivariate relationships (Norusis 1998). Measures of association are particularly important in the context of the British Crime Survey as they reflect the strength of a relationship, regardless of sample size. If the sample size is large, relationships which have a small association will still have a significant relationship. Therefore, since the chi square statistic can be

misleading, measure of association can be useful when we are trying to compare relationships (Sirkin 1999). The following measures were used in the analysis:

- **Cramer's V** is a chi square based measure of association which modifies the chi square statistic so that it is not influenced by sample size and falls in the range from 0 to 1, where 0 = no association and 1 = perfect association (Sirkin 1999). Chi square based measures are difficult to interpret and can only be used to compare the strength of association in different tables. However, since the aim of the analysis was to simply make comparisons across crimes, Cramer's V was deemed to be an appropriate measure of association.
- **Goodman and Kruskal's Gamma** is a proportional reduction in error (PRE) measure designed for measuring association between two ordinal variables. PRE measures allow one to say how far you are able to predict the value of a dependent variable when the value of an independent variable is known. It can, however be used when one of the variables is dichotomous (Norusis 1998). Gamma was used in the analysis of the relationships between victimisation and worry. A positive gamma confirms that there are more 'like' than 'unlike' pairs and as one variable increases, so does the other. However, gamma is only sensitive to linear relationships and therefore may have restricted applications in analysis.

A2.2.2.2 *Multivariate techniques*

Multivariate techniques can be used to explore the associations² between a number of variables, allowing one to assess the effect of a group of variables on a dependent variable, once all others variables have been controlled for (Miles and Shevlin 2001).

Logistic regression is a multivariate technique which can be used to explore the associations between a number of variables, allowing one to assess the effect of a group of variables on a dependent variable once all others variables have been controlled for. So, for example, we might find that income and education are both related to worry about crime but it may be the case that they are also related, to some extent, to each

² Note that an association does not necessarily imply a causal relationship.

other. Logistic regression allows us to say whether income is associated with worry in its own right, rather than by virtue of its association with education (Norusis 1999).

The logistic regression tables contained in Appendices 3-6 present the exponential of the coefficient (ExpB) and significance levels of the coefficient. The coefficient is the change in the odds of the dependent variable associated with a one unit change in the independent variable, controlling for all other variables.

In addition, three measures of goodness of fit and calibration are used in the analysis.

- The Nagelkerke R^2 is a statistic which quantifies the proportion of explained variation in the model. The statistic can be interpreted in terms of the percentage of the variation in the outcome variable explained by the regression model (so, a value of .35 suggests that 35% of the variation can be explained by the model) (Norusis 1999).
- The model chi square is the difference between -2LL for the model with only the constant and -2LL for the current model. The model chi square tests the null hypothesis that the coefficients for all terms in the current model, except the constant, are 0 (Norusis 1999).

The Hosmer and Lemeshow goodness-of-fit is a commonly used test for model calibration. It tests the goodness of fit of the observed and predicted number of events and is particularly useful in cases where both the sample size and the number of covariate patterns is large (Norusis 1999). The Hosmer and Lemeshow chi square tests the null hypothesis that there is no difference between observed and predicted values. However, since the value of the chi square statistic is proportional to sample size, it must be interpreted with care.

It must be stated at the outset that the regression models which are presented in Chapter 6 are, on the whole, not strong or significant models in terms of their ability to predict outcomes. It is often the case in survey based research that, due to the very nature of the survey data, the range of independent variables is not wide enough to achieve a highly effective or strong model (Sirkin 1999). Previous analysts of BCS data have been more successful in producing strong predictive models (Hough 1995). It is, however, fair to

say that such analysts have been in a slightly better position regarding the number of variables available. Since there were only two card fraud questions and a limited sample, many variables which have previously been used cannot be included for card fraud due to missing data . For example, there are no data for perceptions of risk or crime prevention/avoidance strategies for card fraud.

However, I argue that the models presented in Chapter 6 can be of value in so far as they allow for the comparison of predictors across crime types - if the same variables are used for each crime, one at least gets a sense of the difference between crimes. Thus, the emphasis is on using the models to compare crimes rather than to make an accurate calculation of risk.

Appendix 3: Card holders and non card holders

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Table A3.1: Percentage card users (for demographic groupings).

Table A3.2: Association between demographic variables and use of cards.

Table A3.3: Demographic predictors of 'card user' (logistic regression).

Table A3.1: Percentage card users (for demographic groupings)

	% card holders
Gender	
Male	86
Female	83
Age	
16-29	89
30-59	91
60+	71
Marital status	
Married (de facto)	90
Not married	76
Tenancy	
Owners	90
Renters	69
Number of adults	
1	74
2	89
3+	90
Number of children	
0	83
1+	88
Education	
Secondary	89
Further	92
Higher	99
Household income	
Under 5K	59
5K under 15K	75
15K under 20K	93
20K +	97
Managing on income	
Well and saving	91
Getting by	77
In difficulty	69
Perception of neighbourhood	
Help each other	85
Go own way	84
Mixture	84
Area type	
Inner city	75
Urban	83
Rural	91
General health	
Bad	71
Good	89
Smoker in Household	
Yes	82
No	85
Alcohol Consumption	
Rarely	78
Often	89
House unoccupied during day	
Less than 3 hours	71
3 hours or more	90

Table A3.2: Association between demographic variables and use of cards

	Chi square (df)	Cramer's V
Gender	21.85 (1) **	.05**
Age	567.22 (2) **	.24**
Marital status	321.02 (1)**	.18**
Tenancy	684.94 (1)**	.27**
Number of adults	331.63 (2)**	.19**
Number of children	49.35 (1)**	.07**
Education	107.86(2) **	.13**
Household income	1292.68 (3)**	.38**
Managing on income	403.35 (2)**	.20**
Perception of neighbourhood	3.68 (2)	.02
Area type	163.27 (2)**	.13**
General health	454.66 (1) **	.22**
Smoker in Household	21.29(1)**	.05**
Alcohol Consumption	237.52(1)**	.16**
House unoccupied during day	560.00(1)**	.24**

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$

Table A3.3: Demographic predictors of 'card user' (logistic regression)

Factor	EXP(B)	Sig.
Gender	Male(base)	1.00
	Female	1.89 **
Age	16-29	2.59 **
	30-59	1.86 **
	60+ (base)	1.00
Marital group	Married/de facto	1.84 **
	Not married (base)	1.00
Household Income	Under 5K(base)	1.00
	5K under 15K	1.56 **
	15K under 20K	3.83 **
	20K+	5.73 **
Managing on Income	Well and saving	2.11 **
	Getting by	1.39
	In difficulty(base)	1.00
Area Type	Inner city (base)	1.00
	Urban	1.05 **
	Rural	1.78 **
Neighbourhood Type	Help each other	1.02
	Mixture	.97
	Go own way(base)	1.00
House unoccupied during the day	Less than 3 hours a day (base)	1.00
	More than 3 hours a day	1.88 **
Smoker in household	Yes(base)	1.00
	No	1.28 *
Drink Alcohol	Rarely (base)	1.00
	Often	1.36 *
General health	Bad	1.15
	Good (base)	1.00
Tenancy	Owners	1.86 **
	Renters (base)	1.00
Number of adults in household	1	1.51
	2	1.13
	3+(base)	1.00
Number of children in household	0(base)	1.00
	1+	1.81 **
Education (highest qualification)	Secondary (base)	1.00
	Further	1.19
	Higher	5.28 **

Notes:

- i. ** p =<0.005
- ii. * p = <0.05
- iii. Model Chi Square 694.35 **
- iv. Nagelkerke R² .28
- v. Hosmer and Lemeshow 13.40 (ns)

Appendix 4 - Association between worries

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- Table A4.8: Predictors of worry about mugging (logistic regression)**
- Table A4.9: Predictors of worry about attack (logistic regression)**
- Table A4.10: Predictors of worry about insult (logistic regression)**

Table A4.1: Chi square values for worry crosstabulations

Burglary								
Theft of vehicle	4825.44							
Theft from vehicle	3724.66	15904.28						
Card fraud	1513.82	1100.31	979.75					
Mugging	9978.04	3952.70	2712.64	1665.60				
Attack	6875.21	3148.78	2394.73	1612.99	15872.33			
Rape	4407.37	1836.84	1168.10	1102.87	9542.79	15915.98		
Insult	4169.39	2638.63	2409.81	1091.38	7456.00	11894.08	5928.98	
Chi Square	Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Rape	Insult

Notes:

- i. All significant at $p < 0.005$ and 9 df

Table A4.2: Correlations between worries (Spearman's r)

Burglary								
Theft of vehicle	.47*							
Theft from vehicle	.41*	.71*						
Card fraud	.33*	.33*	.32*					
Mugging	.55*	.43*	.36*	.33*				
Attack	.49*	.39*	.34*	.34*	.70*			
Rape	.39*	.29*	.23*	.27*	.59*	.69*		
Insult	.38	.35*	.33*	.29*	.51*	.61*	.48*	
Spearman's r	Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Rape	Insult

Notes:

- i. $p < 0.01$

Table A4.3: Predictors of worry about burglary (logistic regression)

	Exp(B)	Sig.
Mugging	3.07	**
Theft of vehicle	2.08	**
Theft from vehicle	1.69	**
Card Fraud	1.62	**
Attack	1.48	**
Insult	1.36	**
Rape	1.22	*

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 1796.81 **
- iv. Nagelkerke R^2 .34
- v. Hosmer and Lemeshow 25.20 **

Table A4.4: Predictors of worry about theft of vehicle (logistic regression)

	Exp(B)	Sig.
Theft from vehicle	17.31	**
Mugging	2.08	**
Burglary	2.07	**
Insult	1.47	**
Card Fraud	1.43	**
Rape	1.30	*
Attack	1.11	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 3416.70 **
- iv. Nagelkerke R^2 .57
- v. Hosmer and Lemeshow 25.22 **

Table A4.5: Predictors of worry about theft from vehicle (logistic regression)

	Exp(B)	Sig.
Theft of vehicle	17.30	**
Burglary	1.69	**
Card Fraud	1.63	**
Insult	1.34	**
Attack	1.19	
Mugging	.97	
Rape	.87	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 3035.67**
- iv. Nagelkerke R^2 .52
- v. Hosmer and Lemeshow 15.70 **

Table A4.6: Predictors of worry about card fraud (logistic regression)

	Exp(B)	Sig.
Theft from vehicle	1.63	**
Burglary	1.61	**
Insult	1.46	**
Theft of vehicle	1.42	**
Mugging	1.27	**
Attack	1.25	*
Rape	1.21	*

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 828.78**
- iv. Nagelkerke R^2 .17
- v. Hosmer and Lemeshow 19.40*

Table A4.7: Predictors of worry about rape (logistic regression)

	Exp(B)	Sig
Attack	18.73	**
Mugging	2.76	**
Insult	1.54	**
Theft of vehicle	1.27	*
Burglary	1.22	*
Card Fraud	1.20	*
Theft from vehicle	.87	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 3170.70**
- iv. Nagelkerke R^2 .58
- v. Hosmer and Lemeshow 32.13**

Table A4.8: Predictors of worry about mugging (logistic regression)

	Exp(B)	Sig
Attack	7.15	**
Burglary	3.11	**
Rape	2.81	**
Theft of vehicle	2.07	**
Insult	1.84	**
Card Fraud	1.30	**
Theft from vehicle	1.01	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 3397.32**
- iv. Nagelkerke R^2 .58
- v. Hosmer and Lemeshow 37.07**

Table A4.9: Predictors of worry about attack (logistic regression)

	Exp(B)	Sig.
Rape	19.36	**
Mugging	7.17	**
Insult	4.23	**
Burglary	1.61	**
Card Fraud	1.26	*
Theft from vehicle	1.23	*
Theft of vehicle	1.18	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 4336.92**
- iv. Nagelkerke R^2 .69
- v. Hosmer and Lemeshow 23.42**

Table A4.10: Predictors of worry about insult (logistic regression)

	Exp(B)	Sig.
Attack	4.09	**
Mugging	1.79	**
Rape	1.54	**
Card Fraud	1.47	**
Theft of vehicle	1.45	**
Burglary	1.37	**
Theft from vehicle	1.36	**

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 1846.35**
- iv. Nagelkerke R^2 .37
- v. Hosmer and Lemeshow 28.27**

Appendix 5: Worry and demographics

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Table A5.1: Percentage very worried (V), fairly worried (F), not very worried (NV) and not at all worried (N) about property crime across demographic groups.

	% Worried															
	Burglary				Theft of vehicle				Theft from vehicle				Card fraud			
	V	F	N V	N	V	F	N V	N	V	F	N V	N	V	F	N V	N
Gender																
Male	15	38	37	9	18	36	33	13	16	37	35	13	16	32	32	20
Female	22	38	33	8	22	36	33	9	15	36	38	12	19	30	30	20
Age																
16-29	21	37	35	8	24	38	28	11	18	39	33	10	16	30	33	21
30-59	19	40	35	7	19	36	34	11	15	37	36	11	18	34	32	16
60+	19	36	34	12	19	33	35	13	14	32	38	16	18	27	27	28
Marital Group																
Married/de facto	18	40	35	6	19	36	34	11	15	37	37	12	18	34	31	17
Not married	20	35	35	11	21	34	32	12	16	34	36	14	17	27	32	25
Household Income																
Under 5K	29	32	27	12	33	32	25	10	25	35	27	13	21	20	26	33
5K under 15K	22	37	32	9	25	33	30	13	18	34	34	14	20	37	29	25
15K under 20K	17	41	35	8	21	37	32	10	16	37	35	12	20	31	29	20
20K+	14	40	40	7	16	37	36	11	13	37	39	11	15	37	35	13
Managing on Income																
Well and saving	18	38	38	8	17	36	36	12	13	35	39	13	16	33	32	19
Getting by	23	38	31	8	25	35	29	11	19	38	32	12	20	28	30	22
In difficulty	32	34	26	9	28	33	27	13	21	36	28	15	20	27	28	25
Area Type																
Inner city	27	37	28	8	28	37	27	9	21	36	31	11	20	26	31	24
Urban	20	38	34	8	22	36	32	11	17	37	35	11	18	31	31	20
Rural	12	38	40	10	13	34	39	14	11	34	41	15	15	35	32	17
Neighbourhood Type																
Help each other	17	37	37	10	18	35	35	12	14	35	37	14	18	32	31	20
Mixture	16	36	39	9	17	35	37	11	13	36	39	13	14	30	34	22
Go own way	22	39	32	7	23	36	30	11	17	37	34	11	19	31	31	20
House unoccupied																
Less than 3 hours	22	35	33	10	21	32	34	13	15	33	36	16	19	27	28	26
More than 3 hours	18	39	36	8	20	37	33	11	15	37	36	11	17	33	32	18
Smoker in household																
Yes	22	37	32	9	24	34	30	11	19	36	33	12	20	28	39	23
No	17	39	36	8	18	36	35	11	13	36	38	13	17	33	32	18
Drink Alcohol																
Rarely	23	36	32	9	24	34	31	11	17	35	36	12	21	27	29	23
Often	16	39	37	8	18	37	35	11	14	37	37	13	16	34	33	18
General health																
Bad	25	37	29	9	26	35	29	11	20	36	32	13	21	28	29	22
Good	17	38	37	8	18	36	35	11	14	36	37	12	17	32	32	19
Tenancy																
Owners	17	40	36	7	18	36	35	11	14	36	38	12	17	34	32	17
Renters	25	34	31	11	29	32	28	12	22	35	31	13	19	23	29	28
Adults																
1	20	35	34	12	20	34	34	13	15	33	37	15	17	27	31	25
2	19	40	35	7	19	36	34	11	15	37	37	12	18	33	32	17
3+	19	38	35	8	23	36	30	10	18	38	33	11	18	31	30	21
Children																
0	18	38	35	9	20	36	33	12	15	36	36	13	18	31	30	21
1+	21	39	35	6	20	36	34	10	15	37	37	11	18	31	33	18
Education (highest)																
Secondary	20	39	34	8	20	37	32	10	14	38	36	12	17	31	33	20
Further	15	39	39	8	18	37	35	11	15	37	36	12	16	35	33	16
Higher	9	40	45	7	12	35	41	12	11	36	42	12	12	38	36	14

Table A5.2: Percentage very worried (V), fairly worried (F), not very worried (NV) and not at all worried (N) about personal crime across demographic groups.

	% Worried															
	Mugging				Attack				Rape				Insult			
	V	F	N V	N	V	F	N V	N	V	F	N V	N	V	F	N V	N
Gender																
Male	10	22	47	21	8	21	45	26	6	3	19	71	4	18	45	32
Female	23	31	37	9	26	28	35	12	28	19	34	17	12	27	43	18
Age																
16-29	18	27	41	14	23	28	37	13	26	17	25	32	10	25	44	21
30-59	15	26	45	14	17	24	42	17	19	13	30	28	8	23	46	23
60+	19	28	37	16	16	24	36	24	15	10	25	51	9	22	40	30
Marital Group																
Married/de facto	16	27	44	14	16	24	41	19	18	12	29	42	8	23	45	24
Not married	19	27	39	15	19	26	37	19	20	14	26	40	9	24	42	26
Household Income																
Under 5K	29	26	30	14	27	27	27	18	26	13	23	37	15	25	36	24
5K under 15K	20	29	37	14	20	26	35	20	20	13	25	42	10	24	40	26
15K under 20K	15	29	41	15	17	26	39	18	19	12	28	41	8	23	45	24
20K+	11	24	51	15	12	23	47	18	15	13	31	42	5	21	50	24
Managing on Income																
Well and saving	13	25	46	15	14	23	44	20	15	12	29	44	6	21	47	26
Getting by	21	29	37	13	22	27	34	17	23	14	27	37	11	25	41	23
In difficulty	27	27	30	16	29	26	29	16	28	15	20	37	16	29	34	22
Area Type																
Inner city	25	28	34	12	25	28	32	16	25	13	22	40	12	27	39	23
Urban	18	28	41	14	18	26	39	18	20	13	28	40	9	24	43	24
Rural	11	23	49	18	12	22	44	22	14	12	30	45	5	20	47	28
Neighbourhood Type																
Help each other	16	25	43	16	16	23	40	21	18	12	29	42	8	21	44	27
Mixture	15	26	43	17	15	24	41	20	17	13	28	42	7	23	45	25
Go own way	19	28	41	13	19	27	38	16	20	13	26	40	10	25	43	23
House unoccupied																
Less than 3 hours	21	27	37	15	20	25	35	21	20	12	26	42	11	23	40	27
More than 3 hours	15	26	44	15	17	25	41	18	18	13	28	41	8	23	45	24
Smoker in household																
Yes	20	27	39	15	21	26	36	17	22	12	26	41	10	24	42	25
No	15	27	44	15	16	24	41	19	17	13	29	41	8	22	45	25
Drink Alcohol																
Rarely	22	28	36	14	23	26	34	18	24	14	27	35	12	25	39	24
Often	13	26	46	15	14	24	43	19	15	12	28	45	6	21	47	26
General health																
Bad	24	29	33	13	22	27	32	18	21	12	24	43	13	26	38	23
Good	11	26	45	15	16	24	42	19	18	13	29	41	7	22	46	25
Tenancy																
Owners	14	26	45	15	15	24	42	19	16	12	29	42	7	22	46	25
Renters	24	28	34	15	24	27	31	18	24	14	23	39	13	25	38	24
Adults																
1	19	26	39	15	18	25	37	19	19	13	27	41	9	23	42	26
2	16	26	43	15	17	24	41	19	18	12	28	42	8	23	45	25
3+	17	28	42	13	19	27	39	16	21	14	25	39	10	23	44	22
Children																
0	17	27	41	15	16	25	39	20	17	12	27	45	8	22	44	26
1+	17	26	44	13	21	25	39	15	24	15	30	32	10	25	44	22
Education (highest)																
Secondary	18	28	41	13	20	27	38	15	23	15	29	33	9	24	45	23
Further	11	26	48	16	13	25	44	19	14	12	29	45	6	22	47	25
Higher	6	22	57	15	8	20	54	18	9	12	33	47	4	19	53	24

Table A5.3: Association between worry about crime and demographic variables

Cramer's V	Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Rape	Insult
Respondent								
Gender	.09**	.07**	.03**	.04**	.25**	.29**	.54**	.22**
Age	.06**	.05**	.06**	.09**	.05**	.08**	.11**	.06**
Marital	.09**	.04**	.04**	.11**	.06**	.05**	.05**	.04**
Household								
Tenancy	.12**	.11**	.10**	.13**	.14**	.13**	.10**	.11**
No. of adults	.06**	.04**	.05**	.06**	.04**	.03**	.03**	.03**
No. of children	.06**	.02**	.04**	.04**	.04**	.07**	.12**	.05**
Socio-economic								
Education	.09**	.07**	.04**	.07**	.12**	.12**	.12**	.07**
Household income	.09**	.08**	.06**	.12**	.11**	.10**	.06**	.08**
Managing on income	.09**	.08**	.07**	.06**	.10**	.11**	.08**	.09**
Area								
Area type	.09**	.09**	.08**	.05**	.10**	.09**	.07**	.07**
Neighbourhood type	.09**	.06**	.05**	.00**	.05**	.05**	.03**	.05**
Health and lifestyle								
General health	.11**	.08**	.07**	.06**	.13**	.10**	.06**	.10**
Alcohol consumption	.10**	.08**	.05**	.10**	.14**	.14**	.14**	.12**
Smoker in house	.06**	.08**	.07**	.08**	.06**	.07**	.06**	.05**
House unoccupied at day	.07**	.05**	.06**	.10**	.09**	.07**	.03**	.06**

**p<.005

Table A5.4: Demographic predictors of worry about burglary (logistic regression)

		Exp (B)	Sig.
Gender	Male	.89	**
	Female (base)	1.00	
Age	16-29	1.43	**
	30-59	1.28	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.50	**
	Not married (base)	1.00	
Household Income	Under 5K	1.44	**
	5K under 15K	1.22	**
	15K under 20K	1.09	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.19	**
	In difficulty	1.39	**
Area Type	Inner city	1.52	**
	Urban	1.18	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.83	**
	Go own way	1.19	**
House unoccupied during the day	< 3 hours (base)	1.00	
	3 + hours	.98	
Smoker in household	Yes	.98	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.89	**
General health	Bad	1.17	**
	Good (base)	1.00	
Tenancy	Owners	1.19	**
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	.89	
	3+	.95	
Number of children in household	0	1.06	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.31	**
	Further	1.12	*
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 321.19**
- iv. Nagelkerke R^2 .04
- v. Hosmer and Lemeshow 11.54 (ns)

Table A5.5: Demographic predictors of worry about theft of vehicle (logistic regression)

		Exp (B)	Sig.
Gender	Male	.93	
	Female (base)	1.00	
Age	16-29	1.34	**
	30-59	1.04	
	60+ (base)	1.00	
Marital group	Married/de facto	1.07	
	Not married (base)	1.00	
Household Income	Under 5K	1.42	*
	5K under 15K	1.18	*
	15K under 20K	1.15	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.14	*
	In difficulty	1.14	
Area Type	Inner city	1.83	**
	Urban	1.33	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.93	
	Go own way	1.09	
House unoccupied during the day	<3 hours (base)	1.00	
	3 + hours a day	1.14	*
Smoker in household	Yes	1.11	*
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.91	*
General health	Bad	1.17	*
	Good (base)	1.00	
Tenancy	Owners	1.04	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.09	
	3+	1.19	
Number of children in household	0	1.12	*
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.27	**
	Further	1.19	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 247.95**
- iv. Nagelkerke R^2 .04
- v. Hosmer and Lemeshow 3.93 (ns)

Table A5.6: Demographic predictors of worry about theft from vehicle (logistic regression)

		Exp (B)	Sig.
Gender	Male	1.18	**
	Female (base)	1.00	
Age	16-29	1.45	**
	30-59	1.25	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.08	
	Not married (base)	1.00	
Household Income	Under 5K	1.43	*
	5K under 15K	1.13	
	15K under 20K	1.09	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.21	**
	In difficulty	1.07	
Area Type	Inner city	1.51	**
	Urban	1.33	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.95	
	Go own way	1.10	*
House unoccupied during the day	<3 hours (base)	1.00	
	3 + hours a day	1.11	
Smoker in household	Yes	1.11	*
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.96	
General health	Bad	1.11	
	Good (base)	1.00	
Tenancy	Owners	1.02	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.13	
	3+	1.25	*
Number of children in household	0	1.13	*
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.10	
	Further	1.16	*
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 204.65**
- iv. Nagelkerke R^2 .03
- v. Hosmer and Lemeshow 4.53 (ns)

Table A5.7: Demographic predictors of worry about card fraud (logistic regression)

		Exp (B)	Sig.
Gender	Male	.93	
	Female (base)	1.00	
Age	16-29	1.06	
	30-59	1.10	
	60+ (base)	1.00	
Marital group	Married/de facto	1.35	*
	Not married (base)	1.00	
Household Income	Under 5K	.88	
	5K under 15K	.93	
	15K under 20K	1.02	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.16	*
	In difficulty	1.35	
Area Type	Inner city	.98	
	Urban	.91	
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.80	*
	Go own way	.96	
House unoccupied during the day	<3 hours (base)	1.00	
	3 + hours a day	1.08	
Smoker in household	Yes	.96	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.95	
General health	Bad	1.01	
	Good (base)	1.00	
Tenancy	Owners	1.33	**
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	.90	
	3+	.96	
Number of children in household	0	1.16	*
	1+ (base)	1.00	
Education (highest qualification)	Secondary	.94	
	Further	1.06	
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 63.55**
- iv. Nagelkerke R^2 .02
- v. Hosmer and Lemeshow 14.63*

Table A5.8: Demographic predictors of worry about mugging (logistic regression)

		Exp (B)	Sig.
Gender	Male	.41	**
	Female (base)	1.00	
Age	16-29	.97	
	30-59	.92	
	60+ (base)	1.00	
Marital group	Married/de facto	1.10	
	Not married (base)	1.00	
Household Income	Under 5K	1.49	**
	5K under 15K	1.31	**
	15K under 20K	1.27	**
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.23	**
	In difficulty	1.24	*
Area Type	Inner city	1.70	**
	Urban	1.32	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.93	
	Go own way	1.18	**
House unoccupied during the day	<3 hours (base)	1.00	
	3 + hours a day	1.01	
Smoker in household	Yes	1.02	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.86	**
General health	Bad	1.32	**
	Good (base)	1.00	
Tenancy	Owners	.87	*
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.21	*
	3+	1.37	**
Number of children in household	0	1.13	*
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.52	**
	Further	1.33	**
	Higher (base)	1.00	

Notes:

- i. ** = p<0.005
- ii. * = p<0.05
- iii. Model Chi Square 998.80**
- iv. Nagelkerke R² .12
- v. Hosmer and Lemeshow 11.25 (ns)

Table A5.9: Demographic predictors of worry about attack (logistic regression)

		Exp (B)	Sig.
Gender	Male	.34	**
	Female (base)	1.00	
Age	16-29	1.66	**
	30-59	1.30	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.05	
	Not married (base)	1.00	
Household Income	Under 5K	1.62	**
	5K under 15K	1.28	**
	15K under 20K	1.24	**
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.31	**
	In difficulty	1.29	*
Area Type	Inner city	1.66	**
	Urban	1.23	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.90	
	Go own way	1.16	**
House unoccupied during the day	<3 hours (base)	1.00	
	3 + hours a day	1.06	
Smoker in household	Yes (base)	1.00	
	No	1.06	
Drink Alcohol	Rarely (base)	1.00	
	Often	.81	**
General health	Bad	1.30	**
	Good (base)	1.00	
Tenancy	Owners	.95	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.19	*
	3+	1.36	**
Number of children in household	0	1.07	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.57	**
	Further	1.49	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 1343.65**
- iv. Nagelkerke R^2 .15
- v. Hosmer and Lemeshow 6.19 (ns)

Table A5.10: Demographic predictors of worry about rape (logistic regression)

		Exp (B)	Sig.
Gender	Male	.11	**
	Female (base)	1.00	
Age	16-29	3.16	**
	30-59	1.98	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.02	
	Not married (base)	1.00	
Household Income	Under 5K	1.36	*
	5K under 15K	1.17	*
	15K under 20K	1.21	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.26	**
	In difficulty	1.41	*
Area Type	Inner city	1.47	**
	Urban	1.15	*
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.93	
	Go own way	1.06	
House unoccupied during the day	<3 hours (base)	1.00	
	3 + hours a day	1.10	
Smoker in household	Yes	.90	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.78	**
General health	Bad	1.05	
	Good (base)	1.00	
Tenancy	Owners	.92	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.18	
	3+	1.32	*
Number of children in household	0	.99	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.73	**
	Further	1.48	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 2526.69**
- iv. Nagelkerke R^2 .30
- v. Hosmer and Lemeshow 4.49 (ns)

Table A5.11: Demographic predictors of worry about insult (logistic regression)

		Exp (B)	Sig.
Gender	Male	.50	**
	Female (base)	1.00	
Age	16-29	1.31	**
	30-59	1.15	*
	60+ (base)	1.00	
Marital group	Married/de facto	.10	
	Not married (base)	1.00	
Household Income	Under 5K	1.29	*
	5K under 15K	1.21	**
	15K under 20K	1.07	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.21	**
	In difficulty	1.46	**
Area Type	Inner city	1.46	**
	Urban	1.26	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	1.04	
	Go own way	1.19	**
House unoccupied during the day	<3 hours (base)	1.00	
	3 + hours a day	1.04	
Smoker in household	Yes	.98	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.83	**
General health	Bad	1.29	**
	Good (base)	1.00	
Tenancy	Owners	.96	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.05	
	3+	1.21	*
Number of children in household	0	.95	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.21	**
	Further	1.21	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 584.48**
- iv. Nagelkerke R^2 .07
- v. Hosmer and Lemeshow 13.24 (ns)

Table A5.12: Demographic predictors of being 'very worried' about burglary (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	1.24	**
Age	16-29	1.80	**
	30-59	1.46	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.26	*
	Not married (base)	1.00	
Household Income	Under 5K	1.87	**
	5K under 15K	1.35	**
	15K under 20K	1.06	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.20	**
	In difficulty	1.75	**
Area Type	Inner city	2.07	**
	Urban	1.35	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.91	
	Go own way	1.16	*
House unoccupied during the day	<3 hours	1.15	*
	3 + hours a day (base)	1.00	
Smoker in household	Yes	1.02	
	No (base)	1.00	
Drink Alcohol	Rarely	1.21	**
	Often (base)	1.00	
General health	Bad	1.26	**
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	.97	
Number of adults in household	1 (base)	1.00	
	2	1.09	
	3+	.99	
Number of children in household	0	.99	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.99	**
	Further	1.65	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 491.16**
- iv. Nagelkerke R^2 .07
- v. Hosmer and Lemeshow 6.90 (ns)

Table A5.13: Demographic predictors of being 'very worried' about theft of vehicle (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	1.18	*
Age	16-29	1.33	*
	30-59	1.13	
	60+ (base)	1.00	
Marital group	Married/de facto	.16	
	Not married (base)	1.00	
Household Income	Under 5K	2.01	**
	5K under 15K	1.48	**
	15K under 20K	1.22	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.20	**
	In difficulty	1.01	
Area Type	Inner city	1.77	**
	Urban	1.56	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other	.85	
	Mixture	1.13	*
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	.91	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.19	**
	No (base)	1.00	
Drink Alcohol	Rarely	1.28	**
	Often (base)	1.00	
General health	Bad	1.20	*
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.24	*
Number of adults in household	1 (base)	1.00	
	2	1.38	*
	3+	1.47	**
Number of children in household	0	1.10	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.37	**
	Further	1.29	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 363.70**
- iv. Nagelkerke R^2 .06
- v. Hosmer and Lemeshow 8.09 (ns)

Table A5.14: Demographic predictors of being 'very worried' about theft from vehicle (logistic regression)

		Exp (B)	Significance
Gender	Male	1.13	*
	Female (base)	1.00	
Age	16-29	1.33	*
	30-59	1.22	
	60+ (base)	1.00	
Marital group	Married/de facto	.87	
	Not married (base)	1.00	
Household Income	Under 5K	1.80	**
	5K under 15K	1.30	**
	15K under 20K	1.15	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.14	
	In difficulty	1.06	
Area Type	Inner city	1.70	**
	Urban	1.35	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other	.80	*
	Mixture	1.07	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	.87	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.22	**
	No (base)	1.00	
Drink Alcohol	Rarely	1.11	
	Often (base)	1.00	
General health	Bad	1.26	**
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.28	**
Number of adults in household	1 (base)	1.00	
	2	1.38	*
	3+	1.57	**
Number of children in household	0	1.07	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.14	
	Further	1.25	*
	Higher (base)	1.00	

Notes:

- i. ** = p<0.005
- ii. * = p<0.05
- iii. Model Chi Square 203.56**
- iv. Nagelkerke R² .04
- v. Hosmer and Lemeshow 2.24 (ns)

Table A5.15: Demographic predictors of being 'very worried' about card fraud (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	.98	
Age	16-29	.94	
	30-59	1.04	
	60+ (base)	1.00	
Marital group	Married/de facto	1.20	
	Not married (base)	1.00	
Household Income	Under 5K	1.42	
	5K under 15K	1.21	
	15K under 20K	1.26	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.29	**
	In difficulty	1.28	
Area Type	Inner city	1.35	*
	Urban	1.06	
	Rural (base)	1.00	
Neighbourhood Type	Help each other	1.04	
	Mixture	.72	**
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	.95	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.04	
	No (base)	1.00	
Drink Alcohol	Rarely	1.35	**
	Often (base)	1.00	
General health	Bad	1.02	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	.93	
Number of adults in household	1 (base)	1.00	
	2	.94	
	3+	1.04	
Number of children in household	0	1.02	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.37	**
	Further	1.29	*
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 79.42**
- iv. Nagelkerke R^2 .03
- v. Hosmer and Lemeshow 7.76 (ns)

Table A5.16: Demographic predictors of being 'very worried' about mugging (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	2.17	**
Age	16-29	1.35	*
	30-59	1.17	
	60+ (base)	1.00	
Marital group	Married/de facto	1.08	
	Not married (base)	1.00	
Household Income	Under 5K	1.71	**
	5K under 15K	1.37	**
	15K under 20K	1.11	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.09	
	In difficulty	1.10	
Area Type	Inner city	2.05	**
	Urban	1.24	*
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.92	
	Go own way	1.10	
House unoccupied during the day	<3 hours	1.20	*
	3 + hours a day (base)	1.00	
Smoker in household	Yes	1.00	
	No (base)	1.00	
Drink Alcohol	Rarely	1.44	**
	Often (base)	1.00	
General health	Bad	1.25	**
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.15	
Number of adults in household	1 (base)	1.00	
	2	1.18	
	3+	1.45	**
Number of children in household	0	1.01	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	2.38	**
	Further	1.74	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 647.23**
- iv. Nagelkerke R^2 .11
- v. Hosmer and Lemeshow 9.89 (ns)

Table A5.17: Demographic predictors of being 'very worried' about attack (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	3.98	**
Age	16-29	2.05	**
	30-59	1.42	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.25	*
	Not married (base)	1.00	
Household Income	Under 5K	1.71	**
	5K under 15K	1.44	**
	15K under 20K	1.27	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.22	**
	In difficulty	1.17	
Area Type	Inner city	1.63	**
	Urban	1.18	*
	Rural (base)	1.00	
Neighbourhood Type	Help each other	.98	
	Mixture	.89	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	.99	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.06	
	No (base)	1.00	
Drink Alcohol	Rarely	1.37	**
	Often (base)	1.00	
General health	Bad	1.14	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.07	
Number of adults in household	1 (base)	1.00	
	2	1.09	
	3+	1.25	
Number of children in household	0	.95	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.95	**
	Further	1.55	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 020.47**
- iv. Nagelkerke R^2 .16
- v. Hosmer and Lemeshow 16.81*

Table A5.18: Demographic predictors of being 'very worried' about insult (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	2.57	**
Age	16-29	1.53	*
	30-59	1.25	
	60+ (base)	1.00	
Marital group	Married/de facto	1.28	
	Not married (base)	1.00	
Household Income	Under 5K	2.22	**
	5K under 15K	1.59	**
	15K under 20K	1.35	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.32	**
	In difficulty	1.49	*
Area Type	Inner city	1.65	**
	Urban	1.29	*
	Rural (base)	1.00	
Neighbourhood Type	Help each other	.89	
	Mixture	.79	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.04	
	3 + hours (base)	1.00	
Smoker in household	Yes	.93	
	No (base)	1.00	
Drink Alcohol	Rarely	1.36	**
	Often (base)	1.00	
General health	Bad	1.17	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.15	
Number of adults in household	1 (base)	1.00	
	2	1.20	
	3+	1.86	**
Number of children in household	0	.86	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.64	**
	Further	1.52	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 400.74**
- iv. Nagelkerke R^2 .09
- v. Hosmer and Lemeshow 17.22*

Table A5.19: Demographic predictors of being 'very worried' about rape (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	5.26	**
Age	16-29	2.56	**
	30-59	1.77	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.07	
	Not married (base)	1.00	
Household Income	Under 5K	1.40	*
	5K under 15K	1.18	
	15K under 20K	1.25	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.19	**
	In difficulty	1.18	
Area Type	Inner city	1.57	**
	Urban	1.13	
	Rural (base)	1.00	
Neighbourhood Type	Help each other	.97	
	Mixture	.93	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	.97	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.02	
	No (base)	1.00	
Drink Alcohol	Rarely	1.39	**
	Often (base)	1.00	
General health	Bad	1.01	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.08	
Number of adults in household	1 (base)	1.00	
	2	1.17	
	3+	1.28	*
Number of children in household	0	.90	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	2.22	**
	Further	1.63	**
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 1233.23**
- iv. Nagelkerke R^2 .19
- v. Hosmer and Lemeshow 6.63 (ns)

Table A5.20: Demographic predictors of being 'not at all worried' about burglary (logistic regression)

		Exp (B)	Sig.
Gender	Male	1.44	**
	Female (base)	1.00	
Age	16-29(base)	1.00	
	30-59	.99	
	60+	1.68	**
Marital group	Married/de facto (base)	1.00	
	Not married	1.71	**
Household Income	Under 5K(base)	1.00	
	5K under 15K	.86	
	15K under 20K	.94	
	20K+	.99	
Managing on Income	Well and saving	1.11	
	Getting by	1.09	
	In difficulty (base)	1.00	
Area Type	Inner city (base)	1.00	
	Urban	1.22	
	Rural	1.53	**
Neighbourhood Type	Help each other	1.40	**
	Mixture	1.32	**
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.08	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.28	**
	No (base)	1.00	
Drink Alcohol	Rarely	1.04	
	Often (base)	1.00	
General health	Bad (base)	1.00	
	Good	1.15	
Tenancy	Owners (base)	1.00	
	Renters	1.46	**
Number of adults in household	1	1.11	
	2	1.14	
	3+ (base)	1.00	
Number of children in household	0	1.13	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.21	
	Further	1.12	
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 181.32**
- iv. Nagelkerke R^2 .04
- v. Hosmer and Lemeshow 15.57*

Table A5.21: Demographic predictors of being 'not at all worried' about theft of vehicle (logistic regression)

		Exp (B)	Sig.
Gender	Male	1.50	**
	Female (base)	1.00	
Age	16-29 (base)	1.00	
	30-59	.89	
	60+	.91	
Marital group	Married/de facto (base)	1.00	
	Not married	.98	
Household Income	Under 5K(base)	1.00	
	5K under 15K	1.04	
	15K under 20K	.90	
	20K+	1.09	
Managing on Income	Well and saving	.94	
	Getting by	1.02	
	In difficulty (base)	1.00	
Area Type	Inner city(base)	1.00	
	Urban	1.29	
	Rural	1.65	**
Neighbourhood Type	Help each other	1.13	
	Mixture	1.02	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.34	**
	3 + hours (base)	1.00	
Smoker in household	Yes	1.06	
	No (base)	1.00	
Drink Alcohol	Rarely	.91	
	Often (base)	1.00	
General health	Bad (base)	1.00	
	Good	.95	
Tenancy	Owners (base)	1.00	
	Renters	1.14	
Number of adults in household	1	1.33	
	2	1.08	
	3+ (base)	1.00	
Number of children in household	0	.95	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	.94	
	Further	.97	
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 88.08**
- iv. Nagelkerke R^2 .02
- v. Hosmer and Lemeshow 4.71 (ns)

Table A5.22: Demographic predictors of being 'not at all worried' about theft from vehicle (logistic regression)

		Exp (B)	Sig.
Gender	Male	.98	
	Female (base)	1.00	
Age	16-29 (base)	1.00	
	30-59	1.05	
	60+	1.44	*
Marital group	Married/de facto (base)	1.00	
	Not married	1.05	
Household Income	Under 5K(base)	1.00	
	5K under 15K	1.16	
	15K under 20K	1.18	
	20K+	1.24	
Managing on Income	Well and saving	.81	
	Getting by	.83	
	In difficulty (base)	1.00	
Area Type	Inner city (base)	1.00	
	Urban	.96	
	Rural	1.11	
Neighbourhood Type	Help each other	1.22	*
	Mixture	1.19	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.29	**
	3 + hours (base)	1.00	
Smoker in household	Yes	.10	
	No (base)	1.00	
Drink Alcohol	Rarely	.91	
	Often (base)	1.00	
General health	Bad (base)	1.00	
	Good	.93	
Tenancy	Owners (base)	1.00	
	Renters	1.18	
Number of adults in household	1	1.25	
	2	1.00	
	3+ (base)	1.00	
Number of children in household	0	1.03	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.01	
	Further	.98	
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 76.03**
- iv. Nagelkerke R^2 .02
- v. Hosmer and Lemeshow 2.21 (ns)

Table A5.23: Demographic predictors of being 'not at all worried' about card fraud (logistic regression)

		Exp (B)	Sig.
Gender	Male	1.09	
	Female (base)	1.00	
Age	16-29 (base)	1.00	
	30-59	.92	
	60+	1.40	*
Marital group	Married/de facto (base)	1.00	
	Not married	1.18	
Household Income	Under 5K	2.11	**
	5K under 15K	1.55	**
	15K under 20K	1.35	**
	20K+ (base)	1.00	
Managing on Income	Well and saving	1.20	
	Getting by	1.04	
	In difficulty (base)	1.00	
Area Type	Inner city (base)	1.00	
	Urban	1.03	
	Rural	.87	
Neighbourhood Type	Help each other	.95	
	Mixture	1.09	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.24	*
	3 + hours (base)	1.00	
Smoker in household	Yes	1.37	**
	No (base)	1.00	
Drink Alcohol	Rarely	1.17	*
	Often (base)	1.00	
General health	Bad (base)	1.00	
	Good	1.11	
Tenancy	Owners (base)	1.00	
	Renters	1.39	**
Number of adults in household	1	.83	
	2	.84	
	3+ (base)	1.00	
Number of children in household	0	.95	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.17	
	Further	.97	
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 164.52**
- iv. Nagelkerke R^2 .05
- v. Hosmer and Lemeshow 7.13 (ns)

Table A5.24: Demographic predictors of being 'not at all worried' about mugging (logistic regression)

		Exp (B)	Sig.
Gender	Male	3.17	**
	Female (base)	1.00	
Age	16-29 (base)	1.00	
	30-59	1.05	
	60+	1.07	
Marital group	Married/de facto (base)	1.00	
	Not married	1.34	*
Household Income	Under 5K(base)	1.00	
	5K under 15K	.82	
	15K under 20K	.87	
	20K+	.93	
Managing on Income	Well and saving	.90	
	Getting by	.79	
	In difficulty (base)	1.00	
Area Type	Inner city (base)	1.00	
	Urban	1.27	*
	Rural	1.67	**
Neighbourhood Type	Help each other	1.38	**
	Mixture	1.47	**
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.09	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.15	*
	No (base)	1.00	
Drink Alcohol	Rarely	1.07	
	Often (base)	1.00	
General health	Bad (base)	1.00	
	Good	1.12	
Tenancy	Owners (base)	1.00	
	Renters	1.10	
Number of adults in household	1	1.21	
	2	1.21	*
	3+ (base)	1.00	
Number of children in household	0	.99	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.18	*
	Further	1.11	
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 508.38**
- iv. Nagelkerke R^2 .08
- v. Hosmer and Lemeshow 20.35*

Table A5.25: Demographic predictors of being 'not at all worried' about attack (logistic regression)

		Exp (B)	Sig.
Gender	Male	3.06	**
	Female (base)	1.00	
Age	16-29 (base)	1.00	
	30-59	1.29	**
	60+	1.95	**
Marital group	Married/de facto (base)	1.00	
	Not married	1.21	
Household Income	Under 5K	.99	
	5K under 15K	.99	
	15K under 20K	1.01	
	20K+ (base)	1.00	
Managing on Income	Well and saving	1.02	
	Getting by	.82	
	In difficulty (base)	1.00	
Area Type	Inner city (base)	1.00	
	Urban	1.27	*
	Rural	1.50	**
Neighbourhood Type	Help each other	1.30	**
	Mixture	1.32	**
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.07	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.02	
	No (base)	1.00	
Drink Alcohol	Rarely	1.04	
	Often (base)	1.00	
General health	Bad (base)	1.00	
	Good	1.14	
Tenancy	Owners (base)	1.00	
	Renters	1.13	
Number of adults in household	1	.99	
	2	1.12	
	3+ (base)	1.00	
Number of children in household	0	.94	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.08	
	Further	1.01	
	Higher (base)	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 610.38**
- iv. Nagelkerke R^2 .09
- v. Hosmer and Lemeshow 16.40*

Table A5.26: Demographic predictors of being 'not at all worried' about rape (logistic regression)

		Exp (B)	Sig.
Gender	Male	14.72	**
	Female (base)	1.00	
Age	16-29 (base)	1.00	
	30-59	1.42	**
	60+	2.84	**
Marital group	Married/de facto (base)	1.00	
	Not married	1.25	*
Household Income	Under 5K	.87	
	5K under 15K	.93	
	15K under 20K	.93	
	20K+ (base)	1.00	
Managing on Income	Well and saving	1.07	
	Getting by	.86	
	In difficulty (base)	1.00	
Area Type	Inner city (base)	1.00	
	Urban	1.00	
	Rural	1.15	
Neighbourhood Type	Help each other	1.04	
	Mixture	1.19	*
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.21	*
	3 + hours (base)	1.00	
Smoker in household	Yes	1.11	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	1.13	*
General health	Bad (base)	1.00	
	Good	.99	
Tenancy	Owners (base)	1.00	
	Renters	.98	
Number of adults in household	1	1.06	
	2	1.03	
	3+ (base)	1.00	
Number of children in household	0	1.04	
	1+ (base)	1.00	
Education (highest qualification)	Secondary (base)	1.00	
	Further	.96	
	Higher	1.17	*

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 3951.54**
- iv. Nagelkerke R^2 .42
- v. Hosmer and Lemeshow 59.51**

Table A5.27: Demographic predictors of being 'not at all worried' about insult (logistic regression)

		Exp (B)	Sig.
Gender	Male	2.32	**
	Female (base)	1.00	
Age	16-29 (base)	1.00	
	30-59	1.06	
	60+	1.47	**
Marital group	Married/de facto (base)	1.00	
	Not married	1.19	
Household Income	Under 5K	.99	
	5K under 15K	.98	
	15K under 20K	.96	
	20K+ (base)	1.00	
Managing on Income	Well and saving	1.18	
	Getting by	1.00	
	In difficulty (base)	1.00	
Area Type	Inner city (base)	1.00	
	Urban	1.00	
	Rural	1.17	
Neighbourhood Type	Help each other	1.20	**
	Mixture	1.12	
	Go own way (base)	1.00	
House unoccupied during the day	<3 hours	1.10	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.12	*
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.99	
General health	Bad (base)	1.00	
	Good	1.17	*
Tenancy	Owners (base)	1.00	
	Renters	1.04	
Number of adults in household	1	1.08	
	2	1.08	
	3+ (base)	1.00	
Number of children in household	0	.94	
	1+ (base)	1.00	
Education (highest qualification)	Secondary (base)	1.14	*
	Further	1.04	
	Higher	1.00	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 432.78**
- iv. Nagelkerke R^2 .06
- v. Hosmer and Lemeshow 29.22**

Appendix 6: Victimisation and demographics

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Table A6.1: Percent victims for each crime across demographic groups

		% Victim in last year						
		Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Sexual attack
Gender	Male	2	2	9	2	2	5	.1
	Female	3	3	9	2	3	3	.7
Age	16-29	4	4	12	3	4	10	1
	30-59	3	3	10	3	2	4	.4
	60+	2	1	5	1	2	1	.1
Marital status	Married	2	2	9	2	2	2	.2
	Not married	3	3	9	3	4	6	.7
Tenancy	Owners	2	2	8	2	2	3	.2
	Renters	5	4	11	2	4	6	.9
No. of Adults	1	4	2	8	2	3	5	.8
	2	2	2	9	2	2	3	.2
	3+	2	4	12	2	3	6	.3
No. of Children	0	2	2	8	2	2	3	.3
	1+	3	3	10	2	2	6	.7
Education	Secondary	3	3	9	2	2	5	.4
	Further	2	3	11	3	2	5	.5
	Higher	3	2	10	3	3	4	.5
Household income	Under 5K	4	3	7	1	3	5	1
	5K under 15K	3	2	7	1	3	4	.5
	15K under 20K	2	2	9	2	2	4	.2
	20K +	2	2	11	4	2	3	.2
Managing on income	Well (saving)	2	2	9	2	2	3	.2
	Getting by	3	3	9	2	3	4	.5
	In difficulty	8	6	13	2	4	11	1
Neighbourhood type	Help each other	2	2	8	2	2	3	.3
	Go own way	3	2	9	2	2	3	.4
	Mixture	3	3	10	2	3	5	.5
Area type	Inner city	4	3	12	2	4	5	.6
	Urban	3	3	10	2	2	4	.4
	Rural	2	2	7	3	2	2	.2
General health	Bad	3	2	9	1	3	4	.5
	Good	2	2	9	2	2	4	.4
Smoker in household	Yes	3	3	11	2	3	6	.6
	No	2	2	8	2	2	3	.3
Alcohol consumption	Rarely	3	3	8	2	3	3	.4
	Often	2	2	10	2	2	4	.4
House unoccupied during day	< 3 hours	3	2	6	1	2	2	.3
	3+ hours	3	3	10	2	3	5	.4

Table A6.2: Association between victimisation and demographics

Cramer's V	Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Sexual Attack
Respondent							
Gender	.01	.01	.01	.02*	.04**	.04**	.05**
Age	.05**	.05**	.10**	.07**	.05**	.16**	.05**
Marital	.04**	.00	.00	.03*	.06**	.10**	.04**
Household							
Tenancy	.08**	.04**	.04**	.02*	.05**	.09**	.05**
No. of adults	.04**	.04**	.05**	.02	.04**	.07**	.04**
No. of children	.03**	.03**	.03**	.01	.00	.07**	.03**
Socio-economic							
Education	.01	.03*	.02	.04*	.02	.03*	.01
Household income	.04**	.01	.06**	.09**	.01	.03**	.04**
Managing on income	.08**	.05**	.03**	.03*	.03**	.09**	.04**
Area							
Area type	.03**	.04**	.05**	.02	.03**	.04**	.02
Neighbourhood type	.04**	.02	.03**	.00	.02*	.06**	.02*
Health and lifestyle							
General health	.02**	.00	.01	.03**	.03**	.01	.01
Alcohol consumption	.01	.00	.02*	.03**	.01	.02*	.00
Smoker in house	.04**	.31	.04**	.01	.04**	.08**	.02**
House unoccupied at day	.00	.03**	.06**	.04**	.01	.06**	.01

**p<0.005

Table A6.3: Demographic predictors of burglary victimisation (logistic regression)

		Exp (B)	Sig.
Gender	Male	.82	
	Female (base)	1.00	
Age	16-29	1.76	*
	30-59	1.18	
	60+ (base)	1.00	
Marital group	Married/de facto	1.21	
	Not married (base)	1.00	
Household Income	Under 5K (base)	1.00	
	5K under 15K	.76	
	15K under 20K	.71	
	20K+	.99	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.12	
	In difficulty	2.03	**
Area Type	Inner city (base)	1.00	
	Urban	1.15	
	Rural	.95	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	1.42	
	Go own way	1.40	*
House unoccupied during the day	<3 hours	1.11	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.32	*
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	1.07	
General health	Bad	1.16	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.87	**
Number of adults in household	1	1.64	*
	2	1.05	
	3+ (base)	1.00	
Number of children in household	0 (base)	1.00	
	1+	1.11	
Education (highest qualification)	Secondary (base)	1.00	
	Further	1.02	
	Higher	1.33	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 118.47**
- iv. Nagelkerke R^2 .05
- v. Hosmer and Lemeshow 4.41 (ns)

Table A6.4: Demographic predictors of theft of vehicle victimisation (logistic regression)

		Exp (B)	Sig.
Gender	Male	1.09	
	Female (base)	1.00	
Age	16-29	2.66	**
	30-59	2.16	*
	60+ (base)	1.00	
Marital group	Married/de facto	1.23	
	Not married (base)	1.00	
Household Income	Under 5K (base)	1.00	
	5K under 15K	.62	
	15K under 20K	.39	*
	20K+	.51	*
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.13	
	In difficulty	1.70	
Area Type	Inner city (base)	1.00	
	Urban	.94	
	Rural	.52	*
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.84	
	Go own way	.91	
House unoccupied during the day	<3 hours	.84	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.19	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	1.00	
General health	Bad	1.17	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.10	
Number of adults in household	1	.50	*
	2	.55	**
	3+ (base)	1.00	
Number of children in household	0 (base)	1.00	
	1+	1.16	
Education (highest qualification)	Secondary (base)	1.00	
	Further	1.08	
	Higher	.73	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 87.76**
- iv. Nagelkerke R^2 .04
- v. Hosmer and Lemeshow 6.19 (ns)

Table A6.5: Demographic predictors of theft from vehicle victimisation (logistic regression)

		Exp (B)	Sig.
Gender	Male	.96	
	Female (base)	1.00	
Age	16-29	2.06	**
	30-59	1.77	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.11	
	Not married (base)	1.00	
Household Income	Under 5K (base)	1.00	
	5K under 15K	1.41	
	15K under 20K	1.31	
	20K+	1.57	*
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.11	
	In difficulty	1.46	*
Area Type	Inner city (base)	1.00	
	Urban	.84	
	Rural	.65	**
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	1.09	
	Go own way	1.04	
House unoccupied during the day	<3 hours	.79	*
	3 + hours (base)	1.00	
Smoker in household	Yes	1.14	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	1.13	
General health	Bad	1.13	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.27	*
Number of adults in household	1	.74	*
	2	.75	**
	3+ (base)	1.00	
Number of children in household	0 (base)	1.00	
	1+	1.08	
Education (highest qualification)	Secondary (base)	1.00	
	Further	1.29	**
	Higher	1.14	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 150.30**
- iv. Nagelkerke R^2 .03
- v. Hosmer and Lemeshow 5.79 (ns)

Table A6.6: Demographic predictors of card fraud victimisation (logistic regression)

		Exp (B)	Sig.
Gender	Male	1.24	
	Female (base)	1.00	
Age	16-29	2.87	*
	30-59	2.50	*
	60+ (base)	1.00	
Marital group	Married/de facto	1.52	
	Not married (base)	1.00	
Household Income	Under 5K (base)	1.00	
	5K under 15K	.97	
	15K under 20K	1.42	
	20K+	2.54	
Managing on Income	Well and saving (base)	1.00	
	Getting by	.94	
	In difficulty	1.77	
Area Type	Inner city (base)	1.00	
	Urban	1.11	
	Rural	1.15	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.98	
	Go own way	.79	
House unoccupied during the day	<3 hours	.98	
	3 + hours (base)	1.00	
Smoker in household	Yes	.96	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	.84	
General health	Bad	1.16	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.57	*
Number of adults in household	1	2.01	
	2	1.12	
	3+ (base)	1.00	
Number of children in household	0 (base)	1.00	
	1+	.79	
Education (highest qualification)	Secondary (base)	1.00	
	Further	1.26	
	Higher	1.37	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 48.38**
- iv. Nagelkerke R^2 .04
- v. Hosmer and Lemeshow 11.72 (ns)

Table A6.7: Demographic predictors of mugging victimisation (logistic regression)

		Exp (B)	Sig.
Gender	Male	.57	**
	Female (base)	1.00	
Age	16-29	1.48	
	30-59	1.03	
	60+ (base)	1.00	
Marital group	Married/de facto	.59	*
	Not married (base)	1.00	
Household Income	Under 5K (base)	1.00	
	5K under 15K	.92	
	15K under 20K	.93	
	20K+	1.20	
Managing on Income	Well and saving (base)	1.00	
	Getting by	.91	
	In difficulty	.73	
Area Type	Inner city (base)	1.00	
	Urban	.81	
	Rural	.78	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.99	
	Go own way	1.09	
House unoccupied during the day	<3 hours	.72	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.63	**
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	1.07	
General health	Bad	1.99	**
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.68	**
Number of adults in household	1	1.22	
	2	1.07	
	3+ (base)	1.00	
Number of children in household	0 (base)	1.00	
	1+	.86	
Education (highest qualification)	Secondary (base)	1.00	
	Further	1.34	
	Higher	1.75	**

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 147.69**
- iv. Nagelkerke R^2 .06
- v. Hosmer and Lemeshow 9.04 (ns)

Table A6.8: Demographic predictors of attack victimisation (logistic regression)

		Exp (B)	Sig.
Gender	Male	1.79	**
	Female (base)	1.00	
Age	16-29	11.26	**
	30-59	5.92	**
	60+ (base)	1.00	
Marital group	Married/de facto	.45	**
	Not married (base)	1.00	
Household Income	Under 5K (base)	1.00	
	5K under 15K	.89	
	15K under 20K	.76	
	20K+	.75	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.24	
	In difficulty	1.75	**
Area Type	Inner city (base)	1.00	
	Urban	1.11	
	Rural	1.01	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	1.06	
	Go own way	1.13	
House unoccupied during the day	<3 hours	.89	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.55	**
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	1.05	
General health	Bad	1.27	*
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.21	
Number of adults in household	1	1.11	
	2	.82	
	3+ (base)	1.00	
Number of children in household	0 (base)	1.00	
	1+	1.71	**
Education (highest qualification)	Secondary (base)	1.00	
	Further	1.24	*
	Higher	1.09	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 501.41**
- iv. Nagelkerke R^2 .14
- v. Hosmer and Lemeshow 7.50 (ns)

Table A6.9: Demographic predictors of sexual attack victimisation (logistic regression)

		Exp (B)	Sig.
Gender	Male	.14	**
	Female (base)	1.00	
Age	16-29	9.26	*
	30-59	4.38	*
	60+ (base)	1.00	
Marital group	Married/de facto	.64	
	Not married (base)	1.00	
Household Income	Under 5K (base)	1.00	
	5K under 15K	1.03	
	15K under 20K	.57	
	20K+	.57	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.02	
	In difficulty	.79	
Area Type	Inner city (base)	1.00	
	Urban	1.11	
	Rural	1.10	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.86	
	Go own way	1.09	
House unoccupied during the day	<3 hours	.82	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.62	
	No (base)	1.00	
Drink Alcohol	Rarely (base)	1.00	
	Often	1.10	
General health	Bad	1.28	
	Good (base)	1.00	
Tenancy	Owners (base)	1.00	
	Renters	1.92	
Number of adults in household	1	2.65	
	2	1.42	
	3+ (base)	1.00	
Number of children in household	0 (base)	1.00	
	1+	1.10	
Education (highest qualification)	Secondary (base)	1.00	
	Further	2.02	*
	Higher	2.68	*

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 111.32**
- iv. Nagelkerke R^2 .16
- v. Hosmer and Lemeshow 27.23**

Appendix 7: Worry and victimisation

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Table A7.1: Worry levels for victims and non victims for individual crimes

	% Very worried	% Fairly worried	% Not very worried	% Not at all worried
Burglary				
Victims	42	35	18	5
Non-victims	18	38	35	9
Theft of vehicle				
Victims	50	33	12	4
Non-victims	19	36	34	11
Theft from vehicle				
Victims	28	42	24	7
Non-victims	14	36	38	13
Card fraud				
Victims	43	34	18	5
Non-victims	17	31	32	20
Mugging				
Victims	25	32	34	9
Non-victims	17	26	42	15
Attack				
Victims	21	29	36	14
Non-victims	17	25	39	19
Rape/sexual attack				
Victims	36	22	29	13
Non-victims	19	13	28	41

Table A7.2: Association between worry and victimisation across all crime types

		Worry							
	Chi Square	Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Rape	Insult
	Cramer's V								
Victimisation	Burglary	185.78** .10**	7.69 .02	12.44* .03 *	.98 .01	24.80** .04 **	25.73** .04 **	6.84 .02	34.01 .04 **
	Theft of vehicle	42.12** .05 **	226.70** .13 **	120.12** .09 **	6.83 .03	23.50** .04 **	11.61* .03 *	5.33 .02	5.77 .02
	Theft from vehicle	25.53** .04 **	119.90** .09 **	266.10** .14 **	9.29* .04 *	7.31 .02	15.08** .03**	1.67 .01	5.02 .02
	Card fraud	5.739 .02	0.01 .00	3.23 .02	106.91** .11**	3.27 .02	1.23 .01	8.32* .03 *	2.20 .02
	Mugging	27.16** .03 **	15.39** .03 **	16.59** .03 **	9.19* .03 *	42.21** .05**	33.79** .04**	21.93** .04**	27.76** .03**
	Attack	9.63* .02*	8.78* .03*	14.17** .03**	13.45* .04*	.71 .01	17.05** .03**	8.02* .02	18.55** .03**
	Sexual attack	7.05 .02	5.19 .02	2.26 .01	6.36 .03	15.64** .03**	48.92** .05**	33.06** .04**	43.55** .03**

**p<0.005

*p<.05

Table A7.3: Association between worry and victimisation across all crime types (PRE measure)

		Worry							
Victimisation	Gamma	Burglary	Theft of vehicle	Theft from vehicle	Card fraud	Mugging	Attack	Rape	Insult
	Burglary	-.41**	-.11**	-.10**	-.02	-.13**	-.15**	-.05	-.16**
	Theft of vehicle	-.25**	-.54**	-.39**	-.09	-.17**	-.10*	-.09	-.06
	Theft from vehicle	-.11**	-.24**	-.5**	-.03	-.04	-.06*	-.02	-.05*
	Card fraud	-.07	-.00	-.05	-.51**	.06	-.00	-.01	.01
	Mugging	-.15**	-.17**	-.17**	-.06	-.23**	-.21**	-.16**	-.17**
	Attack	-.08*	-.08*	-.12**	.11*	-.01	-.12**	-.03	-.08*
	Sexual attack	-.23*	-.20	-.05	.15	-.34**	-.51**	-.46**	-.42**

**p<0.005

*p<0.05

Table A7.4: Predictors (demographics and victimisation) of worry about burglary (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	1.06	
Age	16-29	1.47	**
	30-59	1.37	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.69	**
	Not married (base)	1.00	
Household Income	Under 5K	1.64	**
	5K under 15K	1.26	*
	15K under 20K	1.14	
	20K+ (base)	1.00	
Spending on Income	Well and saving (base)	1.00	
	Getting by	1.27	
	In difficulty	1.00	
Area Type	Inner city	1.53	**
	Urban	1.10	
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.75	
	Go own way	1.12	
House unoccupied during the day	<3 hours	1.01	
	3 + hours (base)	1.00	
Smoker in household	Yes (base)	1.00	
	No	1.14	*
Drink Alcohol	Rarely	1.06	
	Often (base)	1.00	
General health	Bad	1.08	
	Good (base)	1.00	
Tenancy	Owners	1.29	**
	Renters (base)	1.00	
Number of adults in household	1	1.18	
	2	1.02	
	3+ (base)	1.00	
Number of children in household	0	1.13	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.18	*
	Further	1.18	*
	Higher (base)	1.00	
Victimisation (base = 'no')	Burglary	3.09	**
	Theft of vehicle	1.35	
	Theft from vehicle	1.17	
	Card fraud	1.13	
	Mugging	.98	
	Attack	1.34	
	Sexual attack	1.15	

Notes:

- i. ** = p < 0.005
- ii. * = p < 0.05
- iii. Model Chi Square 173.59**
- iv. Nagelkerke R² .05
- v. Hosmer and Lemeshow 4.49 (ns)

Table A7.5: Predictors (demographics and victimisation) of worry about theft of vehicle (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	1.18	*
Age	16-29	1.30	*
	30-59	1.01	
	60+ (base)	1.00	
Marital group	Married/de facto	1.38	*
	Not married (base)	1.00	
Household Income	Under 5K	1.80	**
	5K under 15K	1.31	**
	15K under 20K	1.38	**
	20K+ (base)	1.00	
Managing on Income	Well and saving	1.06	
	Getting by	1.18	
	In difficulty (base)	1.00	
Area Type	Inner city	1.86	**
	Urban	1.29	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.86	
	Go own way	1.06	
House unoccupied during the day	<3 hours	.89	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.17	*
	No (base)	1.00	
Drink Alcohol	Rarely	1.16	*
	Often (base)	1.00	
General health	Bad	1.14	
	Good (base)	1.00	
Tenancy	Owners	1.11	
	Renters (base)	1.00	
Number of adults in household	1	.94	
	2	.89	
	3+ (base)	1.00	
Number of children in household	0	1.18	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.23	*
	Further	1.14	
	Higher (base)	1.00	
Victimisation (base = no)	Burglary	1.20	
	Theft of vehicle	3.54	**
	Theft from vehicle	1.93	**
	Card fraud	.92	
	Mugging	1.47	
	Attack	1.08	
	Sexual attack	1.51	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 248.52**
- iv. Nagelkerke R^2 .07
- v. Hosmer and Lemeshow 1.22 (ns)

Table A7.6: Predictors (demographics and victimisation) of worry about theft from vehicle (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	.89	
Age	16-29	1.48	**
	30-59	1.32	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.20	
	Not married (base)	1.00	
Household Income	Under 5K	1.59	*
	5K under 15K	1.25	*
	15K under 20K	1.20	*
	20K+ (base)	1.00	
Managing on Income	Well and saving	.95	
	Getting by	1.19	
	In difficulty (base)	1.00	
Area Type	Inner city	1.54	**
	Urban	1.27	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.95	
	Go own way	1.09	
House unoccupied during the day	<3 hours	.92	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.21	**
	No (base)	1.00	
Drink Alcohol	Rarely	1.07	
	Often (base)	1.00	
General health	Bad	1.06	
	Good (base)	1.00	
Tenancy	Owners	1.20	
	Renters (base)	1.00	
Number of adults in household	1	.81	
	2	.85	
	3+ (base)	1.00	
Number of children in household	0	1.23	**
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.07	
	Further	1.18	*
	Higher (base)	1.00	
Victimisation (base = no)	Burglary	1.38	
	Theft of vehicle	2.20	**
	Theft from vehicle	2.15	**
	Card fraud	.94	
	Mugging	1.46	
	Attack	1.06	
	Sexual attack	.99	

Notes:

- i. ** = p<0.005
- ii. * = p<0.05
- iii. Model Chi Square 214.03**
- iv. Nagelkerke R² .06
- v. Hosmer and Lemeshow 4.51 (ns)

Table A7.7: Predictors (demographics and victimisation) of worry about card fraud (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	1.06	
Age	16-29	1.07	
	30-59	1.09	
	60+ (base)	1.00	
Marital group	Married/de facto	1.34	*
	Not married (base)	1.00	
Household Income	Under 5K	1.05	
	5K under 15K	1.04	
	15K under 20K	1.08	
	20K+ (base)	1.00	
Managing on Income	Well and saving	1.02	
	Getting by	1.16	
	In difficulty (base)	1.00	
Area Type	Inner city	.94	
	Urban	.92	
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.80	
	Go own way	.97	
House unoccupied during the day	<3 hours	.94	
	3 + hours (base)	1.00	
Smoker in household	Yes	.98	
	No (base)	1.00	
Drink Alcohol	Rarely	1.03	
	Often (base)	1.00	
General health	Bad	1.04	
	Good (base)	1.00	
Tenancy	Owners	1.20	*
	Renters (base)	1.00	
Number of adults in household	1	1.04	
	2	.97	
	3+ (base)	1.00	
Number of children in household	0	1.14	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	.98	
	Further	1.08	
	Higher (base)	1.00	
Victimisation (base = no)	Burglary	1.25	
	Theft of vehicle	1.25	
	Theft from vehicle	1.21	
	Card fraud	3.30	**
	Mugging	1.16	
	Attack	.67	**
	Sexual attack	.36	

Notes:

- i. ** = p<0.005
- ii. * = p<0.05
- iii. Model Chi Square 97.79**
- iv. Nagelkerke R² .03
- v. Hosmer and Lemeshow 11.35 (ns)

Table A7.8: Predictors (demographics and victimisation) of worry about mugging (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	2.30	**
Age	16-29	1.01	
	30-59	.93	
	60+ (base)	1.00	
Marital group	Married/de facto	1.14	
	Not married (base)	1.00	
Household Income	Under 5K	1.52	*
	5K under 15K	1.25	*
	15K under 20K	1.26	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.38	**
	In difficulty	1.51	*
Area Type	Inner city	1.73	**
	Urban	1.35	**
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.91	
	Go own way	1.12	
House unoccupied during the day	<3 hours	1.03	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.06	
	No (base)	1.00	
Drink Alcohol	Rarely	1.15	*
	Often (base)	1.00	
General health	Bad	1.15	
	Good (base)	1.00	
Tenancy	Owners	1.06	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.25	
	3+	1.37	*
Number of children in household	0	1.15	*
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.05	**
	Further	1.29	**
	Higher (base)	1.00	
Victimisation (base = no)	Burglary	1.44	
	Theft of vehicle	1.40	
	Theft from vehicle	1.06	
	Card fraud	1.17	
	Mugging	1.21	
	Attack	1.07	
	Sexual attack	1.24	

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 366.86**
- iv. Nagelkerke R^2 .10
- v. Hosmer and Lemeshow 23.45**

Table A7.9: Predictors (demographics and victimisation) of worry about attack (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	2.96	**
Age	16-29	1.51	**
	30-59	1.24	*
	60+ (base)	1.00	
Marital group	Married/de facto	1.04	
	Not married (base)	1.00	
Household Income	Under 5K	1.77	**
	5K under 15K	1.26	*
	15K under 20K	1.22	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.42	**
	In difficulty	1.55	*
Area Type	Inner city	1.60	**
	Urban	1.13	
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.83	
	Go own way	1.15	*
House unoccupied during the day	<3 hours	1.01	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.08	
	No (base)	1.00	
Drink Alcohol	Rarely	1.19	
	Often (base)	1.00	
General health	Bad	1.09	
	Good (base)	1.00	
Tenancy	Owners	1.12	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.24	
	3+	1.37	*
Number of children in household	0	1.05	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.54	**
	Further	1.58	**
	Higher (base)	1.00	
Victimisation (base = no)	Burglary	1.21	
	Theft of vehicle	1.25	
	Theft from vehicle	1.12	
	Card fraud	1.12	
	Mugging	.98	
	Attack	1.25	
	Sexual attack	1.21	

Notes:

- i. ** = p<0.005
- ii. * = p<0.05
- iii. Model Chi Square 537.60**
- iv. Nagelkerke R² .14
- v. Hosmer and Lemeshow 6.66 (ns)

Table A7.10: Predictors (demographics and victimisation) of worry about rape (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	9.09	**
Age	16-29	2.93	**
	30-59	1.94	**
	60+ (base)	1.00	
Marital group	Married/de facto	1.02	
	Not married (base)	1.00	
Household Income	Under 5K	1.11	
	5K under 15K	1.30	*
	15K under 20K	1.25	*
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.44	**
	In difficulty	1.67	*
Area Type	Inner city	1.54	**
	Urban	1.13	
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.86	
	Go own way	1.07	
House unoccupied during the day	<3 hours	.84	
	3 + hours (base)	1.00	
Smoker in household	Yes	.96	
	No (base)	1.00	
Drink Alcohol	Rarely	1.19	
	Often (base)	1.00	
General health	Bad	1.04	
	Good (base)	1.00	
Tenancy	Owners	1.04	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.19	
	3+	1.15	
Number of children in household	0	.99	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.46	**
	Further	1.27	**
	Higher (base)	1.00	
Victimisation (base = no)	Burglary	1.42	
	Theft of vehicle	1.34	
	Theft from vehicle	.92	
	Card fraud	1.22	
	Mugging	.96	
	Attack	1.06	
	Sexual attack	1.10	

Notes:

- i. ** = p<0.005
- ii. * = p<0.05
- iii. Model Chi Square 1020.23**
- iv. Nagelkerke R² .29
- v. Hosmer and Lemeshow 14.31 (ns)

Table A7.11: Predictors (demographics and victimisation) of worry about insult (logistic regression)

		Exp (B)	Sig.
Gender	Male (base)	1.00	
	Female	1.92	**
Age	16-29	1.63	**
	30-59	1.33	*
	60+ (base)	1.00	
Marital group	Married/de facto	1.11	
	Not married (base)	1.00	
Household Income	Under 5K	1.48	*
	5K under 15K	1.32	*
	15K under 20K	1.11	
	20K+ (base)	1.00	
Managing on Income	Well and saving (base)	1.00	
	Getting by	1.22	*
	In difficulty	1.26	
Area Type	Inner city	1.41	**
	Urban	1.20	*
	Rural (base)	1.00	
Neighbourhood Type	Help each other (base)	1.00	
	Mixture	.96	
	Go own way	1.09	
House unoccupied during the day	<3 hours	1.03	
	3 + hours (base)	1.00	
Smoker in household	Yes	1.07	
	No (base)	1.00	
Drink Alcohol	Rarely	1.14	
	Often (base)	1.00	
General health	Bad	1.33	**
	Good (base)	1.00	
Tenancy	Owners	1.15	
	Renters (base)	1.00	
Number of adults in household	1 (base)	1.00	
	2	1.01	
	3+	1.07	
Number of children in household	0	1.04	
	1+ (base)	1.00	
Education (highest qualification)	Secondary	1.15	
	Further	1.23	*
	Higher (base)	1.00	
Victimisation (base = no)	Burglary	1.32	
	Theft of vehicle	1.13	
	Theft from vehicle	1.06	
	Card fraud	1.11	
	Mugging	.86	
	Attack	1.17	
	Sexual attack	2.81	*

Notes:

- i. ** = $p < 0.005$
- ii. * = $p < 0.05$
- iii. Model Chi Square 226.09**
- iv. Nagelkerke R^2 .07
- v. Hosmer and Lemeshow 6.38 (ns)