Understanding and Preventing Crime in Malawi: An Opportunity Perspective

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Declaration of Authorship

I, Aiden Sidebottom, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Date: 18/03/2013

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Abstract

Numerous studies demonstrate that crime is highly concentrated. The risk of criminal victimization is unequally distributed across available targets – be they people, products or places. Determining the extent to which crime concentrates and the correlates of victimization is a popular research area with implications for theory and crime prevention. Presently, such research is largely confined to Western industrialised settings attributed to a lack of suitable data in many developing countries.

This thesis is concerned with the concentration and correlates of crime in Malawi. It uses a predominately environmental criminology framework to explore whether crime opportunity theories, amongst others, can make sense of the victimization patterns observed in the hitherto unexplored context of Malawi. The thesis is *victim-oriented*, saying little about the motivation of offenders and focussing instead on the attributes and activities of *crime targets*. This is achieved through secondary analysis of data from the Malawi Integrated Household Survey 2004/05, a cross-sectional, nationally representative survey containing questions comparable to crime victim surveys.

The thesis is comprised of five case studies on livestock theft, residential burglary and physical assault. Despite the radically different circumstances, the findings suggest broad though not unanimous support for crime opportunity theories in the Malawian context. The findings also help draw attention to the plight of several population groups associated with higher risks of victimization, most notably the chronically ill. The implications of the research for reducing vulnerability, in particular the feasibility of applying situational crime prevention in resource-limited settings such as Malawi are discussed.

For Tamara, who waited.

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Acknowledgements

It is often said that nothing good comes easy. While it is for others to judge the goodness of this thesis, it came about much easier with the help of several others. Not all are mentioned here, the list is too long. But to some I am particularly indebted. Special thanks go first to my supervisors Kate Bowers and Nick Tilley, for their insight, constant support, remarkably quick turnaround times and for being so generous with their time.

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List of Acronyms

BCS	British Crime Survey
CPT	Crime Pattern Theory
CRAVED	Concealable, Removable, Available, Valuable, Enjoyable, Disposable
EA	Enumeration Area
GIS	Geographic Information Systems
ICVS	International Crime Victimization Survey
IHS II	Malawi Integrated Household Survey
MNCVS	Malawi National Crime Victimization Survey
NSO	[Malawi] National Statistical Office
PPP	Purchasing Power Parity
PSU	Primary Sampling Unit
RAA	Routine Activity Approach
RCP	Rational Choice Perspective
SCP	Situational Crime Prevention
VIF	Variance Inflation Factors
VIVA	Value, Inertia, Visibility, Accessibility

Dissemination of Research Findings

Publications

The following publications were produced from the research contained in this thesis:

1) Sidebottom, A. (2012). Repeat burglary victimization in Malawi and the influence of housing type and area-level affluence. *Security Journal*, 25(3): pp. 265–281. [Chapter 6]

2) Sidebottom, A. (in press). On the application of CRAVED to livestock theft in Malawi. *International Journal of Comparative and Applied Criminal Justice.* DOI:10.1080/01924036.2012.734960. [Chapter 5]

Associated publications are:

3) Graycar, A. and Sidebottom, A. (2012). Corruption and control: a corruption reduction approach. *Journal of Financial Crime*, 19(4): pp. 384–399.

4) Sidebottom, A. (2010). *Enriching corruption: some suggestions on how situational crime prevention can inform the analysis and prevention of corruption.* Winner of the 2010 Transparency International *Anti-Corruption Research Network* young researcher paper competition.

Presentations

The following presentations are based on research contained in this thesis:

1) Sidebottom, A. (2012). *On the application of CRAVED to livestock theft in Malawi*. Presented at the 21st Environmental Criminology and Crime Analysis Conference. Stavern, Norway, June 27th 2012.

2) Sidebottom, A. (2011). *Repeat burglary victimization in Malawi*. Presented at the 20th Environmental Criminology and Crime Analysis Conference. Durban, South Africa, July 20th 2011.

3) Sidebottom, A. (2010). *Preventing crimes and corruption in the health sector of Malawi: Assessing the role of environmental criminology*. Presented at the 66thAmerican Society of Criminology Conference. San Francisco, California, USA, November 18th 2010.

4) Sidebottom, A. (2010). *Malawi debrief: Plans, problems and (hopeful) progress*. Presented at the UCL Crime Science Seminar Series. University College London, May 21st 2010.

Understanding and Preventing Crime in Malawi: An Opportunity Perspective

Chapter 1 - Thesis Summary

This thesis is concerned with understanding and preventing crime in Malawi. The broad objective is to explore whether crime patterns routinely found in Western industrialised settings are also observed in the dissimilar developing country of Malawi, and what this means for crime prevention theory and practice. To be clear, crime patterns as understood in this thesis do not refer to the volume or rates of crime in Malawi as compared to those observed elsewhere, though this may be remarked upon in passing, instead it refers to *crime concentrations* and the recurrent finding that crime is unevenly distributed across available targets.

There are many theories that attempt to make sense of crime and the ways in which it is found to concentrate. Some focus on *criminality* and the social conditions judged to foster offender motivation (for e.g. Merton, 1995). Others focus on *crime events*, placing greater emphasis on the causal role of opportunities in the immediate environment and the factors necessary for crime to occur – an area of study known as *environmental criminology* (Wortley and Mazerolle, 2008). This thesis is couched in the latter. Its focus is on how crime is distributed across potential targets and the correlates of criminal victimization, referring both to the characteristics of crime targets and the contexts in which they are found. To this end, the thesis says little about the motivation of offenders – this is simply assumed.

The orientation of this thesis in no way ignores or denigrates theories that seek to explain crime chiefly by the actions of criminally disposed individuals. It is a response to a gap in the criminological literature – one that the thesis seeks to address. To date, the bulk of research in environmental criminology (and criminology more broadly) is overwhelmingly Euro/North America-centric. Research concerned with the patterns and correlates of criminal victimization is

rarer in developing countries, mainly attributable to a lack of (accessible) crime data, limited research funds and, arguably, the recency of this approach compared to more conventional offender-oriented criminological perspectives. This thesis therefore provides the first study to use an environmental criminology framework to understand victimization patterns in Malawi. A goal is that in applying this approach in places hitherto unexplored it will yield insight into the generalizability of such theories beyond the Western industrialised settings in which they were forged, as well as identify robust correlates of victimization manifest in different contexts and those factors specific to particular settings and crime types.

In pursuit of this goal, the thesis reports the first criminological treatment of data collected as part of the Malawi Integrated Household Survey 2004/05 (IHS II), a cross-sectional, nationally representative survey which asks a random sample of 11,280 households (and their individual members) questions about their experience of crime in the past year as well as other welfare and socio-demographic issues.

The secondary analysis of data collected through national victimization surveys has a long association with environmental criminology. Cohen and Felson's (1979) routine activity approach – which features heavily in this thesis and will be described shortly – was formulated on the secondary analysis of data from the U.S. National Crime Victimization Survey. In the U.K., the architects of the British Crime Survey[1] were also responsible for first mooting the causal role of opportunity in crime (Mayhew, Clarke, Sturman and Hough, 1975)[2]. Van Dijk (2012) argues that the parallel development of victim surveys and crime opportunity theories is rarely acknowledged, but represents more than mere coincidence: police recorded crime data are the lifeblood of criminological research, but in enumerating arrests and convictions they are necessarily offender-

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[1]As of 2012 called the *Crime Survey for England and Wales*. In this thesis, however, the British Crime Survey is referred to throughout, reflecting the name of the survey at the time at which cited studies were carried out.
[2] Strictly speaking, other studies had mentioned the role of opportunities in crime causation though these were mainly limited to fleeting references.

focused; victimization surveys, on the other hand, provide greater information on the antecedents and victims of crime thereby facilitating a broader look at crime's causes. This thesis, in analysing data comparable to a national victimization survey, extends this tradition to the novel context of Malawi.

The thesis is comprised of five empirical case studies. The first study assesses whether self-reported livestock theft patterns in Malawi reflect variations in the extent to which different types of livestock are 'CRAVED' (Concealable, Removable, Available, Valuable, Enjoyable and Disposable), Clarke's (1999) acronym to explain theft choices. The second study is concerned with the extent and patterns of repeat burglary victimization and the influence of housing type and area-level affluence on (re)victimization risk. The remaining three case studies use a multilevel analytical framework – reflecting the nested data structure – to explore the factors associated with burglary victimization, assault victimization and whether victims of assault report the crime to the police. To the author's knowledge, each case study is a novel contribution to the scientific literature.

It should be known from the outset that owing to word constraints, there are several possible lines of enquiry afforded by the IHS II data that are not taken up in this thesis. Different researchers will undoubtedly home in on different areas of interest – and are encouraged to do so. With this in mind, the household questionnaire is provided in full in Appendix 1. The five case studies in this thesis relate to areas that have attracted considerable research interest from Western Industrialised countries and therefore provide an analytical framework to be applied here in Malawi.

Why Malawi?

A common issue raised by reviewers of the manuscripts derived from this thesis concerned the selection of Malawi as a study site. As one anonymous reviewer wrote "*The author needs to make a stronger case as to why Malawi was selected*

for study". It is interesting to note that in the author's experience of publishing other (non-Africa-based) manuscripts, never has a reviewer requested further justification as to why the study in question took place in Brighton, Nuneaton or London. However, in anticipation that other readers might also share this concern, the reasons for choosing Malawi as the location for this research are mentioned at this point.

There are several. The first concerns the central motivation for this thesis, namely applying an environmental criminology perspective to problems in places understudied in the criminological literature. Yet this is true of many African countries, so why Malawi in particular? The primary reason is the availability of data suitable for the aims of this study. This was coupled with several practical advantages. First, University College London has a history of conducting research in Malawi (for e.g. see Health Foundation, 2012) and consequently has forged effective (and trusting) relationships with individuals in several government departments and related agencies that could usefully be drawn upon as part of this study (as will be covered in Chapter 4). Second, many Malawians speak English and therefore fieldwork could be carried out without the need to hire local translators or learn a new language. And finally, Malawi is considered to be a relatively stable country with few risks associated with conducting research there.

What Lies Ahead

The structure and content of the thesis are as follows. Chapter 2 provides a theoretical foundation by reviewing the literature on crime concentrations and the theories which purport to explain why crime is unevenly distributed across available targets. These theories are split into two groups: 1) social disorganisation theories concerned with variations in crime rates between *aggregate units* (typically neighbourhoods) and 2) environmental criminology theories interested in how opportunities in the immediate environment generate and pattern crime, in particular the attributes and activities of *crime targets* in the crime generation process. This is accompanied by a brief discussion of the origins

and uses of crime victim surveys as a means of collecting richer data on the causes and consequences of crime. The chapter concludes by highlighting pertinent gaps in the research literature and setting out the research questions to be addressed in this thesis.

In preparation for the empirical work to follow, Chapter 3 presents an overview of Malawi. It is an attempt to provide the reader with a clear idea of the study site. It includes a brief summary of the geography and history of Malawi as well as its socio-demographic, economic, developmental and health characteristics, and how they compare to those in the U.K. The chapter ends by describing the Malawian criminal justice system, national police service and general crime patterns as measured by a one off victim survey conducted in 2003 (the *Malawi National Crime Victimization Survey*). The chapter emphasizes the lack of publicly available crime data in Malawi and argues that the household survey data used herein is the most recently available at the time of writing.

The Malawi Integrated Household Survey 2004/05 is the main theme of Chapter 4. The chapter starts by describing the fieldwork carried out as part of this thesis and how the survey data came to be acquired. The origins and objectives of the survey are then covered followed by a detailed account of the sampling procedure, data collection methods and implementation challenges. Next is a description of the contents of the survey, in particular the security and safety module that is drawn on most heavily in this thesis. The chapter closes by discussing definitional issues associated with crime victim surveys and describing the limitations of the survey data and secondary data analysis more generally.

Chapters 5 to 9 form the empirical contribution of the thesis. Each chapter presents a *separate* case study using data collected as part of the IHS II to explore a different research question, and in certain cases a different crime type. This differs from the structure of many Ph.D. theses in which the focus is on one particular topic (or problem) and where knowledge accrues cumulatively; each successive chapter building on the findings of the chapter that preceded it.

Consequently, in this thesis each empirical chapter contains a literature review related to the research question under study and a discussion of the limitations and implications of the findings. The results of each study are then brought together and discussed in Chapter 10.

The first case study is concerned with livestock theft, a common and costly problem in much of Africa. It examines whether livestock theft patterns in Malawi can be explained by the extent to which different livestock types are 'CRAVED' – in other words are "hot products" that are likely to be targeted by thieves (Clarke, 1999). Measures of the elements of CRAVED are correlated with self-reported levels of theft for seven species of livestock. Further analysis is also performed at the community level to explore, amongst other things, whether variations in the proportion of poor households are associated with differences in the level of livestock theft – as would be predicted by the literature (Khoabane and Black, 2009; Pelser, Burton and Gondwe, 2005). The results show that livestock theft is common among livestock-owning households; that higher *availability* and *disposability* of livestock are significantly associated with increased levels of theft; and that there is little support for the hypothesis that higher levels of poverty are associated with greater levels of livestock theft. The chapter argues that livestock characteristics have been under-valued in describing the observed patterns of livestock theft in Malawi (and elsewhere) and concludes by outlining some implications for livestock theft prevention that stem from a target-oriented approach.

The focus of Chapter 6 is repeat burglary victimization. It is now widely accepted that a small number of victims experience a large proportion of total victimizations (Pease, 1998; Grove, Farrell, Farrington and Johnson, 2012). This has been demonstrated for several crime types and across many settings. It is yet to be examined in sub-Saharan Africa, where the implications arising from this line of research are acutely relevant: targeting crime concentrations is an evidence-based crime prevention strategy that appears to make good use of limited resources. Chapter 6 begins by assessing whether the repeat victimization

patterns commonly observed in Western studies are also observed in the dissimilar developing setting of Malawi. In anticipation of the findings to follow: the results indicate that a small number of Malawian households experience a large proportion of burglary victimizations over the one year observation period, more than would be expected by chance alone. The findings point towards the normality of repeat victimization.

Following research conducted in the U.K. (Bowers, Johnson and Pease, 2005), the second part of Chapter 6 explores whether the risk of burglary revictimization varies across different types of household − measured here as the material from which dwellings are constructed − and the affluence of the area in which households are located. The findings are once again consistent with what would be predicted by the (Western) literature: dwellings constructed of permanent materials, indicative of greater wealth, display higher rates of repeat burglary victimization than poorer dwellings comprised of mud and thatch. This is most evident for permanent households located in less affluent areas. The significance of these findings for burglary prevention and victim support services in Malawi is discussed.

Chapter 7 reports the first of three studies to use a multilevel analytical framework. The application of multilevel models to criminological data has increased considerably in the past decade (see Johnson, B.D. 2010). They are credited with increasing the *realism* of statistical models (Draper, 1995) through simultaneously estimating the effect of individual- and aggregate-level variables on the outcome of interest, as is commonly practiced in studies concerned with the correlates of criminal victimization. This approach is typically employed when analysing *nested* data − pupils nested in classes, classes nested in schools and so on − which is again common in the study of crime and which flouts the requirements of many statistical tests that assume independence in the data. For the purposes of Chapters 7 through 9, multilevel analysis is the appropriate statistical technique because it accounts for the nested quality of the IHS II data.

While Chapters 7 through 9 apply the same analytical technique, each model (and hence chapter) includes different predictor variables, reflecting the different research question under study. Chapter 7 explores the correlates of burglary victimization. It begins by briefly reviewing the literature on the risk factors associated with burglary, with emphasis placed on studies using multilevel statistical techniques. It then reports the results of a multilevel logistic regression model and shows that the risk of burglary victimization is significantly higher in households that are more affluent, are constructed of permanent materials, have a female head, contain residents who define themselves as chronically ill and are located in communities with greater counts of burglary.

Chapter 8 marks the transition from property crimes to personal crimes. It is concerned with physical assault, defined here as a threat or physical attack against the person. The chapter starts by reviewing victimization theories as they relate to assault. Statistical analysis then concentrates on 1) the incidence and patterns of assault and 2) the correlates of assault victimization. The results indicate that males experience higher levels of stranger-perpetrated assault whereas domestic assault tends to concentrate on females. This is attributed to differences in the routine activities of men and women in Malawi, reflecting the long-standing gender roles that characterize Malawian society. Those factors positively associated with the risk of assault victimization are being male, older age, being fearful of crime, being chronically ill or physically or mentally impaired, and residing in a community with a greater proportion of 15-19 year olds.

Perhaps the most commonly asked question of victim survey data concerns the extent and patterns of reporting crime to the police. This is the subject of Chapter 9: the correlates of assault victim reporting[3]. A novel contribution of this case study lies in its inclusion of two variables that approximate accessibility to the police − access to a working phone and working bicycle − rooted in the assumption that in developing countries such as Malawi, patchy electricity

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[3] The case study is limited to assault because the IHS II asks only victims of assault whether they reported the crime to the police.

supplies and the distance from urban centres, amongst other things, can act as serious barriers to individuals' making contact with the police, assuming that they are motivated to do so. The chapter therefore explores whether *opportunity makes the reporter*, as Felson and Clarke (1998) suggest it makes the thief.

Following a review of the research evidence on victim reporting behaviour, Chapter 9 reports multilevel analysis of the factors associated with whether victims of assault contact the police. The results are largely consistent with the findings in the literature. Arguably the most noteworthy result is confirmation of the hypothesis that access to a working phone is positively associated with reporting assault to the police.

Chapter 10 brings together the findings of the five empirical studies. The theoretical and practical implications raised by this research are then discussed. Special consideration is given to the implications of the findings for applying situational crime prevention (Clarke, 1997; 2008) – a form of crime control favoured by environmental criminologists and directly concerned with reducing opportunities for crime – in resource-limited settings such as Malawi. This is structured around the process model with which situational crime prevention initiatives are generally devised, implemented and evaluated, which Ekblom (1988) calls the "preventive process". The anticipated obstacles and enablers to this process are discussed and several areas deserving of further research are outlined.

To summarise, this thesis is the first study to use an environmental criminology framework to understand victimization patterns in the developing setting of Malawi. This is achieved through the use of five case studies drawing on data from a large household survey. Each study is believed to be a novel contribution to the literature. The thesis is considered to be both a descriptive area study with a view to inform crime prevention policy and practice, and a critical assessment of the analytic utility of prevailing criminological theories in a novel context. Given the noted paucity of criminological research in developing countries, it is hoped

that the methods used and suggestions arising from this thesis will also provide a useful platform for further research in similarly neglected settings.

Chapter 2 - Literature Review and Theoretical Framework

Chapter Summary

This chapter locates the thesis in the relevant literature on crime concentrations and the correlates of victimization. It also provides a theoretical framework for the tasks which this thesis sets out to accomplish. It is formed of two main parts. Part one is concerned with the origins and objectives of crime victim surveys. Part two focuses on theories of victimization. The chapter ends by listing the research questions to be addressed in this thesis.

Introduction

It is well known that crime is not randomly nor equally distributed across space and time (see Johnson, S.D., 2010). A term much used is *crime concentration*, to refer to the fact that crime invariably is heavily skewed across people, places, products and times. Simply put, a greater number of available crime targets experience no crime than those that experience some.

Crime is found to display these patterns with such regularity that a suite of related concepts has emerged, distinguishable by the unit of analysis. "Repeat victims" are those who suffer disproportionately high levels of crime over a specified period of time (Pease, 1998; Grove et al. 2012); "hot spots" are those places with persistently high counts of crime (Sherman, Gartin and Buerger, 1989; Weisburd, Bushway, Lum and Yang, 2004); "hot routes" are those linear transport networks which experience chronically high levels of crime (Tompson, Partridge and Shepherd, 2009); "hot products" are those items that are stolen more readily (Clarke, 1999); and "risky facilities" are those subsets of homogenous places (such as bars and hospitals) that suffer disproportionately high amounts of crime

compared with similar establishments (Eck, Clarke and Guerette, 2007; Wilcox and Eck, 2011)[4].

That crime concentrates has important theoretical and practical implications. Theoretically, explanations of crime must be able to account for why certain targets experience higher levels of crime than others. Practically, evidence indicates that targeting resources on the basis of crime concentrations, as opposed to allocating resources equally in a bid to prevent all crimes or haphazardly on the grounds of whim or intuition, is both ethical and effective (for e.g. see Braga, 2005, Grove et al. 2012). Moreover, awareness of *how* crime concentrates gives rise to hypotheses as to its future distribution; the principle behind crime forecasting models (Johnson, Bowers, Birks and Pease, 2008) and predictive policing (Haberman and Ratcliffe, 2012).

Yet just as crime is found to be highly concentrated, so too is *research* on crime concentrations. There is a notable shortage of research conducted in sub-Saharan Africa on the distribution of crime across available targets. This can be attributed to several factors, from a paucity of relevant data (Marenin, 1997), to a lack of research funding (Banks, 2012) and the fledgling status of criminology and crime analysis in the region (Igbinovia, 1989). While the causes underlying this lack of research remain uncertain, the consequences are clear: insufficient evidence precludes inferences as to whether relevant theories of crime are generalizable beyond the Western industrialised settings in which they were forged. Perhaps more importantly, a lack of information on high risk people, properties and places impedes the targeting of preventive services in countries where optimising the deployment of scarce resources is paramount.

It is against this background that the idea for this thesis was conceived. Several concepts *describe* the ways in which crime is typically found to concentrate. Several theories provide *explanation* as to why such patterns are observed. In

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[4] "Repeat offenders", those who are responsible for a disproportionate amount of crime committed constitute another form of crime concentration (Tilley, in press), but are relegated to a footnote here since the focus of this thesis is on *crime targets* and not offenders.

Malawi, the setting for this research, such concepts have been little applied. Much remains unknown as to whether crime concentrates in a manner that is consistent with Western research and whether prevailing theories can account for variations in victimization risk. This thesis seeks to answer such questions through analysing data that approximate that which is routinely collected by crime victim surveys in developed nations.

The main aim of this chapter is to set out a theoretical foundation for the empirical work to follow. To reiterate, this thesis is concerned with the distribution of crime across available targets (livestock, properties and people) and the factors associated with risks of criminal victimization. This chapter therefore reviews theories that are less interested in why individuals commit crime but which help us make sense of why crime concentrates and the evident variation in victimization risk. It should be noted that the discussion contained herein is deliberately broad with later chapters covering theory and research as it relates to the specific question under study (Chapter 5 reviews the literature on livestock theft and hot products; Chapter 6 the literature on repeat victimization and so on).

The chapter is structured as follows. The building and validation of any theory requires data. The theories of victimization most germane to this thesis have benefited considerably from data collected by crime victim surveys. Before turning to such theories, it is therefore useful to briefly chart the development of victimization surveys and why they matter for victim-oriented research. In doing so, the reader's attention will also be drawn to the lack of victim surveys in sub-Saharan Africa and why the data analysed in this thesis are considered novel.

Next is theory. Three theoretical perspectives of relevance to this thesis are covered. The first concerns two national-level theories interested in the link between crime and development. Though these theories are relevant given the setting for this thesis (Malawi), as will be seen shortly, both are paid short shrift since, amongst other things, they fail to explain *sub-national* level crime patterns. By contrast, the next two groups of theories do feature in the empirical work

which follows. These are community-level social disorganisation theories which focus on the variations in crime risk between aggregate units (typically neighbourhoods) and in the context of this thesis, how certain neighbourhoods are reliably associated with higher risks of criminal victimization. The final group is most salient to this thesis: crime opportunity theories that articulate how the risks of victimization are a function of target attributes, activities and lifestyles. The final section outlines the research questions which this thesis seeks to address.

Crime Victim Surveys: How They Came About and Why They Matter

For several decades, police recorded crime data monopolised criminological study. It also defined its focus: official figures speak mainly to the arrest and conviction of individuals who come to the attention of the police; traditionally, the study of crime using such data was therefore largely reduced to the study of offenders and the conditions judged to foster criminality (Koffman, 1996; Weisburd, 1996). Knowledge on the determinants and effects of victimization and the factors associated with reporting crime to the police was poor. This began to change during the 1960s when several studies revealed that the true extent of crime as reported by the populations sampled dwarfed the official view, with relatively few crimes resulting in an arrest (for e.g. see Gibson, Morrison and West, 1970). At the same time, rising crime levels in the U.S. prompted concerns among government agencies that available data were inadequate to determine the costs and characteristics of crime thereby blunting the effectiveness of preventive responses (Rand, 2007). These developments stimulated a reorientation towards crime victims – a field of study sometimes known as *victimology* – guided by the assumption that asking people about their *experience* of crime might shed light on the true extent, patterns and consequences of crime, to supplement that which was recorded in official statistics; from which emerged the crime victim survey.

Victimization surveys are primarily designed to overcome the problem of underreporting by asking a representative sample of the population their experience of crime over a given time period (usually one year). Additional

questions are put to those who report experiencing crime, such as whether they notified the police, how they responded to victimization and their relationship, if any, with the offender(s). These are coupled with a series of questions asked of all respondents regarding their lifestyle, relationship status, employment etc.

One of the earliest examples of a crime victim survey is the National Crime Survey (later termed the National Crime Victimization Survey) implemented in the U.S. in 1972 following several promising pilot efforts at smaller levels of geography (Rand, 2007). This served as a template for the British Crime Survey which was administered ten years later in 1982 (Hough and Mayhew, 1983). At the time of writing, both surveys remain a regular fixture in their respective countries albeit having adapted over time to incorporate emerging crime types (such as the inclusion of identity theft) and improvements in data collection methods (such as the use of computer-assisted self-interviewing for questions deemed to be of a sensitive nature). They have spawned replicas in many countries (such as Holland, Canada and Hong Kong) and are widely recognised as robust barometers of crime that have contributed much to research, policy and practice (for a book length treatment on victimization surveys with a particular focus on the BCS see Hough and Maxfield, 2007).

Victimization surveys such as the NCVS and BCS are not without their problems, however. Most concentrate on a limited range of crime types to the exclusion of commercial crimes or forms of corruption. Because households are ordinarily used as the unit of analysis there are often sampling biases which underrepresent certain subgroups, such as those below the age of 16 (in the BCS) and the homeless[5]. Respondents ordinarily can only report a set number of victimizations which, as Farrell and Pease (2007) show, truncates the overall volume of crime and undercounts chronic victims (a point taken up again in Chapter 6). Finally, all surveys are imperfect as data-gathering instruments since respondents may forget,

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[5] These familiar weaknesses have not gone unheeded, however. In England and Wales, for example, the *Offending Crime and Justice Survey* and *Commercial Victimization Survey* were both established to tap into the experiences of crime for those aged 12 to 15 and non-residential commercial premises, respectively.

fudge or falsely include information about their involvement with crime (Zvekic and Alvazzi del Frate, 1995).

As more and more countries began implementing national victimization surveys, *international* comparisons duly emerged, albeit based on non-standardized instruments. This piqued the interest of a group of criminologists who in 1987 set about developing a standardized crime victims survey to be administered across numerous countries as a means of, amongst other things, boosting the emerging comparative criminology research agenda (see Karstedt, 2012). 1989 witnessed the first sweep of the International Crime Victims Survey (ICVS) conducted in 13 industrialised nations (van Dijk, Mayhew and Killias, 1990)[6]. Four more sweeps have since followed, with the last survey occurring in 2004/5 in over thirty developed and developing nations (for a detailed review of the aims and development of the ICVS see van Dijk and Alvazzi del Frate, 2004).

Estimates emanating from the ICVS are credited with providing a reliable measure of criminal victimization internationally and the adequacy of official responses to it, as interpreted by those affected by crime. Figure 1 is included by way of illustration. It shows the proportion of households in several major cities who reported experiencing at least one (completed) burglary in the year prior to survey. Similar plots are available for other crime types. Prevalence rates are shown to differ wildly between countries; rates in Phnom Penh, for example, are a full fifteen percentage points larger than in Hong Kong. Moreover, a higher proportion of households in cities in developing countries experienced at least one burglary than those in more developed nations. Though plots such as Figure 1 rarely provide *explanations* to the trends observed, they do provide robust and comparable data with which to make cross-national comparisons and test relevant hypotheses.

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[6] For countries like the U.S. and Britain, the ICVS is carried out in addition to the yearly NCVS and BCS, respectively.

Figure 1 One Year Burglary (with Entry) Prevalence Rates by City (Country), International Crime Victimization Survey 2004-05

Percentage of Households Burgled Once or More
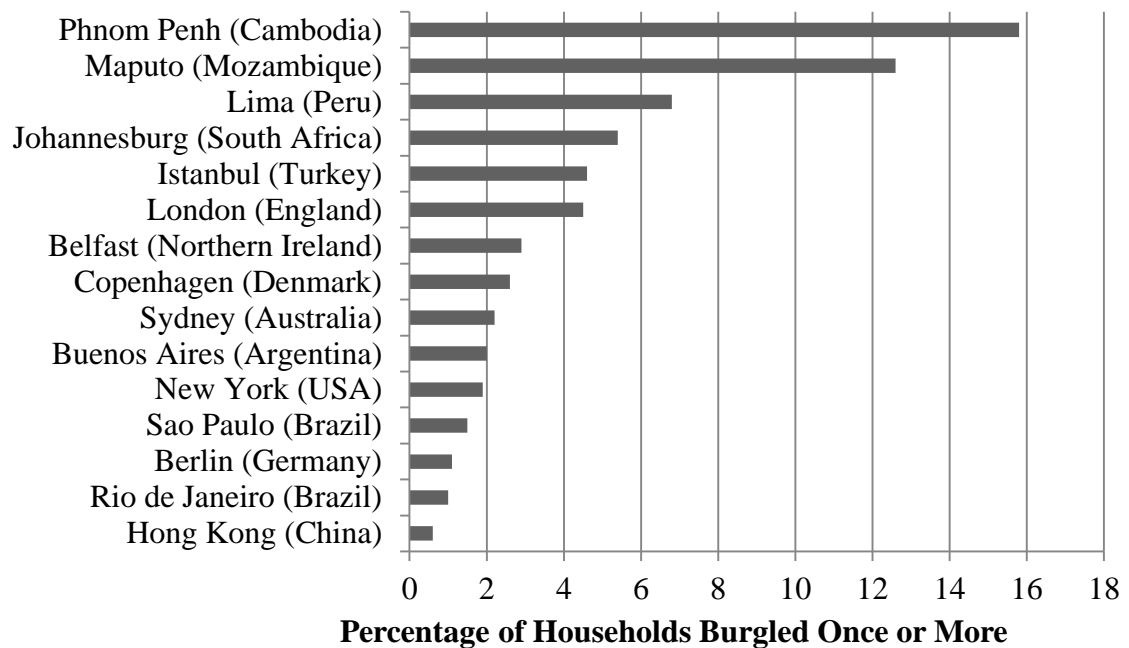
Source: Adapted from van Dijk, van Kesteren and Smit (2008).

While the ICVS shares much in common with the national surveys described previously – such as overcoming the problem of underreporting – there are also certain differences which warrant mentioning. First, though the *total* sample of the ICVS is large (the 2004/05 sweep questioned over 80,000 participants), the sample *per country* tends to be considerably smaller than that of its national progenitors. For example, the 2004/05 ICVS canvassed 1,775 people in England and Wales compared with a BCS sample of 45,120 for the same period (Nicholas, Povey, Walker and Kershaw, 2005). Second, unlike national household crime surveys, the ICVS is less concerned with drawing comparisons with police recorded crime data in the countries surveyed, though this is of course possible where suitable official sources exist.

The last point is particularly relevant to this thesis albeit for different reasons, namely the lack of crime data in non-Western countries. Naudé and Prinsloo (2006) report that as recently as the early 1990s virtually no data on crime in many African countries were publicly available. To some extent this is still true.

Research conducted on behalf of the *United Nations Office on Drugs and Crime* (UNODC) estimates that official crime statistics are available for only half of all African countries (Leggett, Alvazzi del Frate, Pietschmann and Kunnen, 2005). Those which are available are often of questionable probity owing to low reporting rates and patchy recording processes (Marenin, 1997). Examples of national victim surveys in Africa are also scarce (for a related discussion see Lewis, 2012). While the UNODC has conducted several one-time efforts using modest samples from countries such as Rwanda, Tanzania and Kenya, only South Africa can boast a serial victim survey dating back to the 1990s (the *Victims of Crime Survey* carried out by the Institute of Security Studies).

To address the lack of available crime data in developing countries, the architects of the ICVS forged ties with the *United Nations Interregional Crime and Justice Research Institute* whose remit extended to the collection of information from non-Western settings. The inclusion of developing countries subsequently grew with data collected from cities in Egypt, Tanzania, Tunisia, South Africa and Uganda in the second sweep of 1992/93. The decision to use city-based samples in developing countries was enforced due to patchy telephone coverage which limited the ability to conduct telephone assisted interviews – the method of choice for the ICVS – thus necessitating face-to-face interviewing (van Dijk and Alvazzi del Frate, 2004).

In Africa, thirteen of the continent's 54 countries have taken part in at least one run of the ICVS: Botswana, Egypt, Lesotho, Mozambique, Namibia, Nigeria, South Africa, Swaziland, Tanzania, Tunisia, Uganda, Zambia and Zimbabwe. Questionnaires implemented in these countries are adapted to the local context, as with the inclusion of questions concerning livestock theft and car hijacking. Naudé and Prinsloo (2006) attribute the low participation rates in Africa to funding constraints, the lack of a "research culture" and associated analytical skills, and reticence on the part of government agencies to grant access to crime-related information.

For all the benefits, nascent and realised, derived from national crime surveys and the ICVS, some countries clearly remain under studied. Malawi is one such country. It is yet to participate in the ICVS; police recorded crime data are not readily available to the public; and to the best of the author's knowledge, only one victimization survey has been carried out to date - the *Malawi National Crime Victimization Survey* which is reviewed in greater detail in Chapter 3. Part of the purpose behind this thesis is to take the knowledge gained from interrogating victim surveys internationally and apply it in the analysis of data collected as part of a large, multipurpose household survey in Malawi.

Theories of Victimization

It is well known that crime concentrates across available targets – whether people, property, products or places. Yet demonstrating that crime is highly patterned only goes so far. Criminologists are interested in *why* certain targets become the victims of crime and the mechanisms that give rise to the patterns observed. This section proceeds by describing the dominant theories that purport to make sense of criminal victimization.

The theories are organised sequentially, beginning with those interested in more distal causes of crime before moving closer and closer to causal factors associated with the immediate circumstances of the crime event. We start at the national level and, for completeness, begin by briefly discussing two lesser known theories that have been put forward to explain crime in developing countries such as Malawi: modernization theory and underdevelopment theory. These are critiqued and the reasons for not including them in the later analyses of this thesis are given. Next we turn to community-based theories, specifically social disorganisation theories which help explain why crime is unevenly distributed across neighbourhoods, before proceeding to environmental criminology theories that are most germane to this thesis and which focus on the crime event. With respect to the latter two, it should be stressed that these perspectives are not in competition: one gives a coarser picture of crime whilst the other provides a much finer grained

analysis of crime patterns. More generally, both are examples of *ecological* theories of crime that recognise the causal influence of actors and situations *in combination* (Hagen, 2011).

Theories on Crime and Development

It is widely recognised that crime is a significant barrier to economic development (Sesay, 1977; Leggett et al. 2005). Several mechanisms have been proposed to link the two. Leggett and colleagues (2005) suggest that high levels of crime, perceived or actual, can deter foreign business investment and tourism-related income. Crime can also weaken social capital, referring to the shared bonds and networks which tie communities together in ways that might dissuade criminal activity. Experience and the fear of crime can lower the quality and quantity of life, and stimulate an economy-stifling emigration of skilled individuals. And crime, particularly forms of corruption, can damage the relationship between the state and its citizens, as well as stymie development efforts due to the misappropriation of funds and resources.

Several theories have been proposed specifically to explain the link between development and crime. The first is *modernization theory* (Shelley, 1981). This approach focuses on the psychological effects brought about by societal change. As societies evolve and modernize, it is argued, anomie increases and traditional family values and community norms break down in ways that stimulate offending. As Arthur and Marenin (1995, p. 201) write, somewhat opaquely:

> *"The shift from Gemeinschaft to Gesellschaft, from mechanical to organic solidarity, the breakdown of traditional authority patterns, the disruptions of family and communal relations, rural-urban migrations, the teeming chaos and economic hazards of urban life, and the not as yet legitimated habits of new economic, political and social arrangements all lead to dislocation, uncertainty, normlessness, and criminal activity"*

Modernization theory predicts an overall increase in the volume of crime as a country begins the transition towards modernization, followed by a subsequent reduction on reaching an acceptable state of modernity (Shelley, 1981). It also predicts variation by crime type, with rates of acquisitive crimes, for example, increasing in response to the growth in consumerism that typically accompanies modernization (Heiland and Shelley, 1992).

The second approach is *underdevelopment theory*. This explains crime in developing countries via the tensions that are believed to originate in a country's move from colonialism to independence. Advocates of this approach (Sumner, 1982) argue that the social challenges and poverty which often characterise developing countries is, to some extent, a consequence of the historical exploitative policies and practices of industrialised nations. It is argued, for example, that colonisation displaced traditional African customs and practices in favour of alien, Western institutions. This served to dampen the influence of the African family as the dominant mechanism to maintain social control. As Arthur (1991) writes, from this perspective "crime in Africa and other Third World countries is the outcome of structured global inequalities caused by the introduction of capitalist institutions and modes of economic production completely alien to underdeveloped societies" (p. 501). From this perspective, the criminal justice system is considered an instrument through which the colonial state and its allies – the elite – can exert control over the indigenous population. In sum, this approach predicts that crime levels will be high in transitional societies until that point at which the criminogenic legacies of colonialism have been replaced.

Both approaches have received criticism on several fronts. These are usefully summarized by Arthur and Marenin (1995) who note that they: 1) are based on shaky fundamental assumptions, assuming for example that the process of development is gradual and one-directional when in reality such changes are typically halting; and 2) have failed to garner strong support and are beset with methodological concerns regarding the operationalization of key concepts. For

example, while some studies at the national level do find that transitional societies experience higher levels of crime than more-developed countries (for e.g. see van Dijk and Alvazzi del Frate, 2004), other studies find the opposite (Stein, 2012), while others still detect little relationship between economic development and crime (Bennett, 1991). Similarly, whilst several studies find higher levels of crime in countries initially experimenting with democratization (LaFree and Tseloni, 2006) – a common hallmark of development – others have raised doubts about the validity of such comparisons due to general improvements in data quality commensurate with development (Shaw, 2002). In addition, neither theory yields testable predictions at levels of geography below that of the national level, despite the evident concentration patterns alluded to earlier. In sum, these theories have garnered little academic interest since their inception. They do not feature in recent voluminous criminology encyclopaedias (Fisher and Lab, 2010; Bruinsma and Weisburd, in preparation). Many criminologists will not have heard of them.

In failing to explain why crime is unevenly distributed across available targets, modernization theory and underdevelopment theory do not feature in the empirical sections of this thesis. Their inclusion here was merely to document the types of theory that have been put forward to account for crime trends in countries such as Malawi. By contrast, the next theories do purport to account for variations in victimization risk and therefore are highly relevant to the aims of this thesis.

The Social Disorganisation Approach

The social disorganisation approach is rooted in two classic criminological studies. The first is Durkheim's (1897/1951) work on the effects of social change on societal crime rates. Unlike other criminological thinkers at the time who searched for the source of crime in the traits of individual offenders (such as Lombroso), Durkheim concentrated on the relationship between crime and wider societal factors. At its simplest, he argued that crime stems from a breakdown in social cohesion, referring to the norms that govern individuals to act in accordance with the law and to the good of society.

The second theoretical contributor is the social ecology approach pioneered by the Chicago scholars (Shaw and McKay, 1942). Drawing on Durkheim's earlier writings but focussing on a lower level of aggregation (neighbourhoods), the social ecology school sought to identify robust correlates which explained the non-random distribution of crime across neighbourhoods in Chicago. They drew various conclusions concerning the characteristics of high crime neighbourhoods. These ranged from physical characteristics such as a higher proportion of condemned or debilitated buildings, to economic features such as higher crime neighbourhoods tending to be found in areas of lower socio-economic status, and finally variables associated with population composition, as in the finding that areas with a higher concentration of foreign-born head of households tended to experience higher crime rates.

Shaw and McKay's (1942) research had profound policy implications. They argued that efforts to reduce crime, particularly that which is committed by juveniles, should centre on altering *neighbourhoods* rather than *individuals*. This underpinned the *Chicago Area Project*, a community-based initiative that spanned several decades and provided material for and drew heavily on the ideas of Shaw and McKay. At root, the scheme aimed to lower crime rates in twenty two Chicago neighbourhoods through 1) galvanising community resources – churches, schools, industry, etc – in ways better to deal with substantive community concerns and 2) offering a wide selection of activity programs to community residents in order to acquire skills and forge closer ties with their neighbours. Though the Chicago initiative was never formally evaluated, comparable efforts in Boston generated meagre results and prompted broad agreement that the project was unsuccessful (Lundman, 1993).

In 1978, Kornhauser published a seminal book which breathed new life into the slightly tarnished social ecology perspective. She suggested that underlying the work of Shaw and Mckay were two *separate* theoretical propositions. The first proposed that neighbourhoods which were characterised by dysfunctional relationships and weak institutions provided a fertile breeding ground for crime.

This is a "social disorganisation" hypothesis. The second theme, according to Kornhauser, related to how such features were maintained and how associated behavioural norms came to be assimilated by community residents, what she referred to as a "subcultural" argument. Crucially, Kornhauser emphasised that the former provided the primary explanation for why neighbourhoods differed in their rates of crime, arguing that a criminal subcultural only develops in neighbourhoods that are socially disorganised (see also Bursik and Webb, 1982).

This provided the platform for more contemporary research on social disorganisation, associated with the work of Robert Sampson. Sampson defines social disorganisation as the inability of a community to achieve its collective goals. These goals are varied and are not limited to crime, but in the context of this discussion might refer, for example, to residents removing a rampant drug market or prostitution ring from their community. While the possible barriers to achieving these goals are similarly varied, Sampson argues that weak social ties among members of the affected community is a major explanatory factor, and one which is borne of or exacerbated by poverty, high population turnover and stark ethnic heterogeneity which stifle the formation of trusting relationships and, by extension, the emergence of shared norms and values. In terms of causal mechanisms, these markers of social disorganisation are proposed to lessen the probability that community members will act in ways that might dissuade offenders from carrying out crime in their area or intervening in its commission (Sampson, 1995; Sampson and Wilson, 1995). While social disorganisation theories are usually discussed in the context of fostering offender motivation, from a victimization perspective, it follows that all else being equal, individuals residing in non-cohesive socially disorganised communities will display higher risks of criminal victimization[7]. In later writings, Sampson proposed the term *collective efficacy* as a measure of cohesion among community members and their

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[7] Though not necessarily committed by residents in the *same* community, given journeys to crime are often characterised by a buffer zone in the immediate vicinity of the offenders' home where they tend to offend less (Rossmo, 2000; Townsley and Sidebottom, 2010).

willingness to behave in ways judged to serve the common good (Sampson, Raudenbush and Earls, 1997).

There is a considerable body of research demonstrating the influence of neighbourhood effects in explaining differences in victimisation, particularly violent crime (Mazerolle, Wickes and McBroom, 2010; McCall and Nieuwbeerta, 2007). Using survey data from 343 neighbourhoods in Chicago, Sampson et al. (1997) show that collective efficacy – a composite measure derived from several self-report surveys – was negatively associated with incidents of violent crime, interpreted as indicating an increased tendency of residents to intervene in unwanted behaviours on behalf of a commonly shared neighbourhood cause. Similar results have also been found outside the US. Using estimates generated from the BCS, Sampson and Groves (1989) demonstrate that several of the common hallmarks of a socially disorganised neighbourhood (in the British context defined as census wards), such as ethnic heterogeneity are positively associated with rates of violent crime. Moreover, Weisburd and Piquero (2008) in their ambitious effort to take stock of the explanatory power of prevailing criminological theories – measured using the R^2 statistic – find that social disorganisation theories outperform most other macro-oriented approaches with an average R^2 across sampled studies of .44.

Crime Event Theories

Underdevelopment and modernization theory focus on crime at the national level. Social disorganisation theories take neighbourhoods as their unit of analysis and seek to explain why crime rates differ between them. The final family of theories reviewed here are in the environmental criminology tradition and focus on the *crime event*. This focus is a notable departure from most offender-oriented criminological theories. While criminals are not ignored for their part in committing crime in such theories, their role is de-emphasised in favour of paying more attention to the causal role of "opportunities" in the immediate environment, defined here as the situational elements of crime events (Clarke, 2008).

Three perspectives contribute to our understanding of the crime event: the routine activity approach (RAA) (and the associated lifestyle exposure theory), crime pattern theory (CPT) and the rational choice perspective (RCP). The RAA identifies the conditions necessary for crime to occur. CPT tells us how those conditions arise in space and time. And the RCP describes the decision making processes of offenders exposed to conditions that give rise to crime opportunities. As will become clear, the RAA has the largest bearing on the empirical studies contained in this thesis given its interest in the characteristics of crime targets and the determinants of victimization. However, for completeness, all three perspectives are reviewed here.

The Routine Activity Approach

The routine activity approach (RAA) was first developed as a macro-level theory to explain the rise in direct-contact predatory crime experienced in the U.S. following World War II (Cohen and Felson, 1979). Many thinkers at the time advanced a rather simple notion that deprivation and crime were causally related: improvements in the former should lead to reductions in the latter. Yet crime rates in the U.S. *increased* between 1947 and 1974 despite general improvements in many of the areas of social welfare thought to be implicated in crime causation. The failure of sociology (which dominated criminological thinking at the time) to explain these increases prompted Cohen and Felson (1979) to search for causal explanations elsewhere. They argued that the crime patterns observed could be ascribed to shifts in everyday life borne of societal changes over the measured period. For example, they demonstrated that increased activity outside the home – due to, say, a greater number of women entering the workplace – increased the probability of potential victims and offenders coming into contact with one another. Similarly, they showed how higher levels of unoccupied households as more people were out at work provided greater opportunities for burglary since the guardianship of such homes was weakened.

The RAA was pioneering in focussing on crime (and not criminality) and how crime opportunities appeared heavily dependent on the daily movements of individuals. Cohen and Felson (1979) called for a more tangible take on what makes a crime opportunity. Put differently, what are the minimum critical conditions for crime to occur? They proposed that crime is dependent on the spatio-temporal convergence of 1) a likely offender (someone motivated to commit crime), 2) a suitable target (someone or something that the likely offender will be attracted to offend against) and 3) a lack of capable guardians (someone who is able and empowered to protect the target). It followed that crime could be prevented by disrupting the convergence of these three elements.

The paper which first articulated the RAA proved difficult to publish. Felson (2008) cites just a few of the disparaging comments made by reviewers: "impressive empirical drivel", "far-fetched and premature", and "the human ecology approach … goes nowhere". But persistence (and redrafting) paid off. The RAA is one of the most widely cited and influential theories in criminology. At first glance it is fiendishly simple – crime is reduced to three core elements – but it carries considerable explanatory power. It demonstrates how societal changes which alter the routine activities of people (many seemingly unrelated to crime) can generate crime and influence crime patterns. It also has much practical value. Understanding the routine activity process can assist in determining what factors contribute to an identified problem, and what can be done to prevent or reduce it.

Most relevant to this thesis, the RAA is also credited with broadening the way in which crime was typically conceptualised, emphasizing that factors other than those associated with the offender have a causal role in crime generation. To this end, the RAA explored what made certain targets – animate or inanimate – more susceptible to crime than others, encapsulated in the acronym VIVA (Cohen and Felson, 1979): *Value*, *Inertia* (how movable the target is), *Visibility* and *Accessibility*. To take an acquisitive crime example, this suggests that items of higher value that are easier to take, are often encountered and can be got at

without too much trouble tend to be preferred by offenders and, consequently, will be stolen more often. This model provided a platform for victim-oriented research that accepted that a certain number of people are likely to commit crime and focussed instead on what makes some targets more liable to victimization than others. That theme is one which characterises this thesis.

The Lifestyle-Exposure Theory

Before describing the two other main environmental criminology theories, it is considered useful to briefly discuss Hindelang, Gottfredson and Garofalo's (1978) *lifestyle-exposure theory* which shares much in common with the RAA and emerged at a similar time, though independently. The central premise of the lifestyle perspective, as it is commonly known, is that differences in the rates of victimization between social groups can be attributed to variations in lifestyles. Focussing primarily on predatory crimes and based on the analysis of victim survey data from several U.S. cities, Hindelang et al. (1978) found young people, males, singletons and the less wealthy exhibited a higher likelihood of victimization. Importantly, Hindelang and colleagues did not interpret these factors as the drivers of higher rates of victimization, instead these were considered to be commonly shared characteristics of population groups who tended to pursue lifestyles which exposed them to more opportunities for crime by virtue of, say, spending greater amounts of time outside the home, in public places and in the company of strangers.

Both the lifestyle perspective and the RAA maintain that crime is intimately related to the "lifestyles" and "everyday activities" of individuals. Many scholarly works treat the two approaches as one and the same. For most purposes this is acceptable, since both approaches implicate similar variables as factors associated with victimization risk (such as time away from home). However, it is worth mentioning that Allen and Felson (2012) have recently attempted to distinguish the two, highlighting that the RAA tends to speak to *unavoidable* daily activities which influence patterns of crime, such as going to and from work. By contrast,

they argue that the lifestyle perspective places greater emphasis on "risky" pursuits such as visiting bars, and how these influence proneness to crime. Crucially, Allen and Felson (2012) refer to such activities as *avoidable* since, in most cases, the actor chose to be there (though obviously not with the intention of being victimized, masochists aside). LeBeau and Coulson (1996) make a similar point by distinguishing *obligatory* from *discretionary* activities.

Quantitative assessments of the lifestyle/RAA can be split into three groups: 1) studies that use the *crime target* as the unit of analysis and explore the relationship between victimization risk and target characteristics, typically within one social setting (i.e. a country), 2) cross-national studies which pool data from sampled countries to examine the relationship between victimization risk and aggregate-level indicators of routine activities (or proxies thereof), and 3) studies that combine elements of the two, demonstrating how particular tenets of the lifestyle/RAA are associated with victimization and how they compare across countries.

Taken together, this body of research provides evidence largely in support of the lifestyle/RAA, garnered from several research areas. With respect to group one studies, using victim survey data from Canada, Kennedy and Forde (1990) demonstrate that the frequency with which individuals' visit bars or spend time outdoors at night is positively associated with the risks of violent victimization. Fisher and colleagues (1998) draw similar conclusions using survey data from college students in the U.S. In England and Wales, data collected as part of the 2000 BCS find that the risks of alcohol-related assault are elevated among population groups who spend more time outside the home, routinely visit alcohol establishments and consume higher levels of alcohol (Budd, 2003). More recently, several studies have found promising evidence that the lifestyle/RAA can also account for differences in the risk of *online* criminal victimization. For example, Reyns, Henson and Fisher (2011) demonstrate that risk exposure – such as the amount of time spent online or the number of social networks a respondent

belongs to – is positively correlated with the likelihood of experiencing cyber stalking.

Cross-national studies using a lifestyle/RAA framework have a different objective to the studies described above, namely to examine the relationship between crime rates and societal forces that influence the daily movement of individuals. These are sometimes referred to as "*structural constraints*... societal or community elements that limit or increase the activities of individuals" (Stein, 2010, p. 37). Common explanatory variables include a country's sex ratio as a proxy for the proportion of likely offenders (based on the recurrent finding that men tend to commit more crime than women), and levels of urbanization to approximate the likelihood of offenders and targets converging in space and time. These studies thus speak to the macro-component of the RAA.

Bennett (1991) is a much-referenced cross-national study informed by the RAA. Analysing data for 52 countries collected from several sources (INTERPOL, UN, the World Bank) he found, amongst other things, that rates of property crime were positively associated with measures of target attractiveness and accessibility and negatively associated with levels of informal guardianship, as the literature would predict. By contrast, measures pertaining to the abundance of and proximity to liable offenders did not perform as expected, prompting a discussion on the comparative importance of different elements of the RAA for different crime types. Bennett (1991) concludes by encouraging similar studies to adopt a *crime specific* approach, in light of the finding that the statistical model applied in his study tended to perform better in explaining variations in property crime rates than personal crimes. Faithful to this suggestion, Stein (2010) reports a multilevel analysis using ICVS data from 47 developed and developing countries (8 from sub-Saharan Africa). She too finds general support for the lifestyle/RAA but underscores the importance of disaggregating by crime type, finding, for example, that rates of female employment at the national level are positively associated with risks of assault victimization but yield no effect on burglary victimization.

Finally are studies that combine elements of both groups abovementioned: disaggregating by country to assess the relationship between variables derived from the lifestyle/RAA at the national level and between countries. Focussing on burglary using victim survey data from the U.S., Holland and England and Wales, Tseloni, Witterbrood, Farrell and Pease (2004) show that age, a single parent household, rates of urbanization and the use of protective measures all performed as predicted across the three countries (though in one country to a non-significant degree). They also demonstrated the differential effect of certain variables between countries, as with burglary rates being higher for rental properties in England and Wales but lower in Holland.

Presently, attempts to model the lifestyle/RAA in developing countries are limited to cross-national comparisons (see Bennett, 1991; Stein, 2010). Though useful, the methods used in these studies – lumping together data from the sampled countries –preclude inferences as to the explanatory power of *specific* components of the lifestyle/RAA for specific countries, as is possible in studies which focus on one setting or disaggregate the data by unit of analysis (i.e. country). The case studies reported in Chapters 7 and 8 of this thesis partially fill this gap through applying a lifestyle/RAA framework in the Malawian context to explore the correlates of burglary and assault victimization, respectively.

Crime Pattern Theory

The RAA yields testable predictions concerning crime concentrations: it treats crime as a product of the overlap between the routine activities of offenders and victims; considerable overlap will likely generate acute concentrations of crime. Yet the RAA does not explain *how* victims and offenders routinely converge in space and time. This is the province of *crime pattern theory* (Brantingham and Brantingham, 1981; 2008).

Crime pattern theory is principally concerned with the spatial patterns of crime. These patterns, it is argued, develop as a result of the everyday non-random

movements of offenders which gives rise to "awareness spaces"; those areas with which offenders are most familiar. Awareness spaces develop around the key nodes where people's activities concentrate and the paths which link them, most notably the home, workplace and popular entertainment zones (see also Horton and Reynolds, 1971). Crime pattern theory holds that offenders' prefer to commit crime in areas that they are used to (i.e. in their awareness spaces) since their knowledge on the availability of crime targets, the street network, police presence, etc, is likely greater than when in unfamiliar locations. Support for this hypothesis can be found in the recurrent finding that offenders commit crime quite close to their home (Rossmo, 2000; Townsley and Sidebottom, 2010) and that they are rarely displaced to offend in areas where their knowledge is poorer, what Eck (1993) terms *familiarity decay*. Regularities in these dynamics generate spatial crime concentrations.

The Rational Choice Perspective

The RAA sets out what is needed for crime to occur. CPT tells us where and why crime is most likely to happen. But neither approach is deterministic. In other words, the RAA and CPT chart how the necessary ingredients of crime come together, but does not assume that their coming together in time and space will *inevitably* lead to a crime occurring. A motivated offender, going about his daily routine in an area that he is familiar with may encounter a house that is empty, shrouded by trees and sporting rather suspect doors and windows – an opportunity for crime. But he fails to exploit it. Why? This brings us to the final crime opportunity theory: the rational choice perspective.

Recall that crime opportunity theories place greater emphasis on the crime event than on criminality. This is not to say that they ignore offenders. Crime opportunity theories hold that offenders are not qualitatively different from non-offenders; behaviour is a function of dispositional and situational forces *combined*, such that in certain situations seemingly law abiding people will act in ways that are deemed criminal (most powerfully demonstrated in the social

psychology literature, for a comprehensive review see Zimbardo, 2007). Instead, crime opportunity theories take the view *of* the offender and focus on the criminal decision making process, to determine the factors that influence whether an offender attempts to exploit a crime opportunity or not.

This model of offender decision making is known as the rational choice perspective (Cornish and Clarke, 1986). It suggests that the decision to commit crime – just like the decision to execute any behaviour – is the outcome of a crude cost-benefit analysis based on the expected effort, risk and reward associated with committing a particular act. It assumes that crime is a choice and that such choices are open to manipulation by external influences. To give a simple example, a highly motivated and well-equipped bank robber may decide against targeting a particular bank on noticing the presence of several police officers at the counter.

It is important to stress that *rational* should not be confused with *successful*. In most circumstances an offender will possess imperfect knowledge on all the possible outcomes emanating from engaging in a particular crime type. Even if situated omniscience were attainable, in reality, carefully considering all the available options is untenable; rather than being slow and deliberative, human decision-making is characterised by a series of "fast and frugal" heuristics which tend to work sufficiently most of the time (see Kahneman, 2012). Nor is the choice to commit crime always a free one: drugs, emotions and coercion, to name but a few, will clearly play a part in the accuracy of human judgement. The RCP thus depicts a "bounded" model of offender decision making, mindful of the foibles of human judgement and the varying circumstances under which such judgements are made. While this may not accurately describe the decision making process preceding every crime all of the time, in highlighting that crime is the outcome of a rudimentary cost-benefit calculation the RCP is considered a "good enough" model to understand why opportunities are taken advantage of by offenders and, by contrast, how that calculus might be altered in the service of crime prevention (Smith and Clarke, 2012).

A Brief Summary

The preceding section described the dominant theories typically drawn upon when analysing victimization patterns and the factors associated with victimization risk. The crime opportunity theories which were covered last are most salient to this thesis given their focus on the (potential) targets of crime, thereby aligning with the data used here. As mentioned at the outset of this chapter, the discussion contained herein was deliberately broad so as to introduce the body of work in which this thesis sits. Later chapters focus more precisely on the particular theories and concepts of relevance to the research questions under study.

Research Questions

Evidence shows that crime is highly concentrated across available targets (however defined). Targets differ in their risks of victimization. Several theories offer explanations as to the factors that account for variations in victimization risk, ranging from those that focus on the context in which targets are victimized to the characteristics of targets themselves. Knowledge on the causes and correlates of victimization can usefully inform crime reduction.

There are sufficient grounds to believe such concentration patterns are the norm. We would expect data to conform to these patterns. The opposite would therefore constitute the default null hypothesis: crime is randomly distributed across targets at risk[8]. Yet hypotheses of this sort have rarely been tested in developing non-Western settings, owing to several factors including a lack of data. Nor have they been applied in developing *western* contexts: the theories came too late; though scraps of available evidence from times gone by do point towards the uneven distribution of crime (see Pease (2005) for a breakdown of theft offences by item type in the Black Country (West Midlands), 1835 - 60).

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[8] Strictly speaking, even if crime were randomly distributed we would expect some targets to experience more than one crime. Consequently, concentration here is taken to mean patterns that cannot be explained by chance as indicated by inferential statistical techniques, as will be seen in later chapters.

It is informative to ask if the same victimization patterns are observed in a dissimilar setting such as Malawi, and whether the prevailing victimization theories are applicable to the Malawian context. If so, this implies a degree of overlap in the factors implicated in crime causation despite the radically different circumstances. For example, while the range and value of potential theft targets in Malawi will likely differ to those in Western Europe, they are nonetheless *available theft targets* of worth in the context in which they are found. The same is true of daily routine activities, which undoubtedly will vary between countries but which, if the theories hold, can still be thought of as bringing together in space and time those elements necessary for crime to happen. This is the subject of this thesis, taking advantage of access to data collected as part of the Malawian Integrated Household Survey 2004/05 which contains crime-related questions similar to those commonly asked in crime victim surveys.

The specific research questions to be covered in this thesis are listed below, with each question constituting a separate chapter:

1. Focussing on livestock theft, is theft found to concentrate across different types of livestock and, if so, can the attributes found to explain concentration patterns for other "hot products" account for these differences?

2. Focussing on residential burglary, is burglary found to concentrate across sampled households and, if so, can the patterns be explained by variations in housing type and the area in which the house is located?

3. Again focussing on residential burglary, what individual and area-level factors are found to be associated with higher risks of victimization? Which theories of victimization do these factors support?

4. Focussing on physical assault, do the risks of assault vary across individuals and areas and what factors are found to be associated with higher risks of victimization?

5. Again focussing on physical assault, do victims vary in their willingness to report assault to the police and, if so, what factors are found to be positively associated with victim reporting?

Chapter 3 - On Malawi: Context, Culture and Crime

Chapter Summary

This chapter presents an overview of Malawi. It is written with the intention of providing the reader with a better appreciation of the distinctiveness of the study site and a context for the analytical chapters to follow. It begins by briefly charting the geography and history of Malawi, drawing largely from the work of Anders (2010), Briggs and Bartlett (2008) and King and King (2007). This is followed by an account of its socio-demographic, economic, developmental and health characteristics. The chapter finishes by describing the Malawian criminal justice system, national police service and the levels and patterns of crime as measured by the Malawi National Crime Victimization Survey.

Malawi: Geography and Climate

Malawi is located south of the Sahara in southern-central Africa (see Figure 2). It is a landlocked country bordered by Mozambique, Zambia and Tanzania. In terms of total area, Malawi is one of the smaller African nations comprising little over 100,000 square kilometres, smaller than England and roughly equivalent to the state of Pennsylvania (USA). Around 20% of its surface area is taken up by Lake Malawi – sometimes referred to as the Calendar Lake due to its purported length of 365 miles and width of 52 miles - which occupies Malawi's eastern border with Tanzania and Mozambique. Lake Malawi is one of several lakes situated along the contours of the East African Rift, itself part of the larger Great Rift Valley which runs through Malawi. South of Lake Malawi is the Shire Valley, a major agricultural region through which runs the Shire River linking Lake Malawi to the Zambezi river in Mozambique.

The climate in Malawi is sub-tropical. November to May is the rainy season and is characterized by frequent thunderstorms. Due to its long shape, there are

noticeable climatic differences between the north and south: the highlands in the north are generally mild while the lowlands in the south tend to be hotter.

Figure 2 Map of Malawi and Surrounding Countries

Source: Malawi Maps and Online Resources — *Infoplease Atlas.*© 2000–2007
<http://www.infoplease.com/atlas/country/malawi.html>

A Brief Historical Background to Malawi

Pre-colonial history

Two features are constant themes in shaping Malawi's pre-colonial history: Lake Malawi and Malawi's geographic location in Africa. Many of the early settlers in Malawi were drawn by the pull of the lake. These groups were mainly hunter gatherers and herdsmen migrating south from West Africa. One of the earliest documented groups was the Bantu tribe, originating from Cameroon and inhabiting Malawi circa 1300 AD[9]. Their presence in Malawi came at a time when Africa's east coast was a booming trade hub, linking merchants as far wide as Europe and Persia. Malawi was a primary source of ivory for such traders. The benefits born of this relationship appear to have been partly responsible for the shift from disparate tribal clans to more organised kingdoms that occurred in the 14th century. The most notable state was Maravi (from which the name Malawi is believed to have derived), a trade and agriculture-based empire which encompassed much of southern Malawi as well as parts of Zambia and northern Mozambique. Boosted by strong links with Portuguese traders, the Maravi Empire spread widely and by the middle of the 17th Century stretched as far as the Mozambique coast. But its dominance soon waned. Infighting and increased migration meant that by 1700, the Maravi was fragmented and soon divided into several ethnic groups, many of which characterize contemporary Malawi.

The 19th century marked a period of further change. Portugal had long profited from the trade opportunities on Africa's east coast. This was disrupted following the capture of Mombossa (Kenya) by Sultan Said of Muscat in 1826. This affected Malawi in two ways. First, there was an influx of Afro-Arabs following the establishment of Omani Arab trading posts along Lake Malawi. Second, there was a rapid increase in the slave trade. To be clear, the slave trade had always existed in this region of Africa but under Portuguese domination was overshadowed by the trade in gold and ivory. This changed under Omani rule, largely in response to

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[9]The better known Zulus of South Africa are another group of Bantu peoples who continued their southerly migration.

reductions in gold extraction in Zimbabwe and the abolition of slavery in Europe and America. The statistics are grim. It is estimated that in the 1830s tens of thousands of Malawian slaves were captured annually to be sold at markets in Zanzibar and Mombassa. Many more died en route.

Colonialism: The Scramble for and Cinderella of Africa

Malawi in the mid- 19th century was riddled with conflict and tension. The slave trade had decimated the population and resulted in the displacement of many tribal groups. It was into this tumultuous environment that European missionaries first appeared, most notably the Scottish explorer Dr. David Livingstone. By the time Livingstone set foot in Malawi he was already something of a hero in Victorian Britain, mainly as a result of being the first European to cross the continent of Africa from west to east. He was appalled at the slavery he had witnessed on his travels. He pledged to combat what he termed "this open sore of Africa" through the three C's: Christianity, commerce and colonialism. Livingstone first visited Malawi in 1859 as part of a British Government commissioned project to locate a navigable river into Africa's interior. Thwarted by the Kebrassa Rapids on the Zambezi River, Livingstone and his colleagues focussed their attention on Malawi's Shire River as a possible alternative. In making several trips along the Shire, Livingstone et al. explored much of southern Malawi on foot and came into contact with many local groups.

In 1861, Livingstone set sail northbound on Lake Malawi in a local fishing boat. The journey was to be a significant turning point in his life and to a large extent Malawi's future. It was perilous. His colleague, the surgeon and botanist Dr. John Kirk, described it as "the hardest, most trying and disagreeable of all our journeys". It also exposed them to the horrors of Malawi's slave trade. Their trip included a pause in Nkhotakota, the main slaving emporium in Malawi, which Livingstone described as "an abode of bloodshed and lawlessness". They encountered several lakeshores where lay "human skeletons and putrid bodies" from the many raids of slave traders and abetting tribes. They also came into

contact with countless slave merchants and were regularly offered the opportunity to purchase captives. Kirk describes the conditions of the slaves as follows: "*The slaves were forced on by a long pole, forked at one end, in which the slave's neck was fastened, while the other was carried on the man's shoulder behind. At night the free end was fastened to a tree*".

1861 also saw the arrival of a second group of British missionaries comprised mainly of clergyman and led by Bishop Mackenzie. They were sent at the request of Livingstone in the hope of establishing the first European mission in central Africa. Their arrival coincided with the gradual demise of the Zambezi expedition. Tragically, many of the party, including Bishop Mackenzie and Livingstone's wife, soon died from the diseases that were common on Lake Malawi, most notably malaria. The death rate was so high that one member of the expedition team described the Shire as "a river of death". Moreover, Livingstone increasingly lamented that in attempting to enlighten Malawi through the three C's he had inadvertently charted an accessible route for Portuguese slave raids. Financial support for the expedition ceased in 1864 at which point Livingstone returned to Britain.

Few at the time would describe the Zambezi expedition as successful; many died and little was achieved by way of reducing the rampant slave trade. But the tales that emerged on the horrors of slavery resonated with the British public and, in time, would prove a catalyst both for the anti-slavery campaign and the European colonization of Africa. The latter, commonly known as the "scramble for Africa", began in the late 1880's when Germany claimed ownership of huge swathes of east Africa, including portions of Malawi. Soon after however, Germany handed over its stake in Africa in exchange for the British ruled Heligoland, a small archipelago in the North Sea. The British named present-day Malawi, the British Central African Protectorate (BCA) and appointed Sir Henry Hamilton Johnston as its first commissioner. By this time Johnston had already explored many parts of Africa, including acting as lead for a Royal Geographical Society expedition of Mount Kilimanjaro. On taking his appointment, Johnston's primary ambition was

to abolish slavery in the region, reflecting the now common tales recounted by Livingstone. Several skirmishes with the then dominant Yao slave traders ensued, and while the gains were often small and halting, by the end of the 19th Century all trade in slaves in Malawi (then BCA) ceased.

In 1907, what would later be called Malawi, then the British Central African Protectorate, was renamed Nyasaland[10]. From an economic perspective, it played a minor role in the British Empire. Its geography afforded long and expensive trade routes. The land proved unsuitable for many European farming methods and thus beyond a sprinkling of traders and missionaries, few Europeans settled there. Those that did concentrated in the south where Malawi's economy soon centred. Small profits were realized from the export of tobacco and tea. The central and northern regions lagged behind: central Malawi consisted mainly of African smallholdings while the north became heavily reliant on remittances from men working in the mines of South Africa. Nyasaland primarily served as a source of labour for the more industrial regions of Rhodesia and South Africa. Coupled with its lack of natural resources, Malawi earned the unfortunate moniker of the "Cinderella of Africa".

In 1953, in an attempt to bolster economic growth, the British Empire formed a federation of Malawi, Northern Rhodesia and Southern Rhodesia (now Zimbabwe). Grassroots resistance to the alliance was widespread, primarily because of the racist practices of Southern Rhodesia and because of concerns that any economic advantages resulting from this tripartite would be limited to the few British settlers. In Malawi this took an unusual form. In many British colonies, the lion's share of suitable farming land was apportioned to settlers. In Malawi this was not the case; the colonial government passed several motions that meant that roughly 90% of the farming land was designated for communal use by Malawians. Yet this principle of freedom-to-farm was simultaneously undermined by a taxing system that required Malawian farmers to pay (expatriate) government officials

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[10]To avoid confusion, the British Central African Protectorate, Nyasaland and Malawi are one and the same. The change in name reflects change in ownership from British colonialism to independence.

for the privilege, which is responsible, in part, for the large migration of workers to neighbouring countries.

Protest against the British occupation in Nyasaland grew. The same was observed in Northern Rhodesia where, over time, local politicians wielded increasing influence in legislative councils. Calls for the federation to be disbanded were inevitable and in 1963 came to pass. Calls for independence soon followed, most vocal among the politicians was Dr. Hastings Kumuzu Banda.

Post-colonialism: Banda and Beyond

Nyasaland gained independence from British rule in 1964 and was subsequently renamed Malawi. This mirrored the trend observed across much of Africa where, between 1956 and 1966, 31 African countries gained their independence. Thus began the thirty year tenure of Dr. Hastings Kumuzu Banda as Malawi's president. In the beginning, optimism prevailed. On gaining independence, the British High Commissioner wrote:

> Politically the country was under the firm paternally despotic control of Dr. Banda. Politics here had gained a certain monolithic appearance that suggested security and permanence….Stability, moderation, realism and firm leadership seemed to be Malawi's distinguishing characteristics… Dr. Banda … seemed to promise stability, anti-communism, realism and moderation in foreign policy, and slow but sensible progress in its internal political development (Baker, 2001, p. 88).

The optimism proved largely unfounded. Many came to consider Banda as a benign dictator; brutal but not on par with African leaders such as Idi Amin. This probably says more about the latter than it does of Banda. From the outset Banda was renowned for his intolerance both to opposition and criticism. While many of the newly independent African countries distanced themselves from the repressive

regime in South Africa and the Portuguese-run Mozambique, Banda forged alliances. Many members of Banda's Malawi Congress Party left soon after his appointment, incensed by the aforementioned links as well as Banda's clear autocratic tendencies. In 1971, Banda confirmed himself as president for life, and acted decisively to quash dissenters. It is claimed that some quarter of a million Malawians were unjustly imprisoned during his rule, most commonly for disagreeing with Banda's policies. Others, as Banda was quick to point out, became "meat for crocodiles" in the Shire River.

He was also unpredictable. Between 1968 and 1993 Banda dictated that it was forbidden for women to wear trousers or mini-skirts. Censorship was widespread. Arguably the most bizarre case is the banning of the Simon and Garfunkel song *Cecilia*, because the lyrics ("Cecilia, you're breaking my heart…") reminded Banda of a difficult period in his love life.

Despite his intolerance and eccentricities, Banda enjoyed cordial relations with much of Europe. Both Margaret Thatcher and the Pope visited under his rule. He is also credited with bringing peace and stability to Malawi – when many other African nations were plagued with low-level warfare – as well as economic growth, particularly between 1970 and 1979 after the expansion of the tobacco and tea sectors (Harrigan, 1997). Others disagree, suggesting that Banda and his inner circle were so quick to prevent dissension as to leave little room for public or political protest[11]; and that the Malawian economy was so underdeveloped following British rule that an upward trajectory was inevitable.

In the early 1990s, Malawi was under sustained pressure from the international community to introduce multi-party democracy, as was occurring in Kenya and neighbouring Zambia. Banda, now in his nineties, was expectedly belligerent and resistant. The death knell for his tenure came in 1992 following the *Lenten Letter*:

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[11]An alternative explanation is that Banda needed to do little to suppress dissent because he was successful in preventing its formation. In the 1980s, levels of literacy in Malawi were low, mainly as a function of only 4% of the relevant age-groups enrolled in secondary education. Public television broadcasts were also forbidden. Consequently, the largely rural population heard and saw little that could cause them discontent with their lot.

a document published by the Catholic bishops of Malawi charting the numerous abuses committed by the Banda administration. Banda's response was in keeping with his regime more generally: the Bishops were corralled and placed under house arrest. Crucially however, unlike similar instances in the past, increased media coverage exposed the events and generated condemnation internationally. This coincided with a period of prolonged economic decline in Malawi which, taken together, gave rise to a strong anti-Banda movement that, for the first time, spoke openly about its discontent.

Following several further protests and the suspension of development aid, the Banda regime was forced to call a referendum on whether to introduce multi-party democracy to Malawi. Over 60% of the population turned out to vote in favour of a multi-party system and a year later the first free public election since independence took place. Despite anecdotal evidence of intimidation and vote rigging by Banda's supporters, Dr. Bakili Muluzi, leader of the opposition party, the United Democratic Front, became Malawi's second president with a campaign emphasizing *zasintha*, change. Banda was later arrested, charged with several murders but allowed to die in retirement.

Muluzi was president of Malawi for ten years after being re-elected in 1999. While his first term focussed on shoring up the Malawian economy, particularly through rekindling relations with the donor community, his second term was marred by allegations of corruption. The economy slumped and in 2002 chronic food shortages were responsible for many hunger-related deaths. Despite attempting to alter the Malawian constitution to permit him remaining in office for a third term (two is the maximum), Muluzi failed to garner sufficient votes and thus passed on his presidency to the virtually unknown, Bingu wa Muthirika in 2004.

Like Muluzi, Muthirika's tenure as president of Malawi began brightly and ended badly. Shortly after gaining the presidency, Muthirika left the *United Democratic Front* and formed a new party called the *Democratic Progressive Party*. His

economic policies, particularly in relation to the agricultural sector, led to sustained periods of economic growth and much praise from the international community. Coupled with the absence of war, Malawi was seen by many as the standard bearer for democracy in southern Africa. Re-election in 2009 was a given. Then came Muthirika's increasingly autocratic behaviour. First, he became paranoid of what he perceived as deliberate attempts, both externally and internally, to undermine and usurp his power. This was manifest in several efforts to silence the press and, at its zenith, the expulsion of the British High Commissioner to Malawi (and with it the loss of Britain's considerable financial support) following a leaked document in which Muthirika was criticised for his mounting intolerance. Many other donor agencies withdrew their financial backing. The Malawian economy plummeted and fuel and foreign currency was in short supply. Worrying episodes of public unrest soon followed.

Amidst growing calls for his resignation, in April 2012 Muthirika died of a heart attack. Vice-president Joyce Banda (no relation to Hastings) was subsequently elevated to the role of Malawi's fourth president. At the time of writing, she has declared an interest in restoring the soured relations with international donors and overturning many of the Malawian laws that incited international consternation, most notably the illegality of homosexuality.

Contemporary Malawi

Population

The estimated population of Malawi is 15.8 million with an annual growth rate of 2.8%. The population density is 139 individuals per square kilometre, making Malawi one of most densely populated countries in Africa. Despite this, the population is disproportionately rural (around 80%) and comprises mainly of small-scale subsistence farmers. This is illustrated by the relatively small (by African standards) populations in Lilongwe, Malawi's capital (around 821,000) and Blantyre, Malawi's largest city and commercial capital (around 856,000).

The Socio-Demographic Characteristics of Malawi

Malawi is comprised of several ethnic groups, reflecting the various migrations that characterize Malawian history. The most prevalent (in descending order) are the Chewa (32.6%), Lomwe (17.6%) and Yao (13.5%) peoples. Chichewa is Malawi's national language though many citizens, particularly in urban centres, also speak English. Several indigenous languages derived from the Bantu peoples are also spoken.

Religion is prevalent and varied in Malawi. Given the strong missionary presence in the 19th century, it is perhaps unsurprising that Christianity is the most practiced religion (82.7%). Around 13% of the population define themselves as Muslim, a remnant from occupation by Arab slave traders, boosted by schools and mosques built more recently with funds from Middle Eastern donors.

The Economic Characteristics of Malawi

Malawi is one of the poorest countries in the world. In 2008, the World Bank estimated Malawi's gross national index per capita at US$280, which ranks fifth from bottom for the 189 countries for which data were available. It is also one of 41 countries to qualify as part of the *Heavily Indebted Poor Countries* initiative, designed to reduce external debt in the world's poorest nations. Being landlocked is a major economic disadvantage, leading to high transportation costs that stifle Malawi's export competitiveness. It is also devoid of natural resources.

Malawi's economy is predominantly agricultural. In 2009 agriculture accounted for 31% of Malawi's gross domestic product and 90% of total export revenues (World Bank, 2010). Many households are thus agriculture-dependent and exist on subsistence farming. Tobacco is the principal crop for export with tea, cotton, sugar and coffee also common. A small proportion of maize is also exported but the majority is consumed.

Economically, the last decade has been more encouraging. Periods of growth occurred between 2005 and 2009. This is mostly attributed to improvements in food security and a burgeoning agricultural sector, in particular the effectiveness of Mutharika's fertilizer subsidy scheme for smallholder farmers (see Minot and Benson, 2009). Moreover, Malawi is among the top performing developing countries on several *Millennium Development Goals*[12]. Yet sustaining such growth appears elusive. At the time of writing many of the economic gains in Malawi show signs of back tracking: 2011 witnessed noticeable shortages in fuel, foreign currency and spiralling food prices, amplified by the withdrawal of financial support from several international donors.

Physical and social infrastructure such as roads, schools and hospitals are considered generally inadequate, particularly in rural regions. Water shortages and power outages are also common. In recent years Malawi, like many countries in southern Africa, has increasingly looked to China for financial investment. Trade between China and Africa has grown considerably in the last decade (for a general discussion see Alden, 2007). China is now the leading investor in the region to the tune of around US$9.3 billion in 2010 (EIU, 2012). Malawi is high on China's investment list. Following a trade agreement in 2007, China has had a growing influence in Malawi. In 2011, it was estimated that China's financial input to Malawi reached US$270million. The appeal is obvious: financial support packages from international donors are *conditional*; they stipulate that funds be spent on certain sectors – typically on social and health-oriented programmes – and that they be spent in ways demonstrative of *good governance*. By contrast, Chinese investment comes with few conditions concerning, say, employment generation. It is also overwhelmingly concerned with infrastructural development, providing Chinese people and skills as part of the investment package. There are of course downsides: this mode of investment does little to improve local employment rates, confers few financial benefits to the indigenous population and is often piecemeal, used on a project by project basis. Nevertheless, at the time of

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[12]The Millennium Development Goals (MDGs) are eight development objectives that were formally ratified in 2000. They represent a series of targets for poverty reduction, hunger eradication, health and education improvement, intended to be met by every country by 2015.

writing Chinese investment has generated many new roads, Malawi's first five star hotel and a new parliament building.

Aid Dependency

Malawi is underdeveloped by Western standards. In 2011, the Human Development Index – a country specific composite measure of life quality, expectancy, literacy and education – placed Malawi 171st out of the 187 countries and territories considered (UNDP, 2011). This is below the average Human Development Index both for sub-Saharan Africa and for countries that comprise the United Nation's "low human development group".

Malawi is also heavily aid dependent. In reality, Malawi's political independence in 1964 did not equate to economic independence. As Moyo describes Africa more generally, it is "independence dependent on the financial largesse of ... former colonial masters" (2009, p. 14). Malawi at independence was similarly dependent on expatriate expertise and financing. To some extent it still is. The British *Department for International Development* (DFID), a major donor to Malawi, claims that around a third of the country's budget is provided by donors in the form of bilateral (government to government) and multilateral aid (via intermediaries such as UNDP and the World Bank).

Burden of Disease

Like many countries in southern Africa, Malawi carries a high burden of disease (see Bowie, 2006). This is a term commonly used in public health and refers to the manifold effects (financial, environmental, mortality, morbidity) of a health problem on an area of interest. Health indicators in Malawi such as child mortality and the nutritional status of mothers and children remain poor by international standards. Life expectancy hovers around the early 50's, linked with the high prevalence of HIV/AIDS, which in 2009 was estimated to infect 11% of individuals aged 15-49 (World Bank, 2010). Demand for medical services

continually outstrips supply. In a similar vein, the following are just some of the key challenges facing the Malawian health sector as identified in a WHO report: a shortage of health professionals, inequities in the accessibility of medicines, and frequent stock-outs of drugs and medical supplies (WHO, 2009). This situation only serves to further retard economic growth by removing (through mortality) or limiting (through morbidity) the contributions that affected individuals can make to society.

A summary of some of the key indicators in Malawi in 2010 compared to those of the UK is provided in Table 1.

Table 1 Malawi and the UK: A Comparison of Key Indicators

	Malawi	**U.K.**
Surface Area	118,484 km^2	243,610 km^2
Population	14,900,841	62,231,336
Population Density	158 people per km^2	257 people per km^2
Ethnic composition	Chewa 32.6%, Lomwe 17.6%, Yao 13.5%, Ngoni 11.5%, Tumbuka 8.8%, Nyanja 5.8%, Sena 3.6%, Tonga 2.1%, Ngonde 1%, other 3.5%	White 92.1%, Black 2%, Indian 1.8%, Pakistani 1.3%, mixed 1.2%, other 1.6%
GDP per capita	$362 (current US$)	$36,256 (current US$)
Official Language(s)	Chichewa and English	English
Life Expectancy at birth	53 years	80 years
Infant Mortality Rate	56 per 1,000 live births	5 per 1,000 live births
HIV prevalence rate	10.4% of adults (15-49)	0.3% of adults (15-49)
% of Population below the poverty line	53%	14%
Literacy rate (% people aged 15 and over)	74.8%	99%

Source: The World Bank.

The Criminal Justice System in Malawi

Malawi operates a dual criminal justice system. The first is a European model introduced during British rule. Under this system, each district of Malawi contains a court and a court of appeal responsible for all aspects of criminal law. These are nested within the High Court, Supreme Court of Appeal and magistrates' courts.

Malawi also operates a traditional court system. Various models of traditional governance are common in sub-Saharan Africa (see ECA, 2007) and with respect to criminal justice refer to practices that are largely community-based, restorative in nature and sensitive to local cultures and beliefs. This is in contrast to non-indigenous systems, as with the British legal model, that are often viewed as alien and (more) susceptible to abuse and corruption by government prosecutors (as touched upon in the discussion of underdevelopment theory in Chapter 2).

A traditional court system was practiced in Malawi before and during British rule, albeit largely confined to rural areas. Their influence grew however in 1969 when the then president, Banda, through the Local Courts Act conferred greater powers to the traditional courts, enabling them to try criminal cases, resolve disputes and, on occasion, impose the death penalty. This increased empowerment emerged, in part, from perceived failings of the formal criminal justice system to effectively deal with criminals. It also increased Banda's influence on the criminal justice system: many saw the traditional court system as a non-independent extension of Banda's government (all traditional court justices were presidential appointments); and Banda was now able to refuse appeals from formal court channels in favor of the judgments made in traditional African courts.

On gaining the presidency following the 1994 multiparty elections, Muluzi dissolved the traditional court system. In reality, the abolition was not absolute: traditional court methods remained common among the rural poor; nor was it indefinite: in 2011 the Malawian government reinstated the traditional model and

returned many of their legislative powers, albeit limiting their role to minor offences and domestic issues.

As is true of virtually all public sectors in Malawi, resource shortages have a significant detrimental effect on the quality of service in Malawi's (formal) criminal justice system. The implications can clearly be gleaned from Schärf's (2003, p. 6) observations:

> "*In Malawi, the police in many rural areas do not have the transport to collect suspects, the courts often run out of paper half way through the month and then can't hear cases until more paper arrives, parties have to pay marshals to serve summonses, court records are written on already used documents and folders, some of the court buildings leak so badly that during the rainy season court records get damaged.*"

This is also illustrated by the Malawian prison system. Long pre-trail detentions are common (sometimes up to seven years), mainly attributable to a lack of staff (Kanyongolo, 2006), in particular legal aid lawyers for those unable to afford legal representatives. A knock-on effect is extreme overcrowding in the Malawian prisons, which has increased considerably in the past decade (by 114.7% according to Walmsley, 2010). This in turn generates further unintended consequences, such as the exceedingly high rates of communicable diseases such as TB and HIV/AIDS among the prison population (for e.g. see Nyangula et al. 1997).

The Malawi Police Service

History and Structure

The Malawi Police Service was formed in 1921, then named the Nyasaland police force. Prior to this, Malawi was "policed" by disparate groups of ex-soldiers,

"totally untrained in conventional police duties and employed by district officers in pressing labour and enforcing the payment of hut tax" (McCracken, 1986, p. 147). The establishment of a police service was a response by the British to the perceived threat posed by labour migrants in the South.

Like most police services internationally, the Malawi police force is a publicly funded government department responsible for the safety and security of Malawians (broadly defined), as enshrined in the Malawi Constitution. It is structured hierarchically into a single police headquarters, 33 stations, eight sub-stations, 36 posts and 147 units (Kanyongolo, 2006). Each station is comprised of several departments each responsible for administrative tasks, the prosecution of cases, and crime prevention, detection and investigation. In 2005, it was estimated that the Malawi Police Service numbered some 7,000 individuals (Ndovi, 2005). Relative to the Malawian population this is low even by African standards, equating to a police-to-population ratio of 1:1,400 compared with 1:395 in South Africa and 1:277 in Botswana (Kanyongolo, 2006). In England and Wales there are roughly 380 people per police officer[13].

The policy on recruitment to the Malawi Police Service has changed in recent years, making it now mandatory that officers spend at least four years in secondary education; before the standards were much lower. Consequently, many current police officers will have spent considerably fewer years in formal education. The basic remuneration package for a starting police officer is high compared to similar positions in the civil service. However, at approximately US$ 54 per month in 2006, this is still generally considered insufficient for an "acceptable" standard of life in Malawi.

From its early beginnings, the Malawi Police Service has been characterized by its limited size and chronic lack of equipment and resources. True today as it was then, this negatively impacts both the quality and scope of police functions.

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[13]The nature of policing in England and Wales, with its community support officers and special constables means that direct comparisons of police-to-population ratios with other countries can be misleading.

Reflecting this lack of resources, the Malawi Police Service has received considerable assistance from international donors. For example, DFID commissioned the Malawi Police Organisational Development project (MALPOD), which sought to develop the scope and effectiveness of the Malawian police service through forging greater links with the community, civil society and various other stakeholders, particularly the NGO community. The impact of such initiatives has not been reliably evaluated however.

Public Relations

Strict adherence to democratic principles such as accountability and integrity mattered little under colonial rule. Tankebe (2009) argues that many of the features commonly associated with post-colonial policing in southern Africa – abuse, violence, regime favoritism – are throwbacks to this period. Historically, policing during the pre-democratic Banda era was characterized by public mistrust (Berg, 2005), with "police abuse … one of the most serious and divisive human rights violations in Malawi" (Kanyongolo, 2006, p. 107).

More recently, Doig and McIvor (2004) report that public confidence in the police service remains low. They attribute this to a perceived rise in crime, particularly violent crime. Following the introduction of multi-party democracy and in an effort to overturn public dissatisfaction, amongst other things, Malawi has invested heavily in community policing akin to the approach commonly practiced in the U.S. and U.K. Each police station now contains a community policing coordinator responsible for establishing community-centered activities. Regular community policing forums are held between police officers and the public to discuss local police-relevant problems with a view to collectively identifying effective and sustainable ways to tackle them, as well as mobilize citizens in ways to reduce the fear of and vulnerability to crime, often through the use of neighbourhood watch schemes which, according to the Inspector General's annual report 2010, are evidently common throughout Malawi[14].

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[14] http://www.communitypolicing.mw/downloads/reports/igs_annual_report.pdf

Non-State Police in Malawi

At this point it is worth noting a common feature of policing in sub-Saharan Africa, including Malawi: what are generally considered to be the functions of the police – maintaining public order, preventing, investigating and detecting crime, apprehending suspects – are provided both by the official state police *and* non-state authorities (Baker, 2004; 2008). The latter are numerous and include traditional groups made up of community members and village chieftains, ethnic militias, union-based policing authorities patrolling, say, markets or transport hubs, private security firms, dispute resolution agencies and non-governmental organisations and related agencies concerned with victim support services (see Baker, 2008).

It is a common misconception that the two groups – state and non-state police providers – are at odds with one another, with the latter characterized as an unhelpful obstacle to the former. In reality, many non-state policing groups are approved by the government, reflecting an admission that a lack of state resources blunts their effectiveness and that gains can be achieved through the sharing of intelligence. Others, however, are not sanctioned by the state and have often emerged out of widespread dissatisfaction with or fear of the police, particularly in areas outside the central business districts where the state police tend to disproportionately concentrate their activities. Baker (2008) summarises the situation best in his term "multi-choice policing", whereby African citizens experiencing crime decide on which authority to inform (if any) on a case-by-case basis. Baker (2008) observes that in many post-conflict nations, non-state police services have come to be the dominant mode of policing. Regrettably, to the author's knowledge there is no research available detailing the types of non-state police authorities in Malawi, their distribution, size and methods of recognition.

Crime in Malawi

What constitutes a crime in one place and time may not necessarily be defined in the same way at another place and time (Curra, 2000). Crime can be measured in various ways, using various data and at various scales. For example, at the national level Malawi is generally considered to be one of the safest countries in sub-Saharan Africa, hence the moniker the "warm heart of Africa". Yet national level estimates necessarily overlook important variations in the volume of crime at lower levels of geography.

As will be stressed throughout this thesis, crime data in Malawi are scarce. Police recorded crime data are not readily available nor does Malawi participate in international crime victim surveys. This partly accounts for the lack of criminological research conducted therein, alongside the fledgling status of criminology in Africa more generally (Igbinovia, 1989) and the interests of funding bodies commissioning criminological research (Banks, 2012). Shortages of and shortcomings in crime data, of course, are not unique to Malawi. From a criminological perspective much of sub-Saharan Africa remains largely understudied (Clifford, 1974; Arthur, 1991; Bowles, Akpokodje and Tigere, 2005), with the notable exception of South Africa and to a lesser extent Nigeria and Ghana.

Presenting an overview of crime in Malawi using police recorded data is therefore not possible. Information is however available in the form of the 2003 Malawi National Crime Victimization Survey (MNCVS). While this clearly differs from the data analysed in this thesis – and described in the next chapter – it does provide some general indicators of the patterns and levels of crime in Malawi as reported by a random sample of citizens. Given the lack of crime data in Malawi, this information is considered to be a useful foretaste for the chapters which follow. With this in mind, the below section reviews the aims, methods and findings of the 2003 MNCVS, and concludes by highlighting how it differs from the IHS II data used here.

Malawi National Crime Victimization Survey

The 2003 Malawi National Crime Victimization Survey (MNCVS) was conducted by the Institute of Security Studies (South Africa) in conjunction with the Malawi National Statistical Office. The purpose of the MNCVS was to provide information on the levels and distribution of crime in Malawi, victim reporting rates to the police and satisfaction with the police and courts. The MNCVS used a multi-stage stratified sampling procedure accounting for variations in population size by census enumeration area (the smallest level of geography in Malawi for which data are available). The final sample comprised 6,861 randomly selected households. In each selected property, one respondent (the head of household in 76.7% of cases) participated in a face-to-face interview with a member of field staff and was questioned on their experience of crime in the 12 months prior to survey (between 1 May 2002 and 31 May 2003). The sample was considered representative of Malawi; was 57.2% male, had a mean age of 39 years and was formed of a large portion of subsistence farmers (35.9%).

Part of the motivation in carrying out the MNCVS is the recognition that crime and insecurity can stymie development efforts (also see Leggett et al. 2005). This can clearly be seen in the introductory comments of the study authors:

> *"… insecurity makes it too risky for the poor to accumulate assets or wealth, particularly in a rural setting, as any assets or wealth are likely to be stolen. This undermines the ability of the poor to generate their own incomes and reduce their own poverty …*
>
> *Poverty and crime can also be part of a vicious cycle – crime reinforces and increases poverty and poverty causes crime. For the ultra-poor, the only means of survival may be stealing food or assets from other poor people. It is therefore important that this cycle be broken – by poverty reduction efforts"* (Pelser, Burton and Gondwe, 2005, p. 5).

The MNCVS reports several noteworthy findings (Pelser et al. 2005), described here under the themes criminal victimization, experience of corruption, victim behaviour, victim reporting and public perceptions. Where appropriate, tentative comparisons are made with the findings observed in other countries, both in Africa as measured by the ICVS as well as Europe and North America.

Criminal Victimization

Across the entire MNCVS sample, just under half reported experiencing one or more crimes in the past year (n = 2,984; 43.5%). This is high by international standards. For example, using data from 30 countries the ICVS estimates that roughly 16% of respondents experienced crime in 2004 (van Dijk, van Kesteren and Smit, 2007). Figure 3 displays victimization (prevalence) rates by crime type using the household as denominator. The findings are illustrative of the specific context of Malawi as it relates to the types and levels of crime observed. Crop theft is the most commonly experienced crime followed by the theft of livestock, reflecting the importance (and ubiquity) of agriculture in Malawi. Vehicle-related crimes (excluding bicycle theft) are rare, presumably because many households are unable to afford motorized transport and therefore opportunities for theft are limited.

Figure 4 shows the number of reported *incidents* for each crime type across the entire sample. Crop and livestock theft again dominate; taken together they account for over half of all reported crimes over the survey period. (The latter will be explored in greater depth in Chapter 5).

Figure 3 Self-Reported Victimization Prevalence Rates by Crime Type: Malawi National Crime Victimization Survey, May 2002 – May 2003 (n = 6,861)

Crime Type	%
Theft of crops	17.2
Theft of livestock	8.5
Corruption	5.6
Home Burglary	4.3
Theft of personal property	3.5
Theft of bicycle	1.7
Assault	1.3
Robbery	0.5
Deliberate damage to buildings	0.4
Murder	0.2
Theft out of vehicle	0.1
Sexual assault	0.1
Deliberate damage	0.1
Deliberate damage to motor vehicles	0.1
Hijacking of car	0.04
Theft of motorbikes / Scooters	0.01
Theft of car	0.01

%
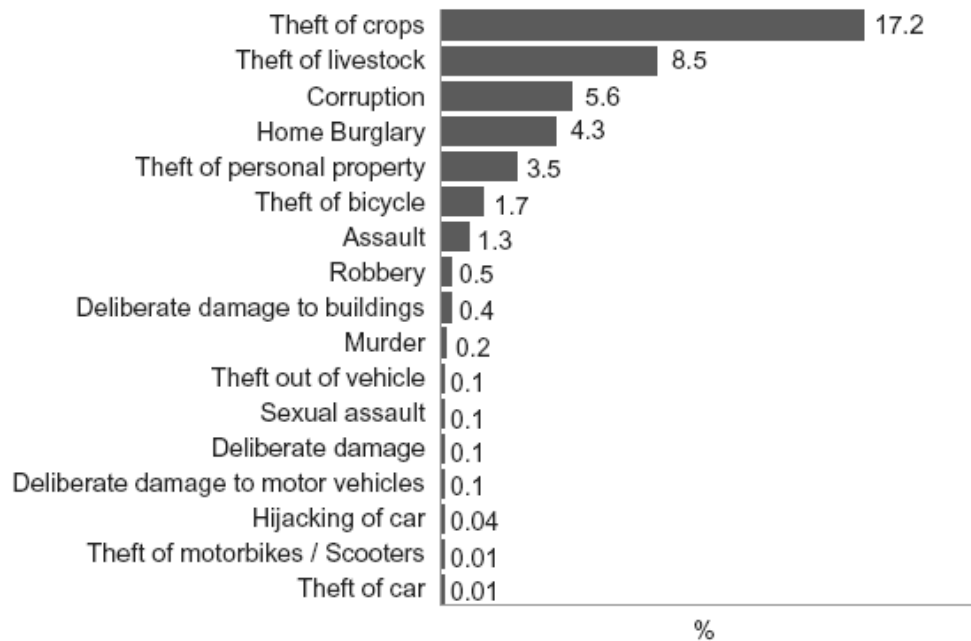
Source: Pelser, Burton and Gondwe (2005, p. 19).

Figure 4 Number of Self-Reported Incidents by Crime Type: Malawi National Crime Victimization Survey in Malawi, May 2002 – May 2003 (n = 2,984)

Type of Crime	Incidents	Percent of actual victimisation
Crop theft	1,182	39.6
Theft of Livestock	581	19.5
Corruption	384	12.9
Home Burglary	293	9.8
Theft of personal property	237	7.9
Theft of Bicycle	118	4
Assault	93	3.1
Robbery	31	1
Deliberate damage to buildings	30	1
Murder	14	0.5
Theft out of vehicles	8	0.3
Sexual assault	5	0.2
Hijacking of vehicle	3	0.1
Vandalism of a vehicle	3	0.1
Theft of a vehicle	1	0.03
Theft of a motorbike/scooter	1	0.03
Total	2,984	100

Source: Pelser, Burton and Gondwe (2005, p. 20).

A further property crime of relevance to this thesis is residential burglary. The one year prevalence rate of 4.3% in Malawi is again higher than the average rate estimated by the ICVS (1.8% in 2004). It is however in keeping with the estimates generated for African nations participating in the ICVS, which range from 12.6% (Mozambique) to 3.0% (Egypt). Burglary victims reported that the majority of incidents occurred after dark (64.9%) and that electronic products (21.7%), food items (20.6%) and personal effects (18.4%) were stolen most frequently. The study authors report that no statistically significant differences were observed between the sex and affluence of households that were and were not burgled.

Corruption

The study of corruption has long been dogged by problems of definition and measurement (Graycar and Sidebottom, 2012). That said, certain behaviours are broadly accepted as constituting corruption and the consensus in the literature is that such behaviours are common and costly in many parts of sub-Saharan Africa (World Bank, 2010). The MNCVS included questions concerning respondents' experience of corruption, referring to instances in which public officials requested some form of payment in exchange for a good or service, or the expedited delivery thereof. In total 5.6% (n = 384) of the sample reported experienced corruption, the majority of events relating to cases in which they had been asked to pay in order to receive a service. This was most frequently encountered when seeking employment in the public sector (29.2%), in the distribution of (free) food supplies (18.4%) and from the police (15.1%).

Victim Behaviour

Criminal victimization is evidently a traumatic experience. The consequences of crime for victims are well documented: ranging from financial loss to personal injury and psychological damage (see Shaw, 2001). Yet, as described in Chapter 2, such effects are rarely discernible from police recorded crime data and so research in this tradition has tended to use data collected as part of crime victim

surveys. With similar intentions, the MNCVS asked victims of crime what was important to them in the aftermath of victimization. Perhaps unsurprisingly, the most popular response was a desire for life to return to normal. This was followed by concerns over further victimization and associated protective behaviours. For example, 70.8% of assault victims reportedly changed their behaviour, the most common change referring to the avoidance of risky places (32.8%) and not travelling alone (22.4%).

Victim Reporting

According to data collected as part of the ICVS, police reporting rates in many African countries are often lower than those observed in Western industrialised settings (Prinsloo, 2006). Alemika suggests that this is largely owing to a common perception that the police are "ineffective, corrupt, and brutal or uncivil" (2009, p. 484), although practical constraints such as inaccessibility are also likely explanations. In Malawi, victim reporting rates to the police are generally low (Figure 5). This is most pronounced for the two most common crime types: livestock and crop theft. Levels of satisfaction from those that did inform the police were mediocre, mainly because they had no idea on the outcome of the crime (i.e. whether an offender was apprehended and/or convicted).

Figure 5 Percentage of Crimes Reported to the Malawian Police: Malawi National Crime Victimization Survey in Malawi, May 2002 – May 2003
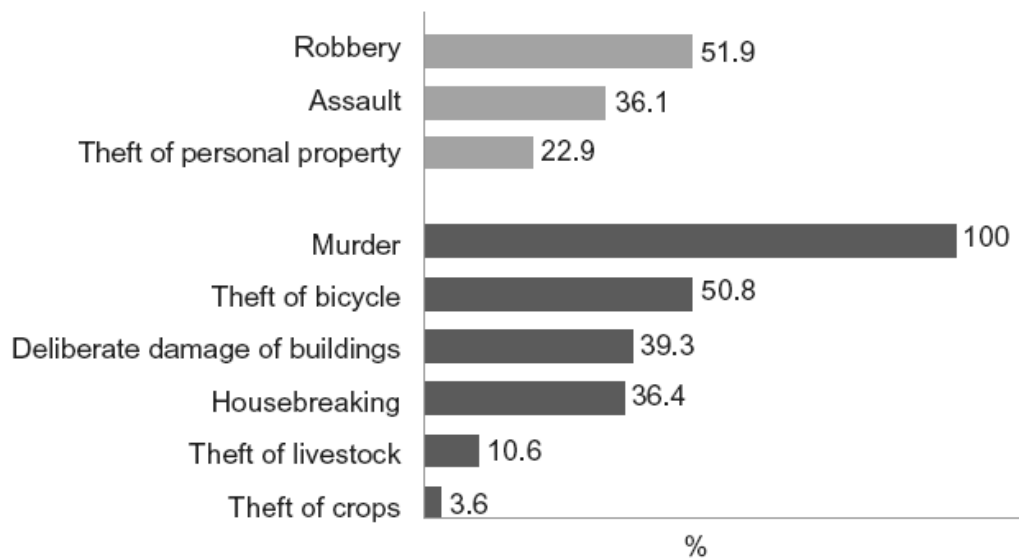
Note: The sample size from which Figure 5 is derived is not reported. *Source:* Pelser, Burton and Gondwe (2005, p. 49).

The two most common explanations for victims' not informing the police were first that the crime was not considered serious enough and second that the victim would resolve the matter by some other means. In the Malawian context, the latter likely relates to the use of unofficial policing groups, of the sort described by Baker (2008). For example, Pelser et al. (2005) indicate that for most crime types the reporting rates to non-police authorities are generally twice that of official police reporting rates. For example, 36.4% of housebreakings were reported to the police compared with 62.9% reported to non-police authorities. For deliberate damage to buildings the difference was greater still, 39.3% to 82.8% respectively. Pelser and colleagues suggest that the motivation to report crime to non-police authorities as opposed to the state police is attributable to a desire to resolve the matter locally and speedily. Of course some victims of crime likely inform both police and non-police authorities, however figures are not reported in Pelser et al. (2005) to assess the extent to which this is true.

Public Perceptions of Safety, Security and the Criminal Justice System

Respondents' perceptions of safety and security in Malawi were also canvassed. No clear trends were observed between whether participants thought crime had increased or decreased in recent years; those respondents seeing increases (48.5%) and those seeing decreases (38.3%) roughly balanced one another. The exception was for violent crime, which many respondents (54.7%) believed had fallen in the past three years. Clear regional differences were observed in the various fear of crime items. In Malawi's northern region, crop theft was the crime which most concerned respondents. However in the south which is more urban than the rural north, robbery and housebreaking were identified as the crimes they feared most.

Despite the low victim reporting rates, over two thirds of respondents (70.3%) thought that the Malawian police were doing a good job, in contrast to the suggestions of Doig and McIvor (2004). Respondents attributed this to their commitment, professionalism and timeliness. However, limited access to the police was also common. Over a third of respondents (40.5%) estimated that the nearest police station was over two hours walk away. This was most pronounced in rural areas. Moreover, many respondents claimed to rarely see a uniformed police officer. Similar patterns were also found for the Malawian court system: most respondents were overwhelmingly positive about the courts, believing that they were fair, impartial and issued satisfactory sentences to offenders, but they noted that many were difficult to reach. Regrettably, it is unclear whether the courts in question refer to formal or traditional courts, but the assumption is the former.

Some Reflections on the MNCVS

The MNCVS was successful in meeting its primary objective: to provide descriptive information on criminal victimization in Malawi and peoples' interactions with and perceptions of the police and courts. There are however certain items that are absent from the MNCVS that both deserve mention and will

be addressed in this thesis. Raising these issues should not be considered an indictment against the MNCVS, but merely areas that further research might build upon. In no particular order:

- The analysis is largely limited to descriptive statistical techniques; inferential tests are infrequent. This limits our ability to confidently dismiss the possibility that some of the findings might be explained by chance.

- Most of the findings refer to crime *count*s as opposed to crime *rates*. This is clearly seen with respect to car crime. The MNCVS indicates that experience of car crime is very low, presumably because few households own a motor vehicle. However, it is plausible that the small minority of Malawian households that own motor vehicles display a high *risk* of car theft when accounting for the number of opportunities available. The same can be said of the different types of livestock and crops that are stolen: it cannot be determined whether, say, cassava is stolen more readily because there are simply more opportunities for cassava theft or because cassava displays certain characteristics that make it a comparatively more attractive crop to steal. While crime counts can be useful for the distribution of preventive resources, by failing to standardize by available opportunities they overlook the *relative risk* of victimization for the target under study (for a general discussion see Harries, 1981; Sidebottom and Bowers, 2010; Lemieux and Felson, 2012). For this reason, major crime victim surveys such as the ICVS report, say, bicycle and motor vehicle theft rates by the number of bicycle and motor vehicle owners, thereby providing a more accurate measure of risk than simply using the entire sample. In this thesis, where suitable denominator data are available, crime rates are reported alongside crime counts.

- Unlike many victim surveys, the MNCVS does not contain questions concerning repeat victimization. No attempt is made to assess its

prevalence or variation by crime type. This is unfortunate given that many victims questioned in the MNCVS cited avoiding repeat victimization as a major priority after experiencing crime. Chapter 6 fills this gap by reporting the levels and patterns of repeat burglary victimization in Malawi.

Chapter 4 - On the Malawi Integrated Household Survey 2004-05

Chapter Summary

The previous chapter described the setting for this thesis. This chapter gives an overview of the data on which the thesis is based - the Malawi Integrated Household Survey 2004-05. The aim is to provide the reader with a clear idea of the origins and scope of the survey data as well as demonstrate its validity for the analyses to follow. The chapter begins by recounting the fieldwork undertaken as part of this thesis culminating in gaining access to the survey data. Second is a description of the background to and main objectives of the survey. Next is an account of the survey design, sampling methods and data collection procedure. A description of the contents of the survey, in particular the security and safety module then follows. The limitations of the data and secondary data analysis more generally are then briefly discussed. The chapter concludes by summarizing the material presented so far and setting out what is to be covered in the chapters that follow.

Fieldwork in Malawi: A Personal Account

There is little guidance in the criminological research methods literature on doing research in developing settings. Case studies describing the practical issues of, say, accessing crime data or hiring indigenous research assistants are scarce. While insight can be gleaned from cognate fields with a long tradition of conducting research in developing countries, such as development geography (see Desai and Potter, 2006), this often fails to adequately capture the unique challenges associated with the study of crime in radically different non-Western contexts, such as how crime is defined and measured. In light of this absence, before describing the purpose and properties of the survey data used in this thesis, it is considered useful to briefly recount the fieldwork undertaken and how I arrived at gaining access to the data.

I visited Malawi in March 2010 for a period of four weeks. The fieldtrip was facilitated by Professor Anthony Costello, Director of the UCL Institute for Global Health, who arranged for me to stay in the capital, Lilongwe, with several UCL researchers involved in projects to reduce maternal and newborn mortality. It should be stressed that at this point the precise subject to which this thesis would attend was unknown because of a lack of published information on available data that spoke to substantive crime problems in Malawi. The objective of the fieldwork was to identify a research problem and associated data (or means to collect such data) to furnish a Ph.D. project.

Fieldwork comprised several informal interviews and site visits with individuals from various organisations. These were identified via snowball sampling following initial discussions with the UCL research team based in Malawi. This was considered to be a suitable sampling method to gain access to individuals working in sectors that may be affected by crime. Each individual was contacted via telephone, informed of my affiliation and intentions to conduct crime-related research in Malawi as part of my Ph.D., and asked if they were willing to meet at their convenience to discuss this further. Table 2 shows the interviewees, their respective roles and organisations, and the location and date of our meet.

Each interview followed a similar format, whereby I would introduce myself, my reasons for being in Malawi and that I was interested in finding a crime-related research problem to pursue as part of a funded Ph.D. The last point is important, for two reasons: 1) because several interviewees noted from the outset that they did not possess funding for a Ph.D., mentioning that I was funded by UCL early on in the conversation assuaged their concerns; 2) aware of my funding situation, several interviewees saw me as a "free resource" which appeared to increase their willingness to help identify a suitable research topic. After introducing myself, the conversation was dictated by the interviewee depending on their area of expertise and interests. Each interview ended with my asking whether there were any other people they felt I might usefully speak to. In the event, these recommendations proved incredibly helpful in facilitating several concomitant interviews which

may well have been impossible if I were to contact them unannounced and with no personal connections.

As can be seen from Table 2, many of the interviewees were associated with the health sector in Malawi. This is a function of the source of my snowball sampling, namely UCL health researchers based in Malawi. Discussions thus inevitably steered towards the potential for doing research on crime and corruption in the health sector, specifically the leakage of drugs and medical supplies or the production of counterfeit medications (hence the Sidebottom (2010) essay). Other interviews were with individuals from organisations with an obvious crime and corruption remit, such as the Malawi *anti-corruption bureau*. Despite my best efforts, I was unable to meet with the Malawi Police Service, though this should not be interpreted as illustrative of a more general pattern and may simply reflect the timing of my requests and/or the specific individuals contacted – or poor powers of persuasion on my part.

These interviews afforded me a greater understanding of Malawi both as a setting for research and for policing and crime prevention. While many ultimately failed to yield research projects, the majority of interviewees were happy to field the questions posed and their thoughts on the possibilities of a British researcher conducting a crime-related study in Malawi were informative. Most germane to this thesis was the final meeting with the then Assistant Commissioner of the Malawi National Statistical Office based in Zomba, a five hour bus journey from Lilongwe. The key difference with this meeting compared to those previous was that I had already been made aware of the data collected as part of the IHS II through prior interviews. I had also read the associated publication (NSO, 2005a) and consequently knew what the data contained and, crucially, that there was scope for applying the data to several research questions commonly asked of comparable international datasets, issues I subsequently raised during the interview. Following a lengthy discussion the NSO agreed to release the data in CD form, citing that the data are publically available (albeit that they have to agree to release it) and are in a format suitable for research purposes (i.e. SPSS).

Table 2 Schedule of Fieldwork Interviews with Organisations in Malawi, March – April 2010

Name	Position	Organisation	Interview Location	Date
Charles Mwansambo	Permanent Secretary	Ministry of Health of Malawi	Kamuzu Central Hospital, Lilongwe	16/03/2010
Jason Lane	Team Leader, Human Development	Department for International Development, Malawi	British High Commission, Lilongwe	17/03/2010
Alexius Nampota	Director	Anti-Corruption Bureau	Mulanje House, Lilongwe	18/03/2010
Albert Khwei	Pharmacist	Kamuzu Central Hospital, formerly Central Medical Stores	Kamuzu Central Hospital, Lilongwe	22/03/2010
Harriet Chanza	National Professional Officer	World Health Organisation	World Health Organisation, Lilongwe	24/03/2010
Patrick Gilbert-Hopkins	Procurement Adviser	Office of the Director of Public Procurement	Vice-President's Office Building, Lilongwe	24/03/2010
Aaron Sosola	Registrar	Pharmacy, Medicines & Poison board	Amina House, Lilongwe	26/03/2010
Godfrey Kadewere	Deputy Director of Pharmacy	Ministry of Health of Malawi	Capital Hill, Lilongwe	26/03/2010
Ivy Zingano	Former Director	Central medical stores	Capital Hotel, Lilongwe	30/03/2010
Mary Phombeya	Head of Prevention	Anti-Corruption Bureau	Mulanje House, Lilongwe	31/03/2010
Jameson Ndawala	Assistant Commissioner	National Statistical Office	National Statistical Office, Zomba	06/04/2010

Background to the Malawi Integrated Household Survey 2004-05

Household surveys are a common and important source of information. They refer to efforts to collect data on households and the individuals living within them. They can take several forms and serve various purposes, from small-scale postal questionnaires designed to better understand consumer purchasing decisions to large-scale telephone interviews with the aim of determining patterns of political affiliation. Collected well, the data generated by household surveys are of much value: household survey data can usefully inform the development and evaluation of policy and practice and are a mainstay of scientific enquiry to test hypotheses concerning social phenomena. In the applied sciences, household surveys typically collect economic and socio-demographic information from a sample of households deemed representative of the population from which they are drawn.

Household surveys are particularly important in developing countries where official administrative statistics (such as censuses and civil registers) are often unavailable, unreliable, infrequent and/or inadequate. As Yansaneh (2005) writes, "household surveys have become one of the most important mechanisms for collecting information on populations in developing and transitional countries" (2005, p. 4). While household surveys clearly vary from country to country, many share common features, both in terms of their core objectives and the methods undertaken. In developing countries these surveys are ordinarily conducted by the home nation alongside (and often funded by) international agencies with an interest in collecting robust data, most notably the World Bank and the United Nations. Common examples of household surveys in southern Africa include Labour Force Surveys, Health and Demographic Surveys and Education Impact Evaluation Surveys.

In 1997, the National Statistical Office of Malawi initiated Malawi's first Integrated Household Survey. The primary objective was to collect reliable (geographically disaggregated) information on the socio-economic status of Malawian households, particularly the extent and impact of poverty. The data

were then to be used to inform Malawi's poverty reduction strategy. Data were collected from a nationally representative sample of 12,960 households for the period November 1997 to October 1998. Technical assistance in the development, implementation and analysis of the survey data was provided by the US-based International Food Policy Research Institute and the World Bank.

An extended version of the integrated household survey was administered in 2004, hereafter referred to as the IHS II. It was designed to meet the following objectives:

- *"Provide timely and reliable information on key welfare and socio-economic indicators and meet special data needs for the review of the Malawi Poverty Reduction Strategy, which have been implemented for the last five years"*.

- *"Provide data to come up with an update of the poverty profile for Malawi (poverty incidence, poverty gap, severity of poverty)"*.

- *"Derive indicators for monitoring Malawi's progress towards achieving the Millennium Development Goals and Malawi Poverty Reduction Strategy targets"*.

- *"Provide an understanding of the people of Malawi's living conditions"* (NSO, 2005a, p. 1).

While care was taken to produce estimates that are comparable to those of the first integrated household survey, there are several differences between the first and second sweeps. Firstly, five new modules were added: social safety nets (i.e. household participation in donor and/or government assistance programmes), subjective assessment of well-being, credit, recent shocks to the household and security and safety, which is the module used most in this thesis. Secondly, several existing modules were extended, such as the module concerning agriculture. And thirdly, the use of monthly diaries as a way of measuring

household expenditure was scrapped in favour of several modules concerned with household outgoings on food and non-food items.

Sample Frame, Size and Selection

The concept of sampling is a mainstay of social science. It speaks to a feature common to many social science research projects: the desire to make accurate statements about a given population. In many instances, it is impractical to poll the opinion or measure the attitude of the entire population of interest. Consequently, researchers must select a *sample* of the population on which to base their enquiries.

There are various sampling methods available to the researcher. These are formed of two broad groups: non-probability sampling and probability sampling. The former is generally considered to be inferior to the latter. It refers to samples in which the probability of being selected is unknown. A common example of non-probability sampling is convenience sampling, where, as the name implies, individuals are selected on a convenience basis such as when they happen to encounter the researcher on a street or (as is often the case) in the university library. While this method is often cheap and easy to carry out, it does not permit inferences to be made about the population in general.

The second group of sampling methods is probability sampling. A key feature of this approach is that the probability of being selected in the sample can be determined. This is because the sample is drawn from a list of the population of interest (a sampling frame). Moreover, the availability of this information allows estimates to be calculated on the reliability of the sample relative to the wider population. There are several types of probability sampling method, such as random sampling and cluster sampling.

The IHS II used a probability sampling procedure known as stratified sampling, as is widely practiced for household surveys. This is an appropriate approach since

the main aim of the IHS II was to produce estimates that are representative of Malawi in general[15]. Selecting a truly representative sample required a sampling frame of the entire population of households, with each household having an equal chance of being selected. To do this, Malawi was divided into several parts based on extant administrative units and using data collected as part of the 1998 Population Census, the most up-to-date data available at the time of survey. Administratively, Malawi is organised hierarchically from a Region (the largest) down to the District level and then Enumeration Area (EA). There are three regions: North, Central and South. These regions are formed of twenty-seven districts (see Figure 6) and roughly 9,200 EAs. EAs form the smallest unit for which population census data are available and, using common survey parlance, constitute the primary sampling unit (PSU) of the IHS II. In rural areas EAs refer to between one and three (spatially proximate) villages; in urban areas they comprise a geographic area of around 1,250 people.

As the name suggests, stratified sampling involves the drawing of samples from strata. Strata here refer to non-overlapping groups that comprise the sampling frame. For the purposes of the IHS II, Malawi was stratified into urban and rural areas. The urban strata comprised the four main urban areas of Malawi: Lilongwe, Mzuzu, Blantyre and Zomba. The remaining strata were defined as rural, and comprised the 26 administrative district areas; Likoma district - a small island in Lake Malawi inhabited by around 10,500 individuals - was excluded from the sampling frame because of the difficulty in traveling to and conducting fieldwork there. Thus, in total there were 30 strata that constituted the IHS II sampling frame.

Selecting a representative sample is not only determined by the sampling frame, but also the sample size. Too small a sample reduces the *statistical power* of the survey (Cohen, 1977)[16], limiting its ability to reliably detect the phenomenon

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[15] Because households constitute the unit of randomization in the IHS II, claims of representativeness likewise refer to Malawian households.

[16] Statistical power - the probability of rejecting the null hypothesis when it is false – is more frequently discussed in the context of hypothesis testing and making comparisons between two or more groups, as opposed to sample size determination for cross-sectional surveys.

under study. The Malawi NSO (2005a) report that in order to provide accurate district-level estimates, a total sample size of over 7,000 households is required, although no formal statistical power analysis is presented.

The next stage was to select households from the 30 strata that constituted the sampling frame. This involved two steps. The first concerned the selection of EAs from each of the 30 strata. As shown in Figure 6, some districts are bigger than others. It would therefore be unrepresentative to select an equal number of EAs per district; the selection of EAs needed to reflect variations in district size. The number of EAs per stratum was determined by the household population figures as measured by the 1998 Population Census. These were:

0 to 75,000 households per stratum	=	12 EAs
75,000 to 125,000 households per stratum	=	24 EAs
125,000 to 175,000 households per stratum	=	36 EAs
175,000 to 225,000 households per stratum	=	48 EAs

Using these rules, a total of 564 EAs were randomly selected accounting for variation in population size.

The second stage concerned the selection of households. Again using the household roster data, in each of the selected EAs 20 of the listed households were randomly selected. The final sample comprised a nationally representative cross section of 52,707 individuals occupying 11,280 households in 564 Malawian EAs (492 rural and 72 urban). Table 3 shows the size and distribution of the final sample by strata.

Figure 6 The 27 Districts of Malawi

Table 3 Distribution of Sample by Strata: Malawi Integrated Household Survey 2004/05

Strata	Number of EAs randomly selected per stratum	Number of households randomly selected per stratum (20 HHs per EA)
North Region	**84**	**1,680**
Chitipa	12	240
Karonga	12	240
NkhataBay	12	240
Rumphi	12	240
MzuzuCity	12	240
Mzimba	24	480
Central Region	**216**	**4,320**
Nkhotakota	12	240
Ntchisi	12	240
Dowa	24	480
Salima	12	240
Lilongwe	48	960
Lilongwe City	24	480
Mchinji	12	240
Dedza	24	480
Ntcheu	24	480
Kasungu	24	480
South Region	**264**	**5,280**
Mangochi	36	720
Machinga	24	480
Zomba	24	480
ZombaCity	12	240
Chiradzulu	12	240
Blantyre	12	240
Blantyre City	24	480
Mwanza	12	240
Thyolo	24	480
Mulanje	24	480
Phalombe	12	240
Chikwawa	24	480
Nsanje	12	240
Balaka	12	240
Malawi	**564**	**11,280**

Source: Adapted from NSO (2005a, p. 12).

Field Staff, Fieldwork and Survey Implementation

The IHS II was coordinated by a dedicated team from the Malawi National Statistical Office in consultation with representatives from the World Bank. In addition to the abovementioned survey design, the IHS II management team was responsible for the recruitment and training of field staff, and survey implementation. Candidates were sought for the positions of enumerators and data clerks. Advertisements were placed throughout Malawi and interested parties had to undertake a series of relevant examinations to proceed. Those who successfully passed the examinations underwent a three-week compulsory training regime delivered by members of the Malawi National Statistical Office, World Bank and United Nations. Training took the form of a series of class-based sessions in which trainees were taught recommended interview techniques in general and the contents, concepts and definitions of the IHS II in particular. Dedicated training was also provided on how to collect accurate anthropometric measurements (such as child weight, height) using the equipment provided. Field staff training culminated in a number of assessments based on the material covered and from appraisals of overall performance by attending supervisors. The top 15 candidates were chosen to be field supervisors, 47 were selected as enumerators and a further 12 were selected to be data entry clerks. The latter received additional training for two weeks on how to code and enter survey data electronically. Regrettably, data are not available on the number of applicants for the advertised posts.

To aid with the implementation of the IHS II, fieldwork was organized around eight zones: Blantyre, Karonga, Kasungu, Lilongwe, Liwonde, Mzuzu, Chikwawa and Salima. These zones were not selected for any substantive reason of relevance to the survey; they were selected purely as a base from which fieldwork could be centered. Each zone was assigned one zone supervisor (responsible for reviewing the completeness of returned questionnaires, verifying the explanations for non-responders and managing and equipping field supervisors and enumerators), several field supervisors (responsible for reviewing the completeness of returned questionnaires, observing interviews to ensure adherence to the guidelines and the

taking of anthropometric measurements alongside the enumerators) and several enumerators. Zones also received a 4x4 vehicle and driver.

Fieldwork unfolded as follows. An enumerator would base themselves in the selected EA. Care was taken to ensure that they were fluent in the language(s) of the particular area. The enumerator would assess the boundaries of the EA, locate the selected households and initiate contact with significant members of the EA (community leaders, chieftains etc) to discuss the objectives and importance of the survey. In each selected household, data collection was contingent on respondents' agreeing to the following brief (see Appendix 1):

> *Every five years the National Statistical Office in Zomba selects at random several hundred households in each district of the country to ask them questions about how they are living. The responses which are provided by the households to these questions are intended to help the government of Malawi do a better job in meeting the needs of all Malawians.*

> *Your household was selected as one of those to which the IHS questions will be asked this time. You were not selected for any specific reason. Simply your name appeared on a list of all of the households in this area, and your name was chosen randomly.*

> *I would like to ask the questions in this form to you as head of household or spouse of the head. I will also need to ask questions to other members of your household, as well as weigh and measure the height of any children under age 5 years who live in your household. These questions will take several hours to complete. All of your answers will be held in confidence. The answers which you and the members of your household might give me will only be used by the NSO or under its supervision.*

Before I start, do you have any questions or is there anything which I have said on which you would like any further clarification? May I proceed with interviewing you and members of your household?

Once participation was secured, the enumerator completed the questionnaire for every individual aged 10 and over; they were not self-administered, presumably because of the high levels of illiteracy in certain parts of Malawi. Questionnaires for all household members were usually completed in one sitting. Additional household visits were carried out on the occasion that members of the household were absent or for those households containing residents between the ages of 6-59 months, at which point the field supervisor and enumerator would jointly collect anthropometric information. On completing the questionnaires for all the 20 selected households the enumerator would relocate to the next EA in the designated zone.

Non-responders are the scourge of any survey. In the IHS II, 504 of the originally identified households had to be replaced because they failed to complete the questionnaire. As shown in Table 4, by far the most common explanation for non-participation was that nobody was available for interview at the time of the survey or that the property was vacant. Each household that failed to participate was replaced, thus maintaining the original sample size. The replacement process matched that of the original sampling procedure: the 1998 Housing Census was used as the sampling frame from which households were randomly selected. Regrettably, socio-demographic information on the characteristics of non-responders is not available. Consequently, it is unclear whether there were any systematic differences in the households that did and did not participate, although there is no obvious reason to think that there would be.

Table 4 Reasons for Replacing Non-Responsive Households: Malawi Integrated Household Survey 2004/05

Reason for Replacement	N
Household found but no residents available	197
Household found but is unoccupied	180
Household destroyed	43
Household found but respondent refused to participate	41
Household could not be found	30
Household found but it is not a residential premises	12
Total	**504**

Source: Adapted from NSO (2005b, p. 14)

From the initial sample, the final response rate was 96%. This is high by Western standards – the 2010/11 BCS had a response rate of 75.5% (Fitzpatrick and Grant, 2011) – and likely reflects the decision a) to contact each household prior to survey and b) to conduct the interviews face-to-face thereby overcoming problems of illiteracy. Other possible explanations relate more specifically to the Malawian context. Vaessen and colleagues (2005, p. 503), for example, suggest that the high response rates commonly observed for household surveys in similar nations is because "household surveys in developing countries [as opposed to developed countries] usually benefit from a high level of cooperation on the part of potential respondents". Moreover, the infrequency of surveys more generally in Africa compared to many more-developed nations may suggest less survey apathy among the populace. The IHS II was intended to be carried out over a 12 month period. In the event, owing to difficulties with a small number of respondents, administering the survey took slightly longer, from March 2004 to April 2005.

Implementation Challenges

Implementation challenges are common with any large-scale survey instrument, but are acute in resource-limited settings such as Malawi. The Malawi NSO identified four challenges that emerged in administering the IHS II (NSO, 2005b), some avoidable, others less so. These are briefly summarized below to inform

future data collection efforts of the types of issues that should be considered in advance. The implementation difficulties were:

Funding delays

These refer to delays in the disbursement (and replenishment) of funds to conduct the survey, such as field staff salaries and equipment costs, which held up fieldwork.

Petrol constraints

Two problems arose here. First, the estimated fuel requirements to carry out the survey fell well short of what was actually needed. Second, the price of petrol increased considerably over the time in which the survey took place, which meant that the available funds bought less fuel. Both problems led to a rationing of petrol. In practice, while this did not reduce the number of respondents interviewed, it did limit the number of site visits by field supervisors to monitor proceedings.

External political factors

During the third month of fieldwork (May 2004), the country's Presidential and Parliamentary elections took place. This led to the suspension of data collection for a two-week period in order to avoid field staff being erroneously associated with political campaigning. Moreover, some survey vehicles were sequestered to aid the election arrangements. This hindered the ability of affected zone supervisors to carry out their monitoring responsibilities.

Budget constraints

Finally, three elements were not accounted for in the initial budgetary planning. These were:

1) The costs associated with additional phases of household selection (i.e. replacing non-responders).

2) The costs associated with IHS II management team site visits to monitor progress.

3) The costs of 15 motorcycles for field staff. Consequently, older and less-reliable motorcycles were used by field supervisors.

The Contents of the Malawi Integrated Household Survey

The foregoing discussion concentrated on the design and implementation of the IHS II. This section concentrates on the survey content. The IHS II is a multipurpose survey comprising 29 modules containing questions on a wide range of areas, such as:

- Education
- Health
- Time use and labour
- Agriculture
- Housing
- Security and Safety
- Expenditure
- Credit

Table 5 provides a summary of the key indicators across several modules of the IHS II. The data are presented for the entire household sample as well as the top 20% and bottom 20% of households measured by annual expenditure.

Table 5 Summary Indicators derived from the Malawi Integrated Household
Survey 2004/05

Indicators	Measurement	Entire Sample	Poorest 20% Households	Richest 20% Households
Demographic measures				
Sample size	Number	11,280	2,281	2,219
Average household size	Number	4.5	5.9	3.2
Head of Household				
Education level achieved				
No education	Percent	28	39	15
Primary	Percent	56	56	47
Secondary and above	Percent	18	5	39
Sex of Household Head				
Male	Percent	77	74	81
Female	Percent	23	26	19
Poverty and Hunger				
Mean annual per capita expenditure	$US	$930.64	$271.21	$1,956.89
Mean annual share of expenditure on health	Percent	1.4	1.6	1.2
Mean annual share of expenditure on education	Percent	1.73	1	2.7
Education and Literacy				
Adult literacy rate				
Total	Percent	64	52	82
Male	Percent	76	68	88
Female	Percent	52	40	74
Health				
Incidence of Illness*	Percent	26	22	26
Stunting (6-59	Percent	43	44	41
Underweight (6-59)	Percent	22	22	22
Housing				
Flush Toilet	Percent	2.8	0.5	9.9
Proportion with electricity within 100 m	Percent	16	8	29

Notes: *Based on the question: "*During the past 2 weeks have you suffered from
an illness or injury?*" **Stunted growth often follows malnutrition. In the Malawi
sample, children are defined as stunted if their height-for-age ratio is less than 2
standard deviations from the mean. *Source:* Adapted from NSO (2005a, p. 8-9).

The Security and Safety Module

As will become clear in later chapters, this thesis makes use of data collected in several of the survey modules. For example, the study on livestock theft in Chapter 5 draws heavily on the responses to questions asked as part of the agriculture module. However, data collected from questions in the security and safety module form the main thrust of the thesis and are used in all five empirical chapters. A brief description of this module thus follows.

The security and safety module asks respondents to report, amongst other things, their experience of five crime types *in the past year* (residential burglary, physical assault, theft of livestock, theft of crops and pick-pocketing), whether they reported crime to the police (this is limited to physical assault), general feelings of safety in their neighbourhood and the preventive measures (if any) taken to reduce the risk of criminal victimization *in the past year*. As discussed in the previous chapter, given the paucity of available police recorded crime data in Malawi, the IHS II is considered to be the most recent crime-related data available in Malawi at the time of writing.

The security and safety module is formed of two parts, each using a different unit of analysis. The first part comprises questions on crimes against the individual. These include experience of assault in the past year and perceptions of safety. These questions are asked to all respondents aged ten years or over. The second part concerns questions on household-related crimes. These include experience of offences against the household in the past year (such as livestock theft) and measures taken to improve security. These are addressed to the head of the household. Table 6 displays the size and demographics of each sub-sample (personal and property crimes). It can be seen that there are slightly more female respondents in the personal crimes sample. By contrast, nearly two thirds of respondents to the questions relating to property crimes are male, reflecting the common observation that male-headed households are more common in sub-Saharan Africa.

Table 6 Distribution of Personal and Property Crime Samples by Age and Sex:
Malawi Integrated Household Survey 2004/05

	Personal Crimes	**Property Crimes**
Sample Size	32,579	11,280
% excluded	20,100 (38.2%) aged 9 years or under	N/A
Male (%)	15,481 (48%)	7,413 (65.7%)
Age (%) 0-9	0.2	0.0
10-19	33.7	1.9
20-29	25.8	27.8
30-39	15.0	24.5
40-49	9.6	16.0
50-59	7.4	13.7
60-69	4.4	8.7
70-79	2.5	5.0
80-89	1.1	2.1
90-99	0.2	0.4

Source: Malawi Integrated Household Survey 2004/05

Definitional Issues in the Security and Safety Module

There are often divergences in what is defined as criminal between cultures and over time (Curra, 2000) which have an important bearing on crime victim surveys. Different surveys employ different techniques. The BCS, for example, uses legal definitions in classifying the types and levels of crime experienced. First, all respondents are required to answer a screening question on whether they have been a victim of crime over the designated time period. If the response is yes, then the respondent describes the details of the event(s). This is then later classified by a member of the coding team in accordance with the legal definitions used by the police. The rationale for this method is that many individuals possess limited knowledge on the range of different crime types and often struggle to marry their experiences with legal definitions. Moreover, this method allows for greater flexibility in being able to sub-divide crimes by pertinent features (i.e. attempts). It also affords greater comparability between the BCS estimates and police recorded crime data.

The ICVS uses a different method. Rather than classify crimes on the basis of standard police definitions, greater emphasis is placed on how crime is understood by the sample population in their particular context. If a respondent reports experiencing a specific type of crime over the observation period, then their answer is assumed valid and several further questions relating to the offence are posed. This approach is considered more applicable to the diverse contexts in which the ICVS has been applied, as well as less resource-intensive.

The security and safety module of the IHS II shares more in common with the ICVS than the BCS. The questions on respondents' experience of crime have affinities with the legal definitions used in Malawi but clearly possess a colloquial feel. This approach is designed to handle cultural variations in Malawi as to what is and is not deemed criminal conduct. It also has the advantage of economy in that the subsequent crime classification method, as practiced in the BCS, is costly and time-consuming. A consequence of this decision, however, is that the estimates produced using IHS II data are not directly comparable with those generated from Malawi police recorded crime data (where it is available).

A comparison of the way in which those crimes analysed in this thesis are defined by the IHS II and the most recent sweeps of the BCS and ICVS is provided in Table 7. It can be seen that the IHS II questions are much looser than those of the ICVS and particularly the BCS. For example, in the case of residential burglary, there is no distinction between attempts and successful burglaries. Moreover, the BCS does not ask questions relating to livestock and crop theft, presumably because such crimes are rare in England and Wales [17]. Table 7 is included simply to highlight some of the discrepancies between the definitions employed by different survey instruments, which in turn have implications for the comparability of the findings reported here with those found elsewhere.

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[17] Infrequent but not unheard of: anecdotal evidence suggests an increase in *pet theft* in the U.K – a variant on the theft of domesticated animals - particularly dogs (and certain breeds of dog) stolen for the purposes of breeding, illegal dogfighting, to claim reward money or to act as guard dogs.

Table 7 Comparison of the Definitions of Crime in the Malawi Integrated Household Survey 2004/05, British Crime Survey and International Crime Victimization Survey

Crime Type	IHS II definition	BCS definition	ICVS definition
Residential Burglary	In the past year, did anyone enter your dwelling to steal, to try to steal something, or to commit another crime?	During the last 12 months, has anyone got into this house/flat without permission and stolen or tried to steal anything? [Apart from anything you have already mentioned], in that time have you had any evidence that someone has tried to get in without permission to steal or to cause damage?	Over the past five years, did anyone actually get into your home/residence without permission, and steal or try to steal something? I am not including here thefts from garages, sheds or lock-ups. Apart from this, over the past five years, do you have any evidence that someone tried to get into your home/residence unsuccessfully. For example, damage to locks, doors or windows or scratches around the lock?
Physical Assault	In the past year, were you personally attacked, physically beaten, or threatened with violence by someone?	[Apart from anything you have already mentioned], has anyone, including people you know well, deliberately hit you with their fists or with a weapon of any sort or kicked you or used force or violence in any other way?	Have you over the past five years been personally attacked or threatened by someone in a way that really frightened you, either at home or elsewhere, such as in a pub, the street, at school, on public transport, on the beach, or at your workplace?
Livestock theft	In the past year, were any animals stolen from you?	N/A	Over the past five years have you or other members of your household had any of their livestock stolen?
Crop Theft	In the past year, were any crops stolen from you?	N/A	N/A

On Some of the Limitations of the Malawi Integrated Household Survey 2004/05

There are several limitations to the IHS II data that merit discussion. These inevitably determine what research questions can feasibly be asked of the data and what areas further research, supplementing that reported here, might seek to address. The five empirical chapters that follow will each highlight specific limitations as they relate to the research questions of interest. Reported below are some of the general limitations in the data. While this list of weaknesses indicates what the data can and cannot shed light on, it is important to bear in mind that these shortcomings are present in many household (victimization) surveys.

- The results generated from analysing the IHS II data are estimates and are subject to sampling errors. For example, the sampling frame used in the IHS II is based on the most recent population census at the time of survey. Those households that are not listed in the census are hence excluded. This is a concern because certain population groups are more likely to be excluded than others, such as the homeless, those in refugee camps and pastoral/nomadic tribes. As Carr-Hill (2010) writes, household surveys in developing countries often undercount the "poorest of the poor". Of course this is not limited to developing countries; individuals with no fixed abode (such as vagrants) are similarly often excluded from many household crime victim surveys internationally.

- The IHS II is cross-sectional; it provides a series of 'snapshots' for a single period of time. The data are therefore time insensitive. A resulting limitation is that the data do not indicate the temporal order of events which limits the confidence we can place in causal inferences: it is uncertain what is the cause and what is the effect. Interpretation of the findings is therefore limited to associations rather than causal relations.

- Questions on repeat victimization are only asked with respect to burglary (hence the reason repeat victimization analysis is limited to this crime type in Chapter 6). For the other crime types covered in the IHS II, respondents are only asked whether they did or did not experience that specific crime type in the past year. It should also be noted that the number of repeats that a household can report (in the case of burglary) is limited to four incidents, an issue which is discussed at greater length in Chapter 6.

- As touched upon in Chapter 2, there are various response biases common to survey-based research. These may result from deliberate action by respondents, for example where they refrain from reporting certain events (due to social desirability, fear of reprisals, etc) or fabricate events (due to efforts to please the interviewer). They can also occur unintentionally, due to memory decay and telescoping – the tendency for individuals to include events that fall outside of the observation period, here one year prior to survey.

- The final concern relates to the specific context of Malawi as it applies to the reporting of criminal victimization. As discussed in Chapter 2, crime victim surveys were developed in Western industrialised settings to, among other things, overcome the persistent problem of underreporting crime to the police. They are now conducted routinely throughout Europe and North America. While inter-country differences clearly exist, most countries in these regions are characterized by freedom of expression and individual autonomy. Zhang, Messner and Liu (2007) argue that this socio-political climate might have a strong bearing on respondents' willingness to report criminal victimization. They contrast this with China, which has a strong "collectivist" tradition where conformity to community and/or societal norms is encouraged and widely observed. Attitudes that run counter to such norms are rarely expressed. They suggest that in the Chinese context, this may inhibit the accurate reporting of criminal victimization. Malawi too exhibits a somewhat collectivist tradition,

particularly in tribal, rural communities. While respondents are assured that the information provided in the IHS II will be treated anonymously, it is possible that this (perceived) collective effect may influence the willingness with which participants honestly report on their experiences of crime.

On the Advantages and Disadvantages of Secondary Data Analysis

The above section outlined some of the generic limitations of the *data* used in this thesis. This section briefly describes some of the considerations when *analysing* such data, namely the advantages and disadvantages of secondary data analysis, which forms the analytical method of this thesis.

Secondary data analysis is common in the social sciences. It refers to the analysis of data that were neither collected by the researcher nor (necessarily) for the purposes of their research. Such data are widespread in criminology. Examples range from official government statistics to the many crime victim surveys described earlier. As Maxfield and Babbie note, "many criminal justice researchers spend their entire careers in secondary data analysis" (2012, p. 236).

The advantages of secondary data will be familiar to many. Most obviously is the savings in the time and costs commonly involved in primary data collection efforts. This is most pronounced with archived longitudinal data whose collection is often arduous and resource intensive (see Colby and Phelps, 1990). Moreover, secondary data play an important role in comparative research and in the monitoring of crime trends over time, be it through comparison with other secondary data sources or in combination with newly collected data (Laub, Sampson and Kiger, 1990).

The main disadvantage with secondary data relates to their validity for research questions beyond that for which they were initially collected. This can take several forms. For example, data initially collected at the community level might

be unsuitable for individual-level analyses. Arguably more pertinent to criminological research, original data collection instruments might not adequately measure the theoretical constructs that subsequent researchers hope to capture (Laub, Sampson and Kiger, 1990). A further worry concerns the reliability of secondary data: because the data were collected by some other researcher or third party then to some extent one has to take on trust that the data were honestly collected and coded. This is less of a concern when the raw data are available, as is the case in this thesis, as opposed to analysis gleaned from previously published summary reports.

There is a further dimension to secondary data that is relevant to this thesis. The collection of data in developing countries often poses additional challenges to those commonly experienced in North America and Western Europe. Though clearly not true of all settings, such challenges include high illiteracy rates, language barriers, geographic inaccessibility (particularly in rural areas), a paucity of adequately skilled research staff and government resistance to the collection and publication of certain information. The aforementioned challenges experienced in administering the IHS II are an illustrative example. Such factors undoubtedly contribute to the Anglo-American bias in criminological research. This presents a challenge: how to increase the geographical scope of criminological research to settings where available data are lacking and where the collection of primary data is demanding. The stance adopted in this thesis is that in developing countries such as Malawi, where criminological research is limited, the decision to make use of data that are available, even where it falls somewhat short of data collection methods available in richer countries, outweighs the decision to forgo asking the research questions at all.

Some Concluding Remarks and Next Steps

Surveys are an important source of information in applied science. They generate standardised data that are amenable to analysis and can inform various aspects of policy, research and practice. At root, the underlying principles of survey research

remain constant regardless of the research setting: the sampling and data-collection methods should be strong enough to draw reliable inferences that speak to the population of interest. In practice, there is often a trade-off between methodological rigour and feasibility, based on a combination of practical constraints ranging from a lack of resources to problems with accessing certain samples. These practical challenges are often more acute in developing countries.

Up to now, the focus of this thesis has been on providing a background to the core empirical contribution that forms Chapters 5 to 9. This comprised of four stages. Chapter 1 outlined the motivation for and objectives of the thesis, as well as the contributions it attempts to make to the research literature. Chapter 2 provided a theoretical grounding by describing research and theory on the correlates of crime and common concentration patterns. Chapter 3 elaborated on the setting for this thesis. It charted the history of Malawi, drew comparisons between contemporary indicators in Malawi and the U.K. and reviewed the patterns and levels of crime as estimated by the Malawi National Crime Victimization Survey. This chapter made up the final stage. It presented a detailed discussion of the data on which this thesis is based; the objectives of the IHS II; the research design and sampling frame; the survey contents; and the shortcomings in the data collected and secondary analysis more generally.

The five chapters that follow form the central thrust of this thesis. Each reports a separate case study which span the concepts discussed in the preceding four chapters: partially filling a gap in the research literature (Chapter 1) through applying an environmental criminology framework (Chapter 2) to the understudied setting of Malawi (Chapter 3) using data for some 11,000 households (Chapter 4). The five case studies are:

- A study on livestock theft in Malawi, specifically whether variations in the theft of different species of livestock can be explained by CRAVED,

- A study on (repeat) residential burglary victimization in Malawi and the influence of affluence and housing type on (re)victimization risk,

- A multilevel analysis of factors associated with the likelihood of residential burglary victimization,

- A multilevel analysis of the factors associated with the likelihood of assault victimization,

- A multilevel analysis of the factors associated with the likelihood of reporting assault to the Malawian police.

The implications of the findings – individually and collectively – for theory, research and crime prevention policy and practice are discussed in Chapter 10.

Chapter 5 - On the Application of CRAVED to Livestock Theft

Chapter Summary

Livestock theft is common in many parts of sub-Saharan Africa. Experience of theft can deplete household assets and food resources. This chapter investigates whether livestock theft patterns in Malawi reflect variations in the extent to which different animals are "CRAVED" (Concealable, Removable, Available, Valuable, Enjoyable, and Disposable), Clarke's (1999) acronym to explain preferences for items to steal. Measures of the elements of CRAVED were correlated with self-reported levels of theft for seven species of livestock using data from the IHS II. Higher *availability* and *disposability* of livestock were significantly associated with higher levels of theft. Livestock displaying more CRAVED attributes were also stolen in greater numbers. The findings are cautiously interpreted as suggesting that livestock theft in Malawi is largely opportunistic. Implications from and for the application of CRAVED to livestock theft in Malawi are discussed.

Introduction

For convenience, crime is often classified across numerous broad dimensions: personal versus property, violent versus non-violent, urban versus rural, to name but a few. Concerning the latter distinction, criminologists have tended to focus on crime occurring in urban settings, with much less research available on crimes taking place in rural areas (Donnermeyer and Barclay, 2005). This imbalance has not gone unnoticed, with several studies calling for greater attention to be paid to the study of rural crime (Barclay and Donnermeyer, 2011; Weisheit and Donnermeyer, 2000), both to inform crime prevention and to assess the adequacy of relevant criminological theories in explaining crime patterns in rural contexts.

Rural crime is a broad term, referring both to crimes that occur in areas that are defined as rural and to particular types of crime that are specific to rural areas

(Marshall and Johnson, 2005). This chapter is concerned with the latter, which includes crimes committed against farms and agricultural operations such as the theft of fuel, livestock, crops, farming equipment and machinery[18]. The criminological literature on these types of crimes has several noteworthy features. First, the majority of studies have been conducted in Western, market-oriented countries such as the United States, United Kingdom and Australia, likely reflecting the availability of suitable data. As Barclay and Donnermeyer (2011) suggest, these studies have occurred in two "waves". The first wave refers to a series of US–based studies beginning in the mid-1980s. The second describes several more recent theoretically-guided studies, conducted in the U.S. (see Mears, Scott and Bhati, 2007) as well as in the U.K (Sugden, 1999) and Australia (Anderson and McCall, 2005). Both waves of research generated strikingly similar findings. Briefly, crime on farms was common and costly; where comparisons were possible, victimization rates in rural settings often exceeded those of urban or suburban locales; and certain farm characteristics appeared to be associated with higher risks of criminal victimization, these included being a larger farm, being located nearer to urban locales, exhibiting poorer guardianship, and being more accessible to much-used roads and highways (Barclay, Donnermeyer and Mears, 2011). These findings have contributed to a recent flurry of papers concerned with the challenges of policing rural areas (see Mawby and Yarwood, 2011).

A second feature of the criminological literature on agricultural crime concerns the unit of analysis. To date, the majority of studies have used the farm (or equivalents thereof) as the unit of analysis, and have examined how variations *between* farms in those characteristics deemed to be criminogenic is associated with different levels of criminal victimization. To the author's knowledge, no studies have systematically examined how variations in the attractiveness of

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[18] Donnermeyer, Barclay and Mears (2011) refer to these offences as "ordinary crimes": those crime types that have long been the scourge of farmers and the farming industry. This is contrasted with what they call "extraordinary crimes", which captures farm-related crime types that have come to prominence only in recent years, such as the cultivation of drugs at farms.

targets commonly stolen from farms (livestock, crops, machinery, etc) explain differences in the levels of theft observed[19].

This chapter takes a different but complementary approach. It uses livestock species as the unit of analysis and reports the first study to assess whether CRAVED – Clarke's (1999) acronym to explain variations in theft choices – can account for any differences in theft risks for these species in Malawi.

The chapter is structured as follows. The next section reviews the literature on livestock theft, particularly that which relates to sub-Saharan Africa. The uses and development of CRAVED as a heuristic to explain theft choices is then covered. In the third section, the data and method for measuring elements of CRAVED is described. Section four presents the findings. The chapter concludes with a discussion of the limitations of the study and the implications from and for the application of CRAVED to livestock theft in Malawi.

Livestock Theft: Prevalence, Patterns and Harms

Livestock theft here refers to the illegal removal of domesticated animals such as cattle, goats, chickens and sheep. In Malawi, as in many African countries, livestock are attractive items to steal. They perform several important functions: as a food source for personal consumption (meat and animal products such as eggs and milk); as a source of income (selling food as well as wool and hides); as a source of draught power for farming (notably oxen); as a fuel for cooking and heating (cattle manure); as a fertilizer for crops (cattle manure); as a mode of transport (cattle and donkeys); and as a means of finance (or insurance) for building projects or to access health or education services (any livestock). There are also social implications. Ownership confers status. Livestock, particularly

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[19] Mears, Scott and Bhati (2007) find that farms whose primary products are fruits and nuts experienced higher levels of crime than livestock-oriented farms. They interpret this finding as suggesting that fruit and nuts are easier to steal than livestock and therefore were more attractive theft targets. This is in line with the research reported here, however, the study authors do not examine whether variations *within* different types of fruits, nuts, livestock etc, account for variation in the theft levels of fruits, nuts and livestock respectively.

cattle, has powerful symbolic value in many African societies and is often presented as gifts or slaughtered for consumption at weddings, funerals and circumcisions (Tamirat and Bogale, 2012).

Livestock theft has a long history in sub-Saharan Africa. Anthropological accounts in the region often characterize livestock theft as a largely benign cultural practice, typically observed in one of three forms. The firsts treats livestock theft as a rite of passage enabling young males to display their bravery (see Costa, 1969). The second casts it as a form of "redistributive raiding" (Hendrickson, Armon and Mearns, 1998), whereby households resort to theft as a survival mechanism to compensate for, say, lost livestock resulting from drought or financial losses incurred by the death of a family member[20]. The final type concerns livestock being stolen in order to pay dowry (see Fleisher, 1999).

Contemporary livestock theft is considered a more serious problem. Many livestock are assumed to be stolen with the intention of selling them for financial gain (Bujra, 2007 cited in Ekuam, 2009). This is facilitated by the ease with which livestock can be sold, either in auction houses, commercial markets or directly to butchers and slaughterhouses. In Malawi, livestock tends to be traded at local markets or to intermediate buyers operating farms and slaughterhouses. Chilongo (2005) suggests that the latter is more common because intermediate buyers are more abundant (and hence typically closer) than organised markets. Several smallholder farmers interviewed as part of Chilongo's study claimed intermediate buyers often colluded with livestock thieves. Moreover, distinguishing legitimate from stolen stock can be difficult as few traders possess (or are required to provide) documentation on proof of ownership (Chintsanya et al. 2004).

Fleisher (1998) argues that livestock theft has contributed to a decline in livestock populations in many developing countries. Most obviously, stolen livestock are rarely returned. Other indirect mechanisms include: premature sale of livestock in

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[20] To expand, the death of a household member could have direct and indirect costs for the affected household. Direct costs relate to funeral expenses. Indirect costs include the loss in labour associated with the deceased individual and the subsequent impact on household income.

fear that they may be stolen; herdsman corralling livestock closer to their home to reduce opportunities for theft, depriving them of the richer pastures that may be available at greater distances from the home; and family migration from high-theft areas to perceived low-theft locations, with large losses of animals during relocation. In relation to the final point, Kaimba, Njehia and Guliye (2011), using interview data from 110 pastoralists in Kenya, demonstrate that the experience of "severe" levels of cattle rustling is a major determinant of respondents' decision to migrate their herd.

Accurately measuring the extent of livestock theft in sub-Saharan Africa is difficult. Relevant data are mostly lacking. Available estimates from the African sample of the ICVS show that five year victimization prevalence rates range from 31.5 thefts per 100 livestock-owning populations in Namibia to 43.6 in Zambia (Ladikos, 2006). Reporting rates to the police are also found to vary considerably: in Zambia 19.1% of livestock thefts were reported to the police whereas in Namibia over half of all incidents were (51.8%) (Prinsloo, 2006).

Similar patterns are observed in Malawi. Using data collected as part of the 2003 MNCVS (described in Chapter 3), Pelser, Burton and Gondwe (2005) show that livestock theft is the second most common crime type in Malawi (after the theft of crops). Estimates suggest that the theft of livestock constitutes nearly a fifth of all reported crimes across the 6,861 randomly selected households surveyed (581 incidents, 19.5% of all reported crimes). Poultry (63.2%) and goats (27.9%) were stolen most frequently. Despite this ubiquity, only 10% of livestock thefts were reported to the police. Explanations for this "dark figure" include a perception that the incident did not warrant police involvement and that the chance of recovering stolen livestock was low.

The lack of detailed and reliable data on livestock theft limits the confidence we can place in causal explanations. Presently, a popular explanation for why individuals participate in livestock theft in sub-Saharan Africa is poverty. In Lesotho for example, Khoabane and Black (2009) suggest that increased

unemployment among young males has prompted many individuals to steal livestock to survive (either for personal consumption or to generate income). Fleisher (1999), in a rare offender-oriented study collecting data from 64 cattle thieves in Northern Tanzania, found that many participated in livestock theft to acquire bridewealth – payment made by the groom to the parents of a woman upon marriage to their daughter – and because it constituted an easier way of generating an income in a region where job prospects are limited.

CRAVED and its Offshoots

Chapter 2 described the various ways in which crime is found to cluster and the advantages of prioritizing resources on the basis of crime concentrations, what Hough and Tilley (1998) call, "getting the grease to the squeak". As alluded to then, the "squeak" of crime concentration is not limited to places. There is strong evidence that crime is unevenly distributed across time (Felson and Poulsen, 2003), people (Pease, 1998), comparable facilities (Wilcox and Eck, 2011; Eck et al. 2007) and, most salient to this chapter, products (Clarke, 1999; Sidebottom and Bowers, 2010; Wellsmith and Burrell, 2005).

Items clearly vary in the frequency with which they are stolen. Analysis of recorded crime data and victimization surveys converge on the finding that cash and jewellery are the most popular items stolen during residential burglary. Such theft preferences are bounded by context, reflecting variations in the available opportunities for crime and the ability of offenders to exploit them. Analysing ten years of residential burglary data in New South Wales, Australia, Fitzgerald and Poynton (2011) report large reductions in the volume of video players and stereo equipment reported stolen over time. By contrast, the frequency with which laptop computers and car keys – to circumvent improved car security measures – were stolen increased considerably. These patterns are consistent with the general (legitimate) purchasing trends for such items and hence their availability and market demand (see Wellsmith and Burrell, 2005; Reilly and Witt, 2008).

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Criminological theories have traditionally sought to explain theft trends such as these in terms of the characteristics of offenders. By contrast, Cohen and Felson (1979) were the first to take a *target-oriented* perspective, to ask what makes certain targets more prone to victimization than others. In setting out their routine activity thesis, they proposed the acronym VIVA (Value, Inertia, Visibility and Accessibility) as a means of capturing the key determinants of target suitability, whether that be an animate victim experiencing assault or an inanimate object being stolen. This transferability was deliberate: Cohen and Felson (1979) wished to emphasise that crime is a physical event dependent on the attributes and everyday movements of potential offenders, targets and guardians, and that this held for personal as well as property crimes (see Clarke, 1999).

Over the next two decades following Cohen and Felson's (1979) paper, the accumulation of studies in environmental criminology reinforced the central premise that opportunity is a causal factor in crime. Yet it also revealed that the decision to exploit crime opportunities is highly context-sensitive and that the risk-effort-reward calculus described by the rational choice perspective varied by setting and crime type (what Cornish and Clarke (1987) term *choice structuring properties*). With respect to acquisitive crimes, Clarke (1999) observed that VIVA focuses only on those issues of relevance at the point of theft, but fails to include broader factors that nonetheless might promote theft risks for certain items, such as the ease with which a stolen item can be sold for profit. In light of this, Clarke (1999) sought to develop a comparable model to VIVA better attuned to the realities of theft.

Clarke (1999) proposed CRAVED as a handy acronym to highlight the attributes that explain why some items are at greater risk of theft than others. He termed these commonly stolen items "hot products", in the hope that preventive attention might usefully be focussed on the products where theft is found to concentrate. To be clear, CRAVED was never intended to be a *theory* of offender target selection. Instead, it was developed as a target-centred model to emphasise the attributes that

thieves tend to favour, namely items that are *concealable*, *removable*, *available*, *valuable*, *enjoyable* and *disposable*.

Criminologists have applied CRAVED in one of three ways. Most common is to use CRAVED as a source of *explanation*: it describes why particular items display high risks of theft. For example, Johnson, Sidebottom and Thorpe (2008) show how cycles fit each of the CRAVED components and thus are attractive targets for theft internationally. Second, CRAVED is used as a *prospective assessment tool* to better anticipate new products that might be prone to theft. This underpinned *project MARC* (*Mechanisms for Assessing the Risks of Crime*, see Armitage and Pease, 2008), which sought to develop a practical method of assessing the risk of theft for consumer electronic goods. The rationale was that products deemed to be at a higher risk of theft, as measured by CRAVED, should possess greater security features. Where disparities exist, it was considered important to provide evidence in the form of a risk assessment to prompt and persuade industry to modify such items commensurately (Ekblom and Sidebottom, 2008).

The final area of research concerns studies that attempt to empirically capture the components of CRAVED. These studies mark a shift from the *heuristic* value that CRAVED was initially developed for to more quantitative efforts to examine the comparative importance of different elements of CRAVED for the specific forms of theft under study. Few studies of this sort are available. An exception is Pires and Clarke (2012) who correlated measures of CRAVED with levels of poaching for 22 species of parrot in Mexico. While difficulties were encountered adequately measuring elements of CRAVED, they report that widely *available* and easily *removable* species suffer higher rates of poaching. They take this finding to suggest that parrot poaching in Mexico is largely committed by opportunists, as opposed to organized criminals (who presumably would target more *enjoyable* and *valuable* birds), thus generating contrasting implications for anti-poaching and conservation efforts.

Since its inception CRAVED has undergone several refinements, reflecting the specific problems and contexts to which it has been applied. In the abovementioned study, Pires and Clarke (2012) argue that *availability* is better represented as *abundance* (estimated count for each parrot species) and *accessibility* (the extent to which parrot habitat overlaps with human populations), both of which are found to be independently associated with levels of parrot poaching. Focusing on metal theft, Sidebottom et al. (2011) argue that *value* and *disposability* outperform other CRAVED elements in explaining metal theft patterns, although this is not quantitatively examined in their study. They also offer *identifiability* as a further attribute to explain why copper, which is easily identifiable due to its reddish coloration, is preferred over other ''silvery'' metals such as aluminium, lead and iron that are difficult to distinguish between and whose resale value varies considerably. Derivatives of CRAVED have also emerged. Gill and Clarke (2012) offer AT CUT PRICES (affordable, transportable, concealable, untraceable, tradeable, profitable, reputable, imperishable, consumable, evaluable and shiftable) as a similarly communicable acronym to account for differential theft risks of fast moving consumer goods (such as perfumes and cosmetics). Focusing on *protective* as opposed to *risk* factors, Whitehead and colleagues (2008) propose IN SAFE HANDS (identifiable, neutral, seen, attached, findable, executable, hidden, automatic, necessary, detectable and secure) to explain why certain types of cell phone are stolen *less* often.

To the author's knowledge, no target-oriented models have been applied to the problem of livestock theft in sub-Saharan Africa. Put in the context of this thesis, research to date has tended to focus on the motivation of livestock thieves rather than the conditions which might encourage motivated offenders to steal different types of livestock. Using the IHS II data, this chapter reports the first study to explore whether livestock theft patterns in Malawi reflect variations in the extent to which different types of livestock are CRAVED.

Method

Dependent Variable

The dependent variable in this study is the self-reported count of livestock theft per household for each animal type in the past year. It is based on two IHS II questions. The first asks: *"In the past year, were any animals stolen from you?"* Households who answer yes are required to indicate which of the following animals were stolen: cattle (cows), oxen, goats, sheep, pigs, chickens, other poultry (such as turkeys, ducks, pigeon and geese) and other (likely rabbits and guinea pigs). Each household can report up to three species being stolen.

The second question is: *"How many of your [animal type] were lost or stolen during the last 12 months?"* An obvious limitation with this question is the conflation of loss and theft. However, given the importance of livestock in Malawi it is assumed that missing animals are more likely to be stolen than lost. This is supported by analysing the number of livestock reported "lost or stolen" in the 5,256 livestock-owning households who reported that they experienced no livestock thefts in the previous year (i.e. respondents answering "NO" to question one above). 81% reported losing no animals. The inference is that loss of animals in Malawi is rare and that most cases captured in this category refer to theft. Of course, this does not account for livestock losses that result from predation or other natural causes. Regrettably, predation effects per species could not be determined with the IHS II data.

Capturing CRAVED

This section describes how the elements of CRAVED were measured and their hypothesised relationship with livestock theft counts. Consistent with Pires and Clarke (2012), measures were sought that contained no missing values and provided sufficient scope to differentiate between livestock species across the

various dimensions of CRAVED. The CRAVED measures for each livestock type are presented in Table 8.

Concealable. There are clearly several determinants of concealability: some livestock are noisier than others; some possess fewer distinguishing features and therefore are less easily identifiable thus rendering the theft concealable. All are possible measures of concealability should suitable data be available. A consistent measure for which data are however available relates to the average weight of each livestock type. It is hypothesised that heavier animals will be harder to conceal than lighter animals. An obvious limitation with this measure is that it fails to account for variation *within* species, i.e. some cows will be heavier than other cows.

The mean weights were gleaned from the 2005 United Nations Food and Agriculture Organization Livestock Sector Brief in Malawi. It provides the average carcass weight of different livestock species in Malawi in 2002. Regrettably, average carcass weight was not provided for oxen. Consequently, the average weight of an ox was taken from a report on oxen logging based on fieldwork in Malawi (Seymour, 1996).

Removable. Removable here is a dichotomous variable indicating whether different species tend to be tethered and herded or not. This information is gleaned from Chintsanya et al.'s (2004) report on farming practices in Malawi. Two limitations deserve mention. The first is that the information in the report cannot be independently verified. Second, the report also failed to provide data on the herding and tethering practices for oxen. It is assumed however that given their size, value and potential to cause damage to crops and homes that they are routinely tethered or under watch by farmers.

It is important to note that tethering livestock may be unrelated to theft; animals are often tethered to prevent crop damage. Nor should it be assumed that all animals should (or indeed could) be tethered and herded. However for the

purposes of this study it is considered a factor that may influence offender decision making as to which species are more attractive theft targets. The hypothesis is that forms of livestock that tend to be tethered and herded are considered less removable targets.

Available. This is taken to be the number of opportunities for livestock theft. It is the sum of the responses to the following questions asked in the IHS II to each household head:

- *How many [type of animal] does your household own at present?*
- *How many of your [type of animal] did you eat during the last 12 months?*
- *How many of your [type of animal] died during the last 12 months?*
- *How many of your [type of animal] were given away during the last 12 months?*

A limitation with this measure of *availability* is that it approximates the number of livestock a household possessed in the previous year. This may differ from the number of livestock available when the theft(s) took place[21].

Valuable. Value here is the price (in $US) per kg for each type of livestock. Computing this measure comprised two steps. The first concerns the IHS II question: "*If you sold one of those [livestock type] today, how much money could you get for it?*" This was used to calculate the mean estimated value for each livestock type. Next, the mean sale price was divided by the aforementioned *concealable* measure (i.e. the average carcass weight per livestock type) to produce a value to weight ratio. It is conceivable that the mean sale price could

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[21] Three additional IHS II questions related to livestock ownership could have been included in the availability measure. These are: 1) *How many [type of animal] did your household purchase during the last 12 months? 2) How many [type of animal] were born during the last 12 months? 3) How many [type of animal] were received as gifts by your household during the last 12 months?* These questions share a common theme: they are concerned with livestock *acquisitions* in the previous year. They were not included in the availability measure so as to avoid double-counting. Presumably, acquired livestock would already be included in the question concerning current livestock ownership. Alternatively, if acquired livestock had been consumed, sold or stolen prior to the time of survey, then these too would already be accounted for in the *availability*, *disposability* and *theft* measures respectively.

itself constitute a measure of value. However, a value per kg measure is preferred to control for the possibility that sale price and animal weight are positively correlated. The hypothesis is that higher value-per-pound animals constitute more attractive theft targets and hence will be stolen in greater numbers.

At this point it should be noted that throughout this thesis, for ease of interpretation, monetary values are expressed in US dollars rather than Malawi Kwacha, using the purchasing power parity (PPP) conversion rate of one US dollar is equal to 28 Malawi Kwacha at the time of survey as recommended by The World Bank (World Bank, 2006). The PPP rate is commonly used to account for variations in how wealth is defined *between* countries and to overcome the volatility in market exchange rates. Simply put, the PPP conversion rate provides a standardised measure of international currency which relates to the amount of money required to purchase an equivalent set of items across countries, thereby facilitating better international comparisons. PPP rates are thus preferred here over the market exchange rate as a standardised measure of poverty and to be consistent with the poverty thresholds used in the IHS II as calculated by the World Bank. Other studies using the IHS II data also employ this conversion rate (see for e.g. Kidman, Hanley, Subramanian, Foster and Heymann, 2010).

Enjoyable. As alluded to previously, livestock serve various functions. Enjoyable here is taken to refer to the number of functions different forms of livestock routinely perform, based on reports on the agricultural sector in Malawi such as Chintsanya et al. (2004). A single point was awarded for the following: a) animal has inherent value as a food source (i.e. can be eaten), b) animal is routinely used for milk production, c) animal has income potential for wool or hides, d) animal serves a farming function (i.e. tillage, logging etc), and e) animal produces manure which can act as a source of fuel or fertilizer. Each species could score a maximum of five. It is hypothesised that higher scores confer greater desirability as targets for theft. A limitation with this measure is that it assumes that the above categories are equally enjoyable. In reality, providing a source of food may be a greater determinant of theft than, say, producing manure that can act as an organic

fertilizer. However, a suitable weighting system was not apparent from the available literature.

Cattle scored the highest with a total of four: in Malawi cattle are routinely used for meat, milk, to aid with farming and its manure can act as a form of fuel or fertilizer. Pigs and other poultry all scored one because they are primarily used for their meat.

Disposable. Owning livestock exacts costs. They require regular sustenance and area to graze. Consequently, it is expected that the ease with which livestock can be sold influences their attractiveness as theft targets: the longer the period to sale, the greater the costs incurred. The IHS II asks: *"How many of your [livestock type] did you sell during the last 12 months?"* This is taken to be a proxy measure for market demand and, critically, the ease with which different species can be sold and *value* realized. There are clearly other reasons why households might sell livestock, such as distress sales due to household shocks. Moreover, market access may vary geographically. Despite these concerns, *disposability* herein is the number of livestock sold in the past year across the sampled households.

Finally, the number of CRAVED components per species was computed. This was intended to capture the extent to which each type of livestock satisfied those criteria judged to be attractive to thieves; the more criteria a species satisfies, the more desirable it is to livestock thieves. Each livestock type was awarded a 1 if it was in the top quintile for Available, Valuable, Disposable and the bottom quintile for Concealable. Species that were not in the top quintile for these measures were assigned a 0. For the remaining two (non-continuous) CRAVED measures: the Removable measure was simply like with like; species that are typically tethered and herded received a 0 (i.e. they are non-removable) and those that are not received a 1. For the Enjoyable measure, species that scored three or more out of five were assigned a 1. Those who scored two or less received a 0. The total that each species could receive was therefore 6 (one for each element of CRAVED). Again, a limitation with this score is that it assumes equal weighting across the

CRAVED components. For certain types of livestock, different features may be stronger predictors of theft than others. The hypothesis is thus: livestock displaying greater CRAVED characteristics will be stolen more frequently.

Table 8 Self-Reported Counts of Theft and CRAVED measures for 7 Livestock Species in Malawi, March 2004 – April 2005 (inclusive)

Species	*Concealable* Average carcass weight in kg	*Removable* Tethered and herded? (1 = yes)	*Available* Self-reported ownership levels	*Valuable* Value ($US) per kg	*Enjoyable* Number of functions served	*Disposable* Self-reported sales	Number of CRAVED measures (max = 6)	Self-reported levels of theft
Cattle	205.00	1	29,514	2.88	4	274	1	50
Chickens	0.80	0	132,023	9.22	2	45,709	4	4,767
Goats	12.00	1	37,039	5.17	2	11,200	0	685
Other poultry	0.80	0	15,777	10.52	1	1,651	3	566
Oxen	900.00	1	29,060	0.97	2	31	0	4
Pigs	50.00	0	12,751	2.07	1	6,503	1	88
Sheep	14.00	1	30,528	4.90	2	72	0	18

Note: Animals that comprised the *other* livestock category were not included in this analysis. They were not included because the data were insufficient to reliably distinguish between the different types of animals that could possibly be logged in this category.
Source: Malawi Integrated Household Survey 2004/05.

Results

Volume and Rate of Livestock Theft in Malawi

Of the 11,280 sampled households, 42% (n = 4,755) reported owning no livestock at the time of survey and were therefore removed from the analysis. This is small compared to many industrialised countries and emphasises the importance (and ubiquity) of livestock in Malawi. Of the remaining 6,525 livestock-owning households, Table 9 shows that almost a fifth reported experiencing livestock theft in the previous twelve months.

Table 9 Self-reported Experience of Livestock Theft among Livestock-Owning Households in Malawi, March 2004 – April 2005 (inclusive)

	Frequency	**Percentage**
Victim of livestock theft	1,269	19.4
Non-Victim of livestock theft	5,256	80.6
Total	**6,525**	**100.0**

Source: Malawi Integrated Household Survey 2004/05.

Of those households that experienced livestock theft in the past year, a total of 6,331 animals were reportedly stolen. As touched upon in Chapter 3, to date, reports on livestock theft in Malawi have been limited to theft counts. Utilising the wide range of questions asked in the IHS II, this study extends previous research to produce an annual theft rate using total livestock herd across all sampled households as the denominator (N = 320,239, i.e. the *availability* measure). The average yearly rate is 2.0 thefts per 100 livestock.

Table 10 displays reported livestock ownership, volume of theft and livestock theft rates per 100 animals for the eight livestock categories. It is organized in descending order by the volume of theft. When accounting for variation in the prevalence of different forms of livestock (a proxy for opportunities), chickens and other poultry display the highest rates of theft. Sheep and oxen experience the

lowest rates of theft. The next section explores whether variations in theft counts by livestock type can be explained by CRAVED.

Table 10 Livestock Ownership, Volume of Theft and Livestock Theft Rates in Malawi, March 2004 – April 2005 (inclusive)

Livestock Type	Frequency of ownership	Median ownership per HH	Std. Deviation	Volume of Theft	Theft rate per 100 animals
Chicken	132,023	5	51.82	4,767	3.61
Goat	37,039	3	51.42	685	1.85
Other poultry	15,777	5	11.91	566	3.59
Other	33,547	4.5	7.50	153	0.46
Pig	12,751	2	350.56	88	0.69
Cattle	29,514	3	5.27	50	0.17
Sheep	30,528	3	2.82	18	0.06
Oxen	29,060	2	0.92	4	0.01
Total	320,239			6,331	

Note: For Column 3, the median is preferred over the mean because Chintsanya et al. (2004) observe that the Malawian livestock sector comprises of a few large commercial enterprises and many small holdings. These few large operations would therefore likely skew the mean. *Source*: Malawi Integrated Household Survey 2004/05.

Is Livestock in Malawi CRAVED?

Measures of CRAVED were correlated with the theft count for each livestock type. Because there was no way to distinguish theft levels for the different animals comprising the *other* livestock category, these were removed from this part of the analysis. Pearson's correlation was performed for the continuous measures of Concealable, Available, Valuable and Disposable because it was assumed that the relationship between these variables and theft was linear. For those elements that constituted ordinal variables (Removable and Enjoyable) the non-parametric Kendall's tau-b was used. All correlations are one-tailed.

The results are presented in Table 11. Statistically significant positive correlations are observed between levels of theft and measures of *availability* and *disposability*. Put differently, types of livestock that are widely available and

disposed of in greater quantities are stolen most frequently. Significant associations were not found for the remaining elements of CRAVED. The number of CRAVED features per species was also significantly associated with increases in the volume of theft ($r(7) = .776$, $p < 0.05$); items (here livestock) with greater desirability (as measured by CRAVED) tend to be stolen more frequently.

Table 11 Relationship between CRAVED Elements and Self-Reported Counts of Theft for Seven Types of Livestock in Malawi, March 2004 – April 2005 (inclusive)

CRAVED	Description	Correlation coefficient
Concealable	Average carcass weight	-.294
Removable	Routinely tethered and herded?	-.504
Available	Ownership levels	.968**
Valuable	Value (US$) per kg	.597
Enjoyable	Number of functions performed	-.117
Disposable	Total sold	.981**
CRAVED	Number of CRAVED features	.776*

Note: *Significant at the 0.05 level. **Significant at the 0.01 level (both 1-tailed).
Source: Malawi Integrated Household Survey 2004/05.

A central weakness in the above analysis is the small sample ($n = 7$). As will be discussed shortly, this is predicted to be a common problem for studies of this sort that use theft targets as the unit of analysis. In awareness of this, linear regression was also performed at the Enumeration Area level ($n = 564$) to assess the relationship between measures of CRAVED and total livestock theft counts (all species combined). The independent variables (where included) for this analysis are as follows:

Concealable. An EA-level measure for concealable was not included. This is because data are unavailable on variations in weight across Malawian EAs, nor would we expect considerable variation.

Removable. This refers to the percentage of total livestock per EA that is not routinely tethered and herded. Put differently, it denotes the percentage of total livestock per EA that are pigs, chickens and other poultry.

Available. This denotes the total number of all livestock available per EA.

Valuable. This is the sum of the average estimated value for all forms of livestock per EA.

Enjoyable. As with concealable, an enjoyable measure is not included because data are unavailable on variation in the functions of different livestock (if they do vary) across Malawian EAs.

Disposable. This relates to the total number of livestock sold in the past year per EA.

Three further variables were included. The first is the residential burglary count for each EA. This is computed using responses from the following IHS II question: "*In the past year, did anyone enter your dwelling to steal, to try to steal something, or to commit other crimes?*"[22] Respondents could report up to four burglaries in the past year (an issue that is discussed in greater depth in the next chapter). This variable is included here to assess the relationship between levels of livestock theft and levels of burglary per EA; domestic burglary being the only other household crime measured by the IHS II. It is conceivable that offenders motivated to steal items from a Malawian property may also be tempted to steal livestock where opportunities are available.

The second variable is the percentage of sampled households per EA that are defined as poor. The Malawi National Statistical Office defines households as *poor* if their total annual per capita consumption expenditure is below the poverty line (16,165 Malawian Kwacha per person per year, or US$ 575 at the time of survey[23]). As previously mentioned, a common hypothesis is that livestock theft is a response to poverty (Khoabane and Black, 2009; Pelser et al. 2005). In line with this explanation, it is predicted that EAs with a higher proportion of poor households will experience higher levels of livestock theft. The final variable is a dichotomous measure, taken from the IHS II, defining EAs as urban (0) or rural

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[22] As shown in Table 7, this definition of domestic burglary is broader than that of the ICVS. It is conceivable that other crimes committed in the home could therefore be falsely captured. However, it is important to bear in mind that respondents' experience of other crimes is probed in further IHS II questions.

[23] Using the purchasing power parity conversion rate of US$1 = 28 Malawian Kwacha.

(1). By this measure, 87% (492) of the 564 EAs are rural. Presumably, livestock are more abundant in rural areas. It is therefore predicted that rural EAs will experience higher levels of theft.

Table 12 shows the results from the linear regression. While the model was statistically significant (R=0.380, R^2 =0.144, F (7, 534) = 12.838, p<0.001) it accounted for only 14% of the observed variation in EA livestock theft counts. Considerable variation therefore remains unexplained. Collinearity between the predictor variables was examined using variance inflation factors (VIF). All VIFs were below the accepted threshold of 10 (mean VIF = 1.37, max VIF = 2.11) (Myers, 1990).

Four variables were found to be statistically significant predictors of total livestock theft counts: the proportion of livestock per EA that is *removable* (i.e. not routinely tethered and herded), the number of livestock per EA (i.e. *availability)*, the number of burglaries per EA and whether the EA is rural. No significant relationship was found for the remaining variables, including the common hypothesis that poverty is positively associated with greater levels of livestock theft.

Table 12 Linear Regression Model Predicting Enumeration Area Level Livestock
Theft Counts, March 2004 – April 2005 (inclusive)

Variables	Unstandardized B	Standardized Beta	Standard Error	*t*	VIF
Constant	-8.948	-	4.730	-1.892	-
% Removable	.091*	.116	.045	2.008	2.078
Available	.002*	.178	.001	3.064	2.112
Valuable	1.636	.019	.000	.451	1.078
Disposable	.000	-.040	.000	-.950	1.084
Burglary count	1.342**	.317	.171	7.833	1.019
% poor HH	1.699	.017	4.035	.421	1.073
Area type (1 = rural)	7.994*	.147	2.311	3.459	1.120

Note: *Significant at the 0.05 level;**Significant at the 0.01 level. *Source*:
Malawi Integrated Household Survey 2004/05.

Discussion

This chapter reported an exploratory study on the application of CRAVED to
livestock theft in Malawi, using data from a nationally representative household
survey and supplemented with information from the relevant literature. The aim
was to investigate whether CRAVED could contribute to a better understanding of
a hitherto understudied problem in a developing setting. Livestock theft was found
to affect nearly one fifth of livestock-owning households in the twelve months
preceding the survey. Chickens were by far the most commonly stolen animal
both in terms of theft counts and rates. The application of CRAVED yielded
statistically significant correlations of livestock *availability* and livestock
disposability with self-reported levels of livestock theft. Mindful of the risks of
confusing correlation with causation, that availability outperforms livestock value
may imply that livestock thieves in Malawi are largely opportunists. Moreover,
consistent with the central logic of Clarke's (1999) heuristic, livestock that
displayed comparatively more CRAVED attributes were stolen in greater
numbers.

In awareness of the limitations of correlating variables using a small sample, a linear regression was also performed to assess the relationship between elements of CRAVED and livestock theft counts across the 564 sampled Enumeration Areas. *Removability* (the proportion of animals per EA that are not routinely tethered and herded), *Availability* (the total number of livestock per EA), burglary count and an EA being rural were all found to be statistically significant predictors ($p < 0.05$). Other variables, including the proportion of households classified as poor were not significant predictors. Though not a direct test, this fails to support the popular claim that livestock theft is a product of poverty (Khoabane and Black, 2009).

What, then, are the implications of this study a) for attempting to apply CRAVED to understand targets of theft, especially in non-conventional settings and b) for preventing livestock theft in Malawi?

CRAVED

Several challenges were identified in operationalizing CRAVED for the purposes of analysing livestock theft in Malawi. Many are comparable to those described by Pires and Clarke (2012) and, as they suggest, are to be expected in exploratory studies in data-poor settings. The central weakness in this study is the small sample when using livestock type as the unit of analysis. This precluded the use of multivariate statistics and was compounded by the preponderance of chickens compared to other forms of livestock which potentially may skew the findings. It is contended that the small N problem may be a perennial difficulty for comparable research efforts because consistent data for a sufficiently large number of theft targets (in statistical terms) to adequately assess the comparative explanatory power of the elements of CRAVED may be unavailable. To be clear, this is a practical issue and not an indictment of CRAVED; as alluded to previously, CRAVED is intended to serve as a handy heuristic to inform explanations of theft choices as opposed to a falsifiable theory (Pires and Clarke, 2012).

Beyond the small sample, the second challenge concerned the data required to satisfactorily measure the elements of CRAVED. Here, data collected as part of the IHS II provided measures for three CRAVED components as well as the dependent variable. Others however had to be derived from the relevant literature. Pires and Clarke (2012) encountered similar difficulties, failing to produce a measure for *concealability* and conflating *value* and *disposability*. A single dataset that adequately measured each of the CRAVED components would be a welcome extension of these studies. Where feasible, this is perhaps best achieved through primary data collection efforts as opposed to the secondary data analysis that characterized this study.

A further challenge is in determining values that speak to the individual elements of CRAVED but which are independent of one another (i.e. not exhibiting multicollinearity). In this study, significant correlations were observed between some of the components of CRAVED thus limiting the confidence we can place in the observed findings (Table 13). A final issue is whether available data allowed for sufficient variation *between* types of livestock so as to reliably explore how such variation is associated with contrasting levels of theft. To this point, the present study is deemed to build upon Pires and Clarke (2012) since four of the six CRAVED components were measured using continuous data thus affording greater variation across species than is possible through the use of binary measures (such as removable and enjoyable). Determining continuous measures for *removable* and *enjoyable* in addition to the other elements of CRAVED would provide a better assessment still.

The suggestions for further research described above would permit a better appraisal of the adequacy of CRAVED to explain livestock theft choices. For example, are developments to CRAVED necessary for this context and crime type? Potential factors to consider include the *portability* of livestock, taken here to refer to the ease with which different species can be transported. A further consideration might relate to the handling skills required to successfully steal different types of livestock, with certain species clearly more aggressive and

unpredictable to handle than others. Alternatively, is there sufficient evidence to justify the development of a separate risk factor schema, sharing a common conceptual basis with CRAVED but better attuned both to the ecological realities of livestock theft and to the perennial data issues for this type of crime in Malawi? From a user-perspective, it is also important to consider whether CRAVED can be translated from English into another language (such as Chichewa) yet retain its *memorability* that has served it well as a popular heuristic.

Table 13 Correlation Matrix for Measures of CRAVED

CRAVED measures	Concealable	Removable	Available	Valuable	Enjoyable	Disposable
Concealable	-	.430	-.309	.914[*]	.181	-.319
Removable	.430	-	-.529	.557	.624	-.486
Available	-.309	-.529	-	-.401	-.077	.992[*]
Valuable	.914[**]	.557	-.401	-	.518	-.412
Enjoyable	.181	.624	-.077	.518	-	-.076
Disposable	-.319	-.486	.992[*]	-.412	-.076	-

Note: *Significant at the 0.01 level (1-tailed). *Source*: Malawi Integrated Household Survey 2004/05.

CRAVED and livestock theft prevention

The practical question to emerge from this study is what activities can feasibly tilt CRAVED elements in favour of legitimate livestock owners to inhibit the illegal removal of livestock. While measures of *availability* and *disposability* were strongly related to theft levels, they are likely beyond the control of individuals and instead are functions of Malawian society. Arguably a more realistic goal would be to reduce the anonymity of livestock in a manner tantamount to property marking schemes to reduce burglary (see Laycock, 1985), thereby reducing the ease with which stolen livestock can be disposed of (see Kimani, 2008). Though such schemes have "face validity", similar efforts implemented elsewhere have produced mixed results. In Sardinia for example, all livestock since 1948 is branded with a mark denoting the village to which the owner belongs. This was a deliberate attempt to reduce the persistent problem of theft. While the logic

appears sensible, in practice, such markings are reportedly easily altered by thieves and stolen livestock is often slaughtered post theft thus negating the marking (King, 1974). The same applies to more recent forms of livestock marking, such as radio-frequency identification (RFID) ear tags that can also be removed without too much difficulty as well as be replaced by a thief's own tag, thereby concealing the theft (Lektzian and Perez, 2008). The effectiveness of such schemes is weakened further in cases of cross-border livestock theft (see Ekuam, 2009).

Removability is another issue. A core theme of the design against crime movement is to encourage designers and manufacturers to "think thief"; to consider the possible criminogenic implications of the products, places, systems and services they design (Ekblom, 1995). Instilling a similar mindset with respect to livestock theft for those working in the livestock sciences is an equally laudable goal. A reading of the livestock science literature indicates that an anti-pest, anti-predator mindset is commonplace; anti-thief, less so. For example, Hüttner, Leidl, Pfeiffer, Kasambara and Jere (2001) report the findings of a community-based initiative - the Basic Animal Health Service Project - to improve livestock management practices among 96 randomly selected smallholders in Northern Malawi. The initiative refers to a demand-led model whereby livestock owners were provided with regional assistance upon request. Assistance generally entailed the provision of veterinary services (de-wormers, vaccines) as well as guidance on endorsed techniques of livestock management. Figures 7 and 8, taken from the paper by Hüttner et al. (2001), are examples of the sort of recommended practices provided in such guidance, here as it relates to the storage of sheep, goats and chickens. Using data collected from over 5,000 farm visits, Hüttner and colleagues (2001) report noticeable improvements in herd size, livestock condition and mortality rates among the sample farms compared with 96 matched farms that partly participated in the initiative and 96 that did not. What was not examined was the effect of changes in livestock management on livestock theft.

It is plausible that simple changes in the design of livestock coups, sheds or houses in the manner depicted in Figures 7 and 8 might increase the difficulty associated with offenders *removing* livestock, thereby leading to reductions in theft − an outcome that could be built into an impact evaluation with relative ease. Catchy acronyms such as CRAVED might usefully act as a platform on which to communicate with livestock scientists how their activities and interventions might affect livestock theft and encourage them to explicitly test for crime-related outcomes as part of their evaluations. This is particularly appealing since accurate and available crime data is in such short supply in many developing countries, as noted previously.

Figure 7 Improvements in Sheep and Goat Sheds as part of the Malawi Basic Animal Health Service Project
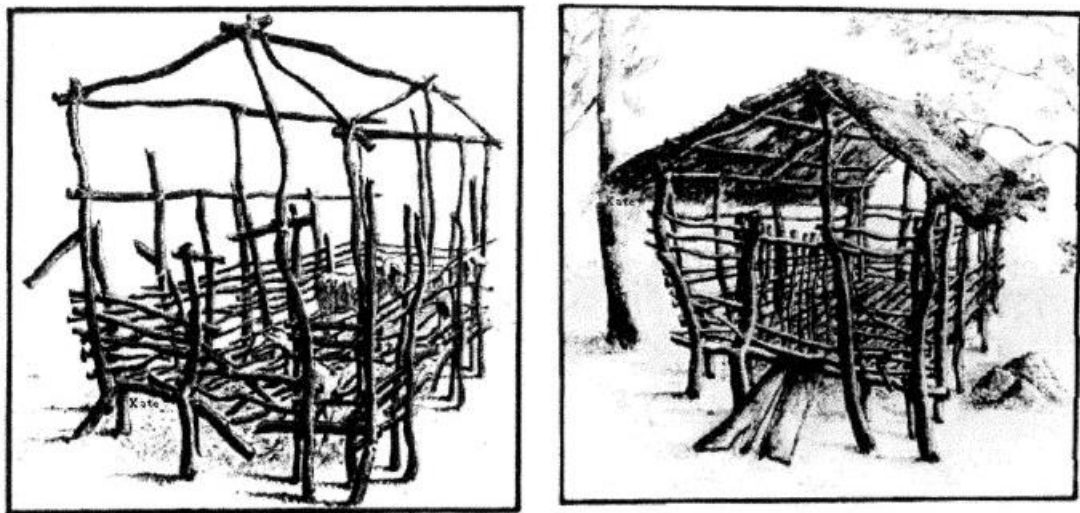
Source: Hüttner, Leidl, Pfeiffer, Kasambara and Jere (2001).

Figure 8 Improvements in Chicken Housing as part of the Malawi Basic Animal Health Service Project
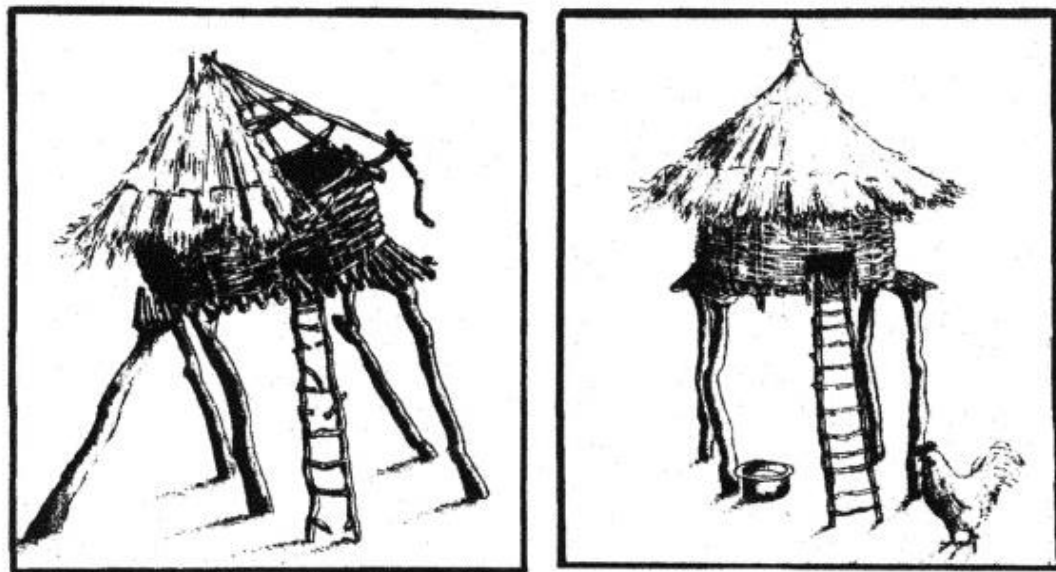
Source: Hüttner, Leidl, Pfeiffer, Kasambara and Jere (2001).

A further use of CRAVED is in anticipating which forms of livestock are likely to be most desirable to thieves. Like many developing countries, increased livestock production is a key component of Malawi's growth and development plans (Government of Malawi, 2006). This likely involves the introduction of different forms of livestock and crossbreeding initiatives (as well as improvements to livestock management, husbandry practices and disease prevention). Livestock theft, perceived or actual, threatens to jeopardize attempts to expand livestock populations, via the various mechanisms articulated previously. Consideration of the security of new forms of livestock, guided by CRAVED and the findings reported here, might better ensure protective measures are commensurate with desirability to offenders.

Limitations

Some of the limitations concerning the application of CRAVED have already been described. In addition, several others warrant note. First, the dependent variable treats species as homogenous. For each livestock type there is

undoubtedly *within* species variation which may influence their attractiveness to offenders. Regrettably, variations in theft preferences within species could not be determined with the available data. Second, while the IHS II indicates the number of livestock stolen per household, it does not specify the number of *incidents* of livestock theft that each household experienced. Thus, if a household reported ten animals being stolen in the past year, it is unclear whether such losses occurred over ten separate cases of livestock theft (i.e. repeat victimization) or just one. This precludes the targeting of preventive services to chronically victimized households. Finally are the familiar weaknesses of survey data, namely response biases due to poor memory recall, telescoping, failure to report pertinent information and variation in respondents' willingness to answer truthfully about their experience of livestock theft.

Conclusions

This chapter reported an exploratory study to see whether CRAVED might usefully explain variations in livestock theft in Malawi. Though several challenges were encountered in determining suitable measures for the components of CRAVED, the initial findings appear promising, but require replication. To this end, it is hoped that the method outlined in this chapter might function as a helpful template for comparable studies conducted in Malawi and elsewhere. In addition, the present study is believed to contribute to the criminological literature in two ways. First, in operationalizing CRAVED it sits among a growing body of studies to subject well-established concepts in environmental criminology to empirical scrutiny (for e.g. see Kurland, Johnson and Tilley, in press[24]). Second, by applying CRAVED in Malawi, it complements several recent studies interested in the feasibility of applying core themes of environmental criminology to better understand and prevent crime problems in atypical research settings (see Sidebottom, 2012; Kruger and Landman, 2008; Lemieux and Clarke, 2010; Pires and Clarke, 2012; Pires and Moreto, 2011).

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[24] A study in which the authors seek to quantitatively distinguish between *crime attractors* and *crime generators* in the context of crime around football stadia on match verses non-match days.

Chapter 6 - On the Extent and Patterns of (Repeat) Burglary Victimization

Chapter Summary

This chapter reports the first study of repeat domestic burglary victimization in Malawi. Burglary is found to be highly concentrated among sampled households. The influence of housing type – measured here as the building materials used – and area-level affluence is also explored. Homes constructed of permanent materials, indicative of greater wealth, are shown to experience higher rates of repeat victimization than those made of mud and thatch. This pattern is most pronounced in less affluent areas, although the variation in risk is less than that reported in comparable studies in the UK. The implications of the findings for the study of repeat victimization and victim services in Malawi are discussed.

Introduction

Nowhere has the luxury of possessing infinite crime reduction resources. Demand typically outruns supply. A rational crime control strategy might therefore allocate resources to where crime concentrates most. As alluded to in Chapter 2, this approach has practical and ethical merits. Practically, targeting resources according to crime concentration potentially yields the greatest preventive gains. It also helps avoid the misallocation of resources in light of research evidence that local police personnel perform poorly in anticipating future crime events, regardless of how confident they are in their predictions (McLoughlin, Johnson, Bowers, Birks and Pease, 2007). Ethically, resource allocation thereby favours the most vulnerable.

Repeat victimization here means multiple criminal victimizations of a person, property, place or vehicle. The already described variation in crime rates often observed across numerous spatial dimensions (regional, national, international) is largely explained by variations in the concentration of crime (Farrell and Pease, 1993). A small proportion of repeatedly victimized targets typically account for a

disproportionately large number of criminal victimizations (Farrell, 1995; Pease, 1998), and are often over-represented in crime-prone areas (Trickett, Osborn, Seymour and Pease, 1992). Research has also shown that victimization is found to be a reliable predictor of future victimization to the same target (Pease, 1998; Farrell and Pease, 2001) and, given the demonstrable communicability of risk for certain crime types, to similar targets close by (Johnson, et al. 2007; Townsley, Homel and Chaseling, 2003). It follows that reducing revictimization can yield large reductions in overall crime rates. Repeat victimization and its prevention has thus emerged as a prominent field for criminological study (for a recent review see Grove et al. 2012).

An extensive body of research using various methods and covering many countries and crime types has established repeat victimization as a robust phenomenon (see Farrell, 1995; Pease, 1998; Grove et al. 2012). Several well documented demonstration projects has seen the concept, at least in U.K., firmly rooted in the vocabulary of police and partner agencies (see Laycock, 2001; Laycock and Farrell, 2003). One notable feature however of the repeat victimization literature is the paucity of studies in developing countries (Grove and Farrell, 2011). This absence likely reflects a lack of (accessible) crime data and, one suspects, the interests of those funding victimization research. Absence of evidence concerning repeat victimization is not equivalent to evidence of the absence of repeat victimization, however this dearth means we cannot reliably infer whether patterns commonly found in Western industrialised countries can confidently be generalized to dissimilar developing settings.

Malawi is one such example of a developing resource-limited setting. Presently, no study has explored repeat victimization in Malawi. This chapter is the first, focussing on domestic burglary and reporting secondary analysis of the IHS II data for 11,280 households. The chapter has two aims. The first is to determine whether the domestic burglary victimization patterns in Malawi conform to theoretical expectations, largely based on the findings of Anglo-American research. Specifically, two (null) hypotheses are examined: 1) domestic burglary

is randomly distributed across the sampled households, and 2) burglary events are independent; the probability of being burgled twice or more is what would be expected on the basis of chance alone. The second aim, following Bowers, Johnson and Pease (2005), is to explore the influence of housing type – measured here as the building materials used – and areal affluence on revictimization risk. There are, of course, other determinants of burglary revictimization risk but expanding the analysis to include further factors is outside the limited objective of this chapter.

Previous Research on Repeat Burglary Victimization

Despite repeats being common for many crime types, to date most of the research concerned with repeat victimization has concentrated on residential burglary (Farrell and Pease, 2006). Consistent with the literature more generally, already burgled households display an elevated risk of subsequent victimization which tends to diminish over time (Pease, 1998; Polvi, Looman, Humphries and Pease, 1991). Sagovsky and Johnson (2007) using data from Australia find the probability of a household being burgled again after an initial victimization is six times that of becoming a victim in the first place. In Saskatoon, Canada, the rate of further burglaries to the same household is nearly four times that of being burgled once (Polvi et al. 1991). Many burglaries are thus repeat offences concentrating on a small minority of households. The British Crime Survey estimates that around 40% of domestic burglaries are repeat offences (Budd, 1999). Using police recorded crime data the proportion of repeat offences is reported to range from 13% in Merseyside, England (Johnson, Bowers and Hirschfield, 1997) to 32% in Beenleigh, Australia (Townsley, Homel and Chaseling, 2000).

Explanations for repeat victimization centre on two mechanisms (see Tseloni and Pease, 2003; Johnson, 2008). The first is the *boost* account (Pease, 1998). This suggests that an initial victimization temporarily increases the likelihood of ensuing (repeat) victimizations – crime events are dependent. This is understood

in terms of the perceived risks, benefits and rewards associated with offenders returning to a previously victimized target (Cornish and Clarke, 1986); the knowledge obtained following an initial offence (entry and exit strategies, housing layout, etc) increases the likelihood of an offender returning. The second explanation is the *flag* account (Sparks, 1981; Johnson, 2008). This holds that repeat victimization patterns are explained by variations in time-stable attributes which *flag* certain targets as attractive. The flag hypothesis implies that offences against the same target may be committed by different, unrelated offenders, made aware of crime opportunities by these enduring characteristics.

Repeat domestic burglary can be explained by both processes, as well as interactions between the two: a comparatively attractive household that is burgled (*flag*) may suffer further burglaries if the offender considers repetition worthwhile (*boost*) (Farrell, Sousa and Weisel, 2002). Polvi and colleagues (1991, p. 414) summarise the processes as follows:

> 1. The same offenders return, perhaps upon recognition of neglected crime opportunities, or the anticipated reinstatement of goods.

> 2. The first offenders tell others of the house and what it still offers. The others then burgle it.

> 3. Features of the house are such as to mark it out as a compellingly attractive target to those tempted to burgle it, leading to repeat victimization linked only by the seductiveness of the target.

At root, the above accounts speak to offender perceptions concerning target site selection. Research maintains that offenders display preferences for certain targets, compatible with the rational choice perspective (Cornish and Clarke, 1986) and, more recently, the optimal foraging approach (Johnson and Bowers, 2004). It is assumed that burglars purposefully select households (and areas) which are perceived to afford greater rewards – financial and psychic – relative to

the perceived risks of failure and apprehension. Familiarity is key. Interviews with convicted burglars suggests that offenders favour households of which they are familiar compared with alternative opportunities for which they possess little or no knowledge – repetitive offending against the same household is the paragon of this preference (Shaw and Pease, 2000).

Several determinants might influence why burglars prefer one household (and neighbourhood) over another (Bernasco and Luykx, 2003; Bernasco and Nieuwbeerta, 2005). One popular area of enquiry concerns the influence of housing type on (re)victimization risk. It is argued that the characteristics of different housing types confer different levels of attractiveness to offenders. Such characteristics may relate to certain types of housing being suggestive of greater wealth or certain types of household affording easier opportunities for offending. Analysis of BCS (Tseloni, 2006) and police recorded crime data (Bowers et al. 2005) find significant variation in burglary levels across different housing types. Most germane here given its focus on repeat victimization, Bowers, Johnson and Pease (2005), using five years of police recorded crime data for Merseyside, England, find that terraced housing and flats suffer significantly more repeat burglaries than is explained by chance alone. For detached and semi-detached properties the reverse was true.

Beyond housing type, previous research indicates that households located in the most disadvantaged areas tend to experience higher rates of repeat burglary victimization (Ratcliffe and McCullagh, 1999; Johnson, Bowers and Hirschfield, 1997; Trickett et al. 1992). In this vein, Bowers et al. (2005) also explore whether the influence of housing type on revictimization risk is mediated by the area in which properties are located. Their hypothesis is grounded in claims that offenders follow a two-stage hierarchical procedure when selecting suitable crime targets (Brantingham and Brantingham, 1984; Rengert and Wasilchick, 1985). This suggests that offenders initially select a suitable *area* in which to forage. Crime pattern theory informs us that this tends to be in areas that offenders are familiar with and where their routine activities tend to concentrate in and around

(Brantingham and Brantingham, 2008). On selection of a suitable area, the search for a suitable *target* begins. Bowers et al. (2005) find that detached houses located in more deprived areas experience higher rates of repeat victimization than similar types of properties located in more affluent areas. For example, detached properties in the most deprived area quintile were found to be at over 20 times the risk of suffering repeat burglaries than detached houses in the most affluent quintile. The findings are consistent with the rational choice perspective: detached properties, suggestive of a greater burglary yield, tend to be less prevalent in poorer areas and therefore are comparatively more attractive targets for burglary than ostensibly less-affluent alternatives located nearby.

The generalizability of the patterns described is yet to be explored in developing contexts, particularly in sub-Saharan Africa. As alluded to previously, this is not unique to the study of repeat victimization (or environmental criminology more generally); the bulk of criminological research has been conducted in North America and Western Europe. Addressing this gap offers important theoretical and practical implications for advancing the study and prevention of repeat victimization.

As described in Chapter 3, repeat burglary victimization is not examined in the MNCVS (Pelser et al. 2005). It fails to probe the *number* of times a household was burgled in the previous year, despite the finding that burglary victims, when questioned on what is most important to them in the wake of a burglary, report that avoiding further victimization is a major concern. To the author's knowledge, this is the first study to explore the extent and patterns of repeat burglary victimization in Malawi.

Method and Measures

The IHS II asks: *"In the past year, did anyone enter your dwelling to steal, to try to steal something, or to commit other crimes?"* This is taken to refer to incidents of residential burglary. However, as shown in Chapter 5 (Table 7) this definition

of residential burglary is broader than that of other victimization surveys (for a related discussion see Mawby, 2001). Consequently, the burglary rates reported here may be higher than those observed elsewhere, reflecting the broader definition. The unit of analysis in this chapter is a single unique residential property (n = 11,280). Consistent with previous research, a repeat offence was defined as having occurred at the same residential property within the 12 month observation period.

There are two important limitations in the data which are discussed later but are noted at this point. The first is that experience of domestic burglary is truncated at four or more victimizations. While standard practice in many victim surveys, Farrell and Pease (2007) demonstrate that this underestimates the total incidence of crime and undercounts chronically victimized households. The second concern relates to the "time-window effect", the term used to "denote the fact that the proportion of crimes that appear to occur against the same targets will change with the length of the period during which crime is observed" (Farrell, Sousa and Weisel, 2002, p. 16). Again, although the one year time period of the IHS II is in keeping with most victim surveys, it is possible that this cut-off point may exclude a non-trivial amount of repeat offences. In light of these issues, it is recognised that the revictimization rates reported here are likely to be underestimates.

Results

The distribution of domestic burglary (re)victimization in Malawi

Table 14 shows that 60% of self-reported burglaries in Malawi over the study period were repeat incidents. In other words, approaching two-thirds of burglaries were in households that had previously been burgled on at least one occasion in the same year. This is high by international standards (see Farrell, Tseloni and Pease, 2005) and may be explained, in part, by the broad definition of domestic burglary used herein compared with other victimization surveys.

Table 14 Domestic Burglary Victimization in Malawi, March 2004 – April 2005 (inclusive)

Number of sampled households	Number of burglary victims	Number of burglary incidents	Number of repeat incidents
11,280	1,482	2,307	1,392

Source: Malawi Integrated Household Survey 2004/05.

To reiterate, research consistently demonstrates that crime disproportionately concentrates on a minority of repeatedly victimized targets. This is confirmed in the Malawian sample. Table 15 shows that 13% of households report suffering a burglary in the past year. Those households experiencing more than one burglary (i.e. repeat victims) accounted for 5% of the total sample of households and suffered 1,392 burglaries. Put differently, 60% of the total number of reported burglaries took place in just 5% of the sampled households. Nearly two-thirds of the revictimized households suffered two burglaries, while less than one percent of households were victimized four times or more accounting for over ten percent of all reported burglaries. The distribution conforms to the concentration patterns observed in previous studies conducted elsewhere: a small minority of households account for a considerable proportion of burglaries committed.

Table 15 Domestic Burglary (Re)Victimization in Malawi, March 2004 – April 2005 (inclusive)

Number of times burgled	Number of households	Percentage of sampled households	Percentage of sampled households re-victimized	Number of burglaries	Percentage of burglaries
0	9,798	86.9	n/a	0	0
1	915	8.1	n/a	915	39.7
2	370	3.3	65.3	740	32.1
3	136	1.2	24.0	408	17.7
4 or more	61	0.5	11.0	244	10.6
Total	**11,280**	**100**	**100**	**2,307**	**100**

Source: Malawi Integrated Household Survey 2004/05.

Table 15 can be used to compute the likelihood of suffering a domestic burglary in Malawi. The observed probability of a household being burgled one time only is 0.13 (915+370+136+61/11280). The probability of a burglary occurring in a household which has already suffered a burglary is 0.38 (370+136+61/ 915+370+136+61). In line with previous research (Sagovsky and Johnson, 2007; Polvi et al. 1991), this suggests that on being burgled once, Malawian households are nearly three times as likely to be burgled again over the one year study period.

It is important to determine if the distribution of burglary across households can be explained by chance. If burglary is randomly distributed then we would still expect certain properties to be victimized more than once. Consequently, the observed distribution is compared with what would be expected using a Poisson distribution. The Poisson distribution assumes that the probability of a household being victimized more than once is independent of the number of previous victimizations. It provides a measure of the likelihood of a household being repeatedly victimized if the distribution of crime is random, given the number of

burglaries committed and the number of potential targets (households) available (see Sagovsky and Johnson, 2007; Bowers et al. 2005; Sparks, Genn and Dodd, 1977)[25]. Table 16 shows the observed frequency of victimized households (up to four times or more) and the expected frequency derived from a Poisson distribution.

Table 16 Observed and Expected Frequency (assuming a Poisson distribution) of the Number of Malawian Households Burgled once to 4 times or more, March 2004 – April 2005 (inclusive)

Number of Burglaries	Observed Frequency	Expected Frequency
0	9,798	9,194
1	915	1,880
2	370	192
3	136	13
4+	61	<1

Source: Malawi Integrated Household Survey 2004/05.

A Chi-square test confirmed that the difference between the observed and expected frequencies of burglary assuming a Poisson distribution was statistically significant (χ^2=7,285, df = 1, p<0.0001, n = 11,280). This provides support to reject the null hypothesis; significantly more repeat burglaries occurred than would be expected on the basis of random victimization. Particularly noteworthy is that the number of Malawian households victimized four times or more is much higher than can be explained by chance.

For completeness, the Kolmogorov-Smirnov Z test (K-S test) was also performed. Like Chi-square, this is a goodness-of-fit test that compares whether the observed

[25]The reader should note that Tseloni and Pease (2010) use a *negative binomial* distribution to model crime data as an alternative to the Poisson distribution used here.

distribution (here burglary frequency) is significantly different from the specified theoretical distribution (here a Poisson distribution). The K-S test is, however, a more stringent test than Chi-square despite being used less frequently. This increased stringency is because the null hypothesis of the K-S test is not whether the two distributions differ in general (as is tested by Chi-square), but whether this holds even for the most deviant observations in the data. The results of the K-S test support those of the Chi-square test (Kolmogorov-Smirnov Z=5.691, p= <0.001).

Alternative measures of burglary victimization

It is evident from the foregoing analysis that burglary is not equally distributed across households in Malawi. The next step is to ascertain the extent of crime concentration. To achieve this three alternative measures of crime rates are computed (see Trickett et al. 1992). *Incidence rate* refers to the number of crime victimizations per unit at risk. Unit is a relative term and will vary depending on the crime type under study. For personal crimes such as robbery, the unit at risk refers to people. For property crimes like burglary, the crime of interest here, the unit refers to households. *Prevalence* is defined as the proportion of the unit at risk which is victimized once or more over a given time period. From these measures a third variable, *concentration*, can be computed. This captures the average number of victimizations per victimized target. The three are intimately related. In a world with no repeat victimization, the crime concentration statistic would be one with incidence and prevalence rates being equal. Repeat victimization occurs when incidence rates are greater than prevalence rates.

Table 17 shows that the prevalence of burglary victimization across the entire sample is 13% and the 12 month incidence of burglary is 20.45 burglaries per 100 households. Across all Malawian HH, the concentration rate is 1.56.

Table 17 Domestic Burglary Incidence, Prevalence and Concentration in Malawi, March 2004 – April 2005 (inclusive)[26].

Distribution Attributes	Households
Incidence rate (no. of incidents per 100 HH)	20.45
Prevalence rate (% HH victimized)	13.14
Concentration (average number of burglaries per HH)	1.56

Source: Malawi Integrated Household Survey 2004/05.

Conceptualising crime rates in this way can usefully shed light on area-level variation in the distribution of crime. Research finds that areas with high incidences of crime often experience higher rates of repeat victimization (Ratcliffe and McCullagh, 1998; Trickett et al. 1992). Kleemans (2001), analysing repeat burglary victimization in Enschede, Holland, shows prevalence and concentration to be highly correlated with an r value of .74. Similarly in Sandwell, England, Sunder and Birks (2004) report a correlation coefficient of .52 between prevalence and concentration. However, as Farrell et al. (2005, p. 9) write, "there is no self-evident reason why crimes against the same target are more likely to be perpetrated in high crime areas". Presently, research in this tradition has focused exclusively on Western settings. Consequently, it is informative to ask whether districts in Malawi which confer a higher risk of burglary victimization, as indicated by a higher incidence rate, can be attributed to many households being the victim of burglary (prevalence) or to burglary concentrating on the same Malawian households (concentration).

Table 18 displays the described crime measures per district of Malawi. The data are arranged in descending order by burglary incident counts per district. A number of patterns are present. First is the notable difference between burglary volume and incidence rate. It is widely acknowledged that although absolute levels of crime may be informative for directing crime reduction resources, they fail to accurately capture the *relative risk* of criminal victimization due to their

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[26] Incidence = 0.20 (2307/11280)*100; Prevalence = 0.13 (1482/11280)*100; Concentration = 1.56 (2307/1482).

failure to standardize crime by available opportunities (Sidebottom and Bowers, 2010; Lemieux and Felson, 2012). Comparing the two columns in Table 18, we find that the *risk* of burglary varies considerably from the *volume* of burglary experienced in each district. For example, while the district of Chitipa (italicized) is found to have a lower volume of burglary than most districts, when standardised by the number of HH it has a relatively high burglary rate. Second, it is evident that district concentration patterns (i.e. the number of burglaries per burgled HH) is associated with district burglary rate. Those districts with higher crime incidence rates tend to display higher burglary concentrations ($r = .561$, $p > .001$, $n = 26$). There are however exceptions. The district of Mangochi (also italicized) has a high burglary rate per 1,000 households yet the average number of burglaries per victim is lower than the national average.

Table 18 Incidence, Prevalence and Concentration of Domestic Burglary by
District of Malawi, March 2004 – April 2005 (inclusive)

District	Burglary Count	Incidence rate per 1000 households	Prevalence rate per 1000 households	Concentration
Lilongwe/Lilongwe	287	199.31	127.78	1.56
Dowa	165	343.75	191.67	1.79
Mangochi	160	222.22	163.89	1.36
Blantyre/Blantyre	147	204.17	122.22	1.67
Ntcheu	134	279.17	166.67	1.68
Machinga	134	279.17	164.58	1.70
Kasungu	119	247.92	175.00	1.42
Mchinji	102	425.00	241.67	1.76
Dedza	94	195.83	129.17	1.52
Phalombe	92	383.33	208.33	1.84
Mulanje	91	189.58	139.58	1.36
Mzimba/Mzuzu City	85	118.06	81.94	1.44
Chitipa	82	341.67	250.00	1.37
Zomba/Zomba City	80	111.11	76.39	1.45
Chikwawa	76	158.33	110.42	1.43
Thyolo	69	143.75	85.42	1.68
Nsanje	60	250.00	170.83	1.46
Salima	59	245.83	145.83	1.69
Ntchisi	53	220.83	141.67	1.56
Rumphi	44	183.33	108.33	1.69
NkhataBay	42	175.00	116.67	1.50
Nkhotakota	41	170.83	95.83	1.78
Balaka	30	125.00	87.50	1.43
Chiradzulu	27	112.50	79.17	1.42
Karonga	21	87.50	62.50	1.40
Mwanza	13	54.17	41.67	1.30

Note: The four urban areas – Lilongwe, Mzuzu, Blantyre and Zomba – are not
treating separately here. *Source*: Malawi Integrated Household Survey 2004/05.

The Incidence/Prevalence Relationship

Farrell, Tseloni and Pease (2005), using data for 11 crime types from four sweeps
of the ICVS, find a strong and reliable relationship between national-level crime
incidence rates and prevalence rates. Using district level burglary rates, Figure 9
confirms a similar relationship to be present in Malawi: in districts where a higher

number of HH experience burglary, a greater proportion of HH in that district are victimized. This confirms the existence of repeat victimization.

Figure 9 Domestic Burglary Incidence/Prevalence Relationship by District of Malawi, March 2004 – April 2005 (inclusive), (r = .964, p < .001)
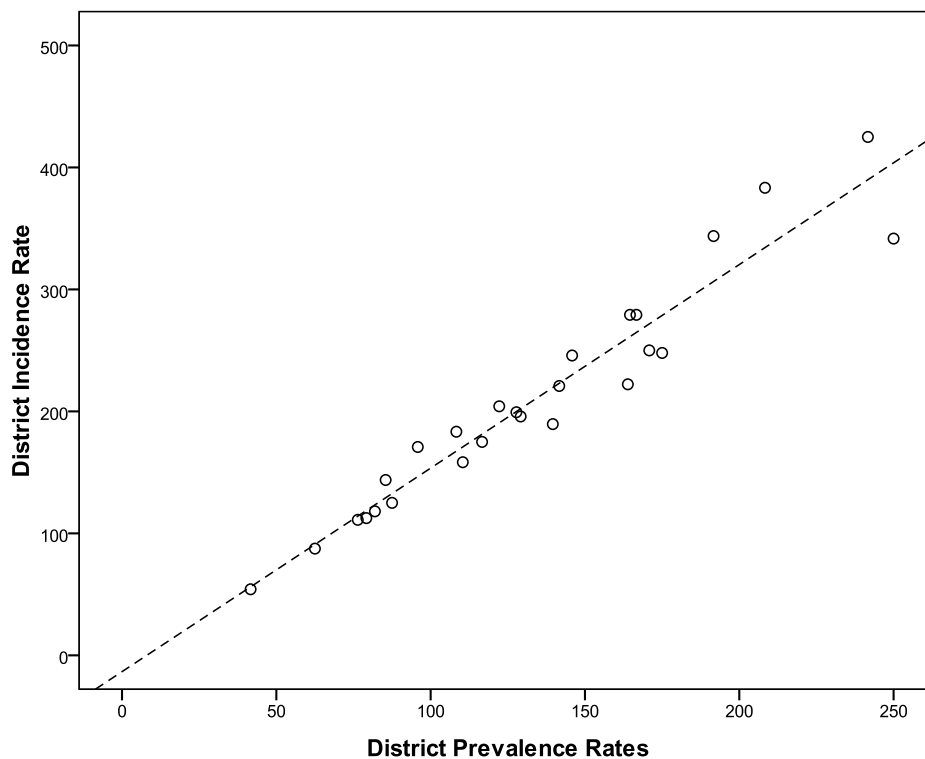
Source: Malawi Integrated Household Survey 2004/05.

The Prevalence/Concentration Relationship

Figure 10 plots the prevalence rate (% HH victimized) and the concentration rate (the average number of burglaries per HH that has been burgled) for the 26 districts of Malawi. The two hold a statistically significant positive relationship (r = .342, p < .05, n = 26). Put differently, there are relatively more repeat burglaries in Malawian districts where more households are burgled. While statistically significant, the r of .34 indicates that that the proportion of HH per district burgled and the average number of burglaries per HH does not measure the same

phenomenon. Only 11.7% of the variation of district-level prevalence rates is explained by district-level concentration.

Figure 10 Domestic Burglary Prevalence/Concentration Relationship by District of Malawi, March 2004 – April 2005 (inclusive), (r = .342, p < .05)
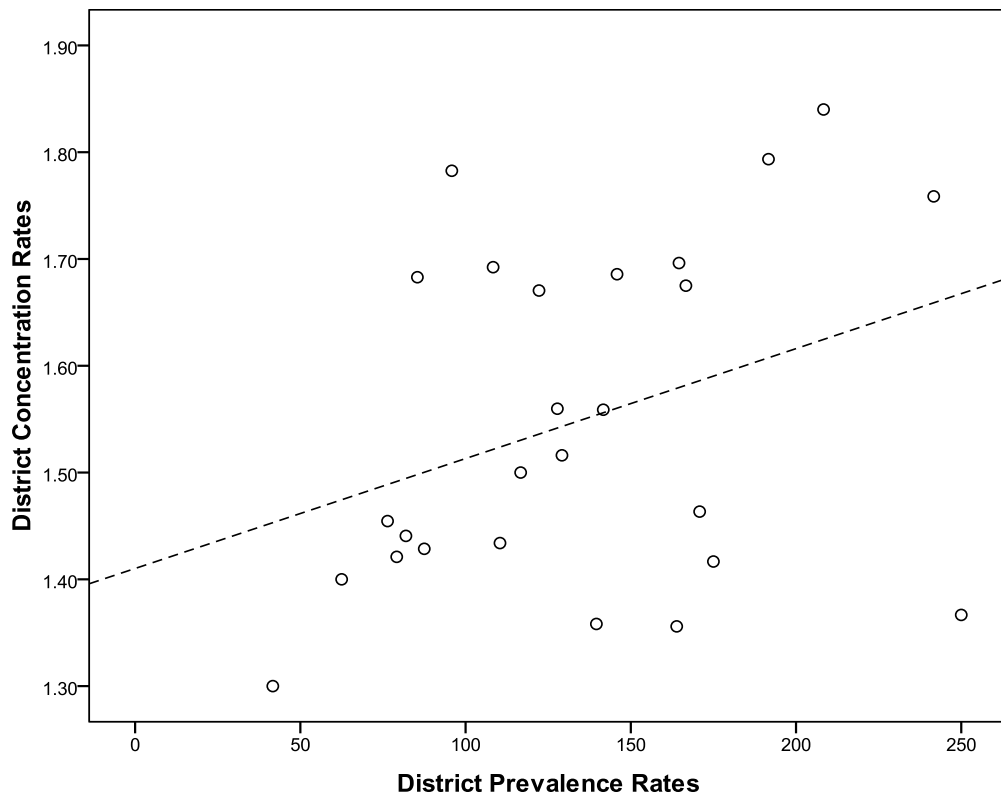
Source: Malawi Integrated Household Survey 2004/05.

Burglary Revictimization in Malawi by Dwelling Type

The above findings demonstrate the uneven distribution of burglary across sampled households in Malawi. A limitation with this analysis is that it treats households as homogenous. In reality, as with the livestock in Chapter 5, households too clearly vary and in ways which will likely affect their attractiveness as potential burglary targets. One such characteristic is the property itself. Ethnographic research finds many burglars are primarily driven by material

profit (Reppetto, 1974; Bennett and Wright, 1984; Rengert and Wasilchick, 1985). It is therefore contended that burglars, all things being equal, will tend to prefer ostensibly affluent targets to poorer ones, suggestive of a greater burglary yield (Bowers et al. 2005).

While affluence can be characterized in numerous ways, arguably the most obvious household-relevant characteristic pertaining to affluence is housing type. Research in this tradition, predominantly conducted in the UK, tends to define housing type in terms of whether a property is detached, semi-detached, terraced or a bungalow or flat. Held constant is the material from which dwellings are constructed; all houses are permanent buildings comprising brick and mortar. In Malawi and sub-Saharan Africa more generally this assumption is untenable. Estimates from the 1998 Malawi Population Census, the data from which the IHS II sample is derived, suggests that nearly two-thirds of the population live in properties comprising mud walls and a thatched roof, many of which have no access to indoor piped water and electricity (National Statistics Office of Malawi, 2000). In light of this housing profile, the IHS II categorises households in three ways based on the materials from which the property is constructed:

- traditional households are made from materials such as mud brick, thatch and dung.
- semi-permanent households are generally built using modern and partially lasting materials.
- permanent households refer to dwellings built using modern or durable facilities.

An example of each dwelling type is shown in Figures 11 to 13.

Figure 11 An Example of a Permanent Malawian Household[27]

Figure 12 An Example of a Semi-Permanent Malawian Household

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[27]And where I lived in Malawi. All photographs are courtesy of Tim Colbourn.

Figure 13 An Example of a Traditional Malawian Household

Previous research concerned with repeat victimization by property type has examined rates of repeats *within* households constructed of permanent materials, reflecting the areas in which such studies were conducted (Tseloni, 2006; Bowers et al. 2005). In this section we consider whether the risk of revictimization in Malawi varies by household construction material, taken here to be an overt proxy for potential burglary yield.

Table 19 shows that traditional Malawian dwellings suffered the greatest number of burglaries. However, we also see that traditional dwellings constitute a larger proportion of all households surveyed. To standardise risk by dwelling type, a rate is computed using the number of sampled properties for each dwelling type as the denominator. It can be seen that once standardized by available opportunities, dwellings made of permanent materials display a higher burglary rate.

Table 19 Relative Risk of Domestic Burglary Victimization by Housing Type in Malawi, March 2004 – April 2005 (inclusive)

Housing Type	HHs burgled	Total no. of HHs of this type in the sample	Prevalence rate	Total number of incidents	Incidence rate per 100 HH
Permanent	304	1,854	16.40	497	26.81
Semi-Permanent	289	2,157	13.40	440	20.40
Traditional	889	7,264	12.24	1370	18.86

Source: Malawi Integrated Household Survey 2004/05.

Table 20 shows the risk of (repeat) burglary victimization for the described housing types. Several patterns are evident. First, there appears to be a general trend across all housing types of a non-linear relationship in terms of the number of victimizations and the frequency of incidents; for each housing type the greatest risk is that of being victimized once, followed by the risk of being victimized twice and so on. The exception is for permanent dwellings. Despite this pattern, a sizable proportion of sampled properties independent of construction material experience multiple victimizations. Second, the risk of revictimization is found to be greatest for households made of permanent materials compared with other housing types, with nearly two-thirds of permanent dwellings revictimized in the same year. However it must be noted that the difference between housing types is relatively small. Further to this, it can be seen that compared to the other property types, the risk of a single burglary is greatest in properties constructed of traditional materials.

One may speculate that increased revictimization rates in properties made of permanent materials may be explained by the boost account: properties comprised of permanent materials indicate greater wealth and, critically, may be suggestive of an ability to replenish stolen items (perhaps due to an increased likelihood of being insured). Households made of permanent materials might therefore possess a sufficient level of perceived attractiveness to warrant revictimization. Assuming

repeats are the work of the same offender, traditional houses may be viewed as less able to reinstate stolen items and therefore the attraction of reoffending diminishes. Regrettably, because information is unavailable on the temporal components of residential burglary as well as the heterogeneity of risk across sampled households, sufficiently examining the boost and flag explanations is not possible with these data.

Table 20 Risk of (Repeat) Domestic Burglary Victimization by Housing Type in Malawi, March 2004 – April 2005 (inclusive)

	Frequency (%) of burglary incidents by housing type			
	1	**2**	**3**	**4+**
Permanent	172 (34.61)	176 (35.41)	81 (16.30)	68 (13.68)
Semi-Permanent	178 (40.45)	158 (35.91)	72 (16.36)	32 (7.27)
Traditional	565 (41.24)	406 (29.64)	255 (18.61)	144 (10.51)

Source: Malawi Integrated Household Survey 2004/05.

The foregoing analysis uses the material with which a dwelling is constructed as a proxy for target attractiveness: households made of permanent materials are considered to indicate greater affluence than properties of non-permanent materials and hence, all things being equal, suggestive of a greater burglary yield. To assess whether this assumption is valid, the relationship between household construction material and two further household-level measures of affluence is explored, using data from the IHS II. The first is simply the mean estimated value of the property as reported by the head of household. The second concerns the value of a series of items that a household is reported to contain. It is measured by asking the head of household which of a series of items were present in the household at the time of survey[28], and if so how many. Respondents are then asked, *"If you sold one of [ITEM] today, how much would you receive?"* For

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[28] These are a mortar/pestle, bed, table, chair, fan, air conditioner, radio (wireless), tape or CD player, television and VCR, sewing machine, kerosene/paraffin stove, electric or gas stove, refrigerator, washing machine, bicycle, motorcycle, car, mini-bus and lorry.

households with more than one article per item type the average is taken. For the purposes of this paper the value for all items within a property was computed and multiplied by the number of reported items per household. Though owning an item does not mean that an offender is cognizant of its presence, for this study the aim was merely to gauge the accuracy of the assumption that on average, the material with which a dwelling is constructed confers a rough approximation of the value of (potentially *thievable*) items inside.

Table 21 Mean (and Median) Estimated Value of Households and Items within Households (US$) in Malawi, March 2004 – April 2005 (inclusive)

Housing material	Mean estimated US$ household value (median)	Mean estimated US$ value of items in household (median)
Permanent	$22,688.41 ($2,142.86)	$2,688.68 ($357.14)
Semi-Permanent	$1,706.72 ($535.71)	$345.16 ($136.17)
Traditional	$323.95 ($175.00)	$149.65 ($62.50)

Source: Malawi Integrated Household Survey 2004/05.

Table 21 provides tentative evidence that the material from which a property is built is associated with varying levels of affluence. Traditional houses, on average, are significantly less valuable (t(865.0) = 3.068, p < .05) and the items within the household worth significantly less than dwellings made of permanent materials (t(1807.7) = 9.728, p < .001). It must be cautioned however that the variation *within* housing types, as can be seen by comparing the mean and median, is much greater for properties made of permanent materials.

Dwelling Type and Area-level Affluence: an Interaction?

The analyses so far suggest that the risk of burglary in Malawi varies by housing type. A limitation with this analysis is that it does not consider the role of area-level influences on burglary risk: the findings may simply reflect systematic differences in the areas in which different property types tend to be situated. This is important because for the sample used here, there are over six times as many households made of traditional materials than those of permanent materials in EAs classified as rural. Moreover, the research described previously by Bowers et al. (2005) suggests that experience of burglary is influenced by an interaction between area- and household-level factors. The second research question seeks to replicate the analysis of Bowers et al. (2005) using the Malawi dataset.

Area level measures of affluence were computed as follows. First, the total reported household expenditure for each property per EA (n = 20) was aggregated to produce a total household expenditure variable for the 564 EAs sampled. This is in keeping with other research studies in developing countries that use household expenditure data to approximate affluence. For example, Kidman et al. (2010), also using IHS II data, note that income, another common measure of affluence, is often underreported in agricultural settings with high levels of self-employment (such as Malawi) and, consequently, that expenditure data is a more accurate estimate of household-level wealth. EAs were then grouped into quintiles. The most affluent 20% of EAs – those with the highest collective household expenditure – were defined as quintile 1, the next most affluent 20% were defined as quintile 2 and so forth. The least affluent 20% comprised quintile 5. Unavoidable caveats with this measure warrant mention. Certain EAs may have a small number of very affluent households and a majority of non-affluent households but average somewhere in the middle. Moreover, high levels of expenditure may not accurately capture affluence but instead reflect, say, a recent household shock such as disease or bereavement that required a substantial financial outlay on health or funeral costs, respectively. Finally, self-reported expenditure is clearly not immune to biased reporting.

Table 22 displays the number of households suffering repeat burglaries by dwelling type and affluence quintile. Prevalence rates are in parentheses. The table indicates that while permanent households in general experience higher rates of revictimization, that risk is influenced by area-level affluence. For example, properties made of permanent materials in the least affluent quintile (quintile 5) have the highest prevalence rate for repeat burglary. Area-level affluence also exerts an influence on revictimization for traditionally constructed households: the prevalence rate for repeat burglary is lowest in the poorer quintiles and highest in the above average quintiles albeit tailing off in the top fifth of the sample, where traditional dwellings are rarer. While these patterns lend support to the findings of Bowers et al. (2005) the variation between quintiles is less apparent than in their study.

Table 22 Number of Repeat Burglary Households by Affluence Quintile in
Malawi, March 2004 – April 2005 (inclusive)

	Housing Type (prevalence rate per 100 homes)		
	Permanent	Semi-Permanent	Traditional
Most affluent Quintile 1	57 (7.55)	29 (5.56)	47 (4.88)
Quintile 2	19 (4.77)	20 (4.83)	77 (5.32)
Quintile 3	28 (8.67)	19 (4.76)	90 (5.86)
Quintile 4	11 (5.24)	20 (5.17)	62 (3.73)
Least affluent Quintile 5	17 (10.12)	23 (5.29)	48 (2.90)

Source: Malawi Integrated Household Survey 2004/05.

Discussion

This chapter presented the first quantitative assessment of repeat burglary victimization in Malawi. The primary research question sought to establish whether repeat burglary victimization existed in Malawi. It was found that while the majority of sampled households reported no burglaries in the past twelve months, approaching two-thirds of burglaries were committed against households who had already experienced burglary during this period. Burglary was found to disproportionately concentrate amongst a small minority of chronically victimized households, significantly more than would be expected on the basis of chance. Moreover, having been burgled once, the likelihood of a dwelling being burgled again was found to be nearly three times that of suffering an initial incident. The evidence of one study is clearly insufficient to make confident generalisations, nonetheless the findings do suggest that the basic logic of repeat victimization - that a small proportion of targets experience disproportionately high numbers of victimization, and that the likelihood of two or more victimizations is higher than would be expected if crime events were independent - appears generalizable to Malawi.

The second research question concerned the influence of housing type and area-level affluence on revictimization risk. Households constructed of permanent materials, interpreted here as an overt indicator of affluence, were found to suffer a greater percentage of repeat offences than dwellings made of traditional and semi-permanent materials. Repeat victimization rates for this housing type were highest in less affluent areas where such properties tend to be less frequent. Households constructed of traditional materials displayed the lowest risk of repeat victimization in the least affluent quintile compared to dwellings of the same materials in more affluent areas. While these findings support the conclusions of Bowers et al. (2005), the variation across quintiles observed in this study is far less pronounced. A number of factors might account for this contrast. One obvious reason is the measurement of area-level affluence. In this chapter EAs were assigned to affluence quintiles based on an aggregate of household-level

expenditure. In their study, quintiles were produced by using the much richer *Index of Multiple Deprivation 2000*. It is acknowledged that the measure employed here is an imperfect proxy of areal affluence. However detailed data equivalent to the *Index of Multiple Deprivation* are unavailable for Malawi.

Limitations

This study has revealed several limitations in the IHS II data, some of which were briefly described in Chapter 4. First is the time period in which repeats are calculated. The one year observation period of the IHS II, like many victimization surveys, likely underestimates the extent of repeat victimization by failing to capture events that fall outside of the reference period (Farrell, Sousa and Weisel, 2002; Frank, Brantingham and Farrell, 2012). With police recorded crime data this effect can be estimated: by pinpointing the exact time of a crime event one can calculate the proportion of repeats that are captured if only 1 month of data is used, if 2 months is used and so on. For obvious reasons this cannot be achieved with the IHS II data because time-specific information on crime events is not provided.

Second, the IHS II places limits on the number of burglaries that a respondent can report (i.e. 4 or more). While this is common in many victimization surveys, it minimizes the volume of repeats (see Farrell and Pease, 2007; Frank, Brantingham and Farrell, 2012). A third limitation is the time insensitivity of the data. As already mentioned, an abiding feature of repeat victimization is that victimization tends to recur quickly with risk decaying over time. Regrettably, the time course of repeat victimization in Malawi cannot be determined using the IHS II data because respondents are only asked to report their experience of burglary over the past 12 months - not *when* those burglaries occurred. This precludes any analysis concerning the temporal components of repeat victimization.

Fourth, the data analyzed here provide no indication of what is stolen and consequently each burglary event is treated as homogenous in terms of crime

yield. We would expect substantial variation in the amount and value of items stolen across burglary events. Given the dependent variable used in this study could not distinguish between actual and attempted burglaries, it is possible that the high rates of (repeat) burglary reported here may, in part, be due to many incidents classified as burglary comprising events in which little, possibly nothing was taken. Moreover, one might expect that the proportion of attempts to successful burglaries will vary by dwelling type. Properties constructed of traditional materials are presumably easier to break into than those made of brick and stone. Consequently, we might hypothesize that the proportion of attempts will be lower in traditional dwellings compared to other housing types. Data that distinguish between successful and unsuccessful burglaries would allow this hypothesis to be examined.

Implications of the findings for policy and practice

The study of repeat victimization has profound implications for crime prevention. The rationale follows that given crime concentrates on a small number of targets then reducing revictimizations can produce substantial reductions in crime overall. This study provides further evidence towards the *normality of repeat victimization*; suggesting that the patterns, and thus rationale for preventing repeat victimization, appear to hold for domestic burglary in Malawi. How then might these findings be translated so as to inform burglary prevention in Malawi? Put differently, to what extent can schemes of proven effectiveness in Western industrialised settings be transplanted, and tailored, to the Malawian context?

Farrell and Pease (2006) in their review of efforts to reduce repeat domestic burglary identify four hallmarks of successful projects: 1) strong preventive mechanisms attuned to the local problem and context; 2) the use of a package of interventions as opposed to stand-alone measures, particularly opportunity-reduction (situational) techniques; 3) effective implementation and 4) concentrating preventive efforts on high-crime areas. There is no reason to believe that the same ingredients will not be important determinants for reducing repeat

burglary rates in Malawi. However in light of the noted resource-constraints, the practical challenges associated with operating in such settings are likely to be considerable. The lack of data for analytic and evaluative purposes and issues concerning the mobilisation of actors to implement and maintain interventions are expected to be challenging. Moreover, despite strong evidence demonstrating the effectiveness of situational measures in reducing a wide range of crime types (Clarke, 2008), commensurate with criminological research more widely, there is a distinct lack of research considering the practicability of situational crime prevention both in terms of the economic, social and political conditions in which it would need to be developed and operated and in terms of the scope for making changes in the environment of developing countries that would significantly lessen crime opportunities (Tilley and Sidebottom, in press). The issue of applying situational crime prevention in resource-limited settings such as Malawi is returned to in Chapter 10.

Beyond a defensible resource allocation strategy, the study of repeat victimization emphasises the importance of the victim in the provision of criminal justice services. The consequences of chronic victimization are well documented: heightened fear of crime, retreat from public life, higher levels of emotional distress and increased desire to vacate an area (see Mawby, 2001; Shaw, 2001). In developing settings the impact may be greater still. Experience of crime can seriously affect the quality (and quantity) of life, particularly through the loss of critical items. This is amplified by the general lack of insurance in developing countries (Van Dijk, 2001). Presently, victim support services across sub-Saharan Africa are limited (Leggett et al. 2005). In light of the high rates (and concentration) of burglary reported here, the development of victim-assistance programs through partnerships between government bodies, international donors and relevant non-governmental organizations with a view to address repeat victimization is a worthy endeavour.

Finally, the chapter began by highlighting the lack hitherto of research on repeat victimization in developing countries. It is worth reiterating that the present study

reports secondary analysis of data collected as part of a multipurpose survey, in which crime and safety is but one consideration. While a primary focus on crime may have afforded greater detail and ameliorated some of the described shortcomings in the data, taking advantage of similar data sources in other under-researched areas may help address the noted paucity of repeat victimization research in developing countries. To this point, it is hoped that the analyses reported here might stimulate further research in similarly neglected contexts. The author contends that this might be a fruitful research area to advance as well as strengthen the study of repeat victimization.

Chapter 7 - Multilevel Analysis of Residential Burglary Victimization

Chapter Summary

This study adopts a multilevel framework to analyse the factors associated with burglary victimization in Malawi. The results of a multilevel logistic regression show that at the household level, burglary victimization was positively associated with greater affluence, a property being constructed of permanent materials, a female household head and the presence of chronically ill occupants. Of the six community-level variables considered, the only significant relationship was that the risk of burglary was greater for households located in areas with higher burglary counts. The chapter closes by remarking on the scholarly and practical implications of the findings.

Introduction

Science is replete with references to risk factors. Health scientists talk of risk factors in the context of infectious diseases and the variables associated with an increased chance of infection. Ecologists refer to risk factors in relation to those behaviours found to increase a species' threat of predation. The study of risk factors arises in fields where the outcome measure of interest is unevenly distributed across units at risk, and where variables are quantitatively found to increase (or decrease) the likelihood of that outcome occurring. Prevention strategies typically seek to reduce, remove or counteract identified risk factors.

As has been stressed throughout this thesis, strong evidence demonstrates that the risk of criminal victimization is unevenly distributed across space, time and targets, be they people, property or products. As the previous two chapters have shown, in Malawi livestock theft and residential burglary are found to concentrate on particular species and on particular households, respectively. The literature on criminal victimization sometimes refers to risk factors as correlates or determinants of victimization. Preference here is for the former, to emphasise that

caution should be exercised in inferring (deterministic) causal relations between criminal victimization and other variables; rarely does the presence of a single variable unequivocally determine whether a crime does or does not occur. The list of putative crime correlates is enormous and has attracted considerable research attention, typically interested in three tasks. The first is concerned with identifying those characteristics that are reliably associated with criminal victimization. The second asks why, drawing on relevant criminological theory. And the third considers the implications of the findings for policy and practice, such as the identification of high risk groups and the design and targeting of interventions (for an exemplary paper see Tseloni, 2006).

This chapter is interested in the same three questions, focussing on residential burglary in Malawi. In keeping with similar studies from Western countries (several of which are outlined below), it uses a multilevel analytical framework using household- and community-level variables informed, respectively, by the routine activity approach and social disorganisation theory. To the author's knowledge, this is the first study of its kind in Malawi. It remains to be seen whether the variables commonly linked to increased vulnerability in industrialised settings wield the same effect in Malawi.

The chapter is formed of five sections. The next section describes research on the variations in burglary risk and explanations as to why. Emphasis is placed on studies that used multilevel analysis. This is followed by a description of how the variables used in this study were computed from the survey data and their hypothesised relationship with burglary victimization. Before presenting the findings, the chapter digresses slightly to describe the rationale for and use of multilevel modelling techniques more generally. The results then follow. The chapter concludes with a discussion of the limitations of the study and the implications of the findings.

Burglary Victimization: Theoretical Perspectives and Multilevel Analyses

Residential burglary is a commonly studied crime type among criminologists. This can be attributed to several factors, from trying to explain the large increases and subsequent decreases in residential burglary experienced in many Western societies in the past thirty years (Tseloni, Mailley, Farrell and Tilley, 2010), to data-related issues such as the comparatively high levels of victim reporting (Budd, 1999), or to the stubbornly high levels of public anxiety about burglary (seemingly unaffected by the recent falls) since, as Tarling and Davison write, "[burglary is] sufficiently common to touch many individuals and households yet it is also sufficiently serious to affect victims both financially and emotionally" (2000, p. 6).

An important finding to emerge from burglary research is the striking variation in burglary risk across households, as alluded to in the previous chapter. These risk factors can be organised into three broad categories, arranged in a macro-to-micro sequence, namely: the area in which a household is located, the design and layout of a household and its surrounding environment, and the characteristics and lifestyle choices of household residents. These are now discussed in turn.

There is an extensive literature on why certain areas suffer higher levels of burglary than others, featuring studies conducted in the U.S. and Europe. Evidence converges on the finding that burglary tends to be higher in urban areas characterised by deprivation, ethnic heterogeneity and high population turnover (Sampson and Groves, 1989). Two mechanisms are thought to explain this pattern. The first owes much to the Chicago School (Shaw and Mckay, 1942) and is grounded in the social disorganisation perspective described in Chapter 2 (Sampson and Groves, 1989; Sampson et al. 2002). To reiterate, it argues that high crime areas tend to be socially disorganised (i.e. exhibiting poorer social control and networks). Residents of socially disorganised areas, it follows, are considered less likely to take notice of or respond to crimes in their area, either

through personal intervention or by calling the police (Sampson and Groves, 1989; Bursik and Grasmick, 1993). Offenders are thus little deterred.

The second explanation, related to the first, concerns offender-offence proximity. Research often finds that offenders reside in the types of areas described above: urban, socially disorganised and ethnically mixed (for e.g. see Daday, Broidy, Crandall and Sklar, 2005). An extensive literature also shows that most crime trips are short (Rossmo, 2000; Townsley and Sidebottom, 2010) and that offenders tend to commit crime in areas that they are familiar with as a function of their routine activities (Eck, 1993; Brantingham and Brantingham, 1981). Taken together, these two lines of evidence suggest that area-level burglary rates will be higher if located close to a pool of ready offenders (see Mawby, 2001). As Bernasco (in press) observes, this explanation accounts for the apparent disconnect between burglars' frequent claims that they seek the most prosperous burglary targets and the recurrent finding that burglary concentrates where deprivation is highest; the prosperity preference appears to be a locally bounded one. This is supported by evidence that affluent properties in poorer areas suffer higher rates of burglary than other housing types (Bowers, Johnson and Pease, 2005; Chapter 6).

The next two categories of risk factors – the design and layout of a household and its surrounding environment, and the characteristics of household residents – are best understood from a routine activities perspective, namely as factors that influence the spatio-temporal convergence of motivated offenders and suitable targets in the absence of capable guardians (Cohen and Felson, 1979). First is how diversity in the design of properties and their surrounding environment influences burglary risk. In terms of the wider environment, an on-going debate in the literature concerns the effect of street *permeability* on burglary. Research using space syntax – an urban modelling technique primarily used to assess movement flow – by Hillier and Shu (2000) and Hillier (2004) concluded that the risk of burglary is greater on less accessible street segments such as cul-de-sacs. By contrast, Beavon, Brantingham and Brantingham (1994) and Johnson and Bowers (2010) find the reverse to be true, arguing that permeability *increases* the

likelihood of burglary because offenders, as a function of their routine activities, are more likely to use (and be willing to offend on) permeable streets.

At the household level, risk factors encompass three issues: accessibility, surveillability and occupancy (see Mawby, 2001). Accessibility refers to the ease with which a burglar can enter a home. Surveillability refers to the extent to which a household can be seen by others. Occupancy refers to the length of time a household is unoccupied. Across all three factors, the risk of burglary is elevated in properties that are easy to access (e.g. unlocked doors and open windows), have poorer lighting and sight lines, which reduces the risk of a burglar being seen, and which are unoccupied for longer stretches of time thereby reducing the risk of a burglar being detected or encountering residents in the process of crime commission (see Mawby, 2001). It is important to stress that in many instances these risk factors are *dynamic*. A good illustration of this point is provided by Coupe and Blake (2006), who demonstrate that the risks of burglary fluctuate between daylight and darkness as burglars adapt their targeting strategies to changes in light conditions. In the British context at least, they find that, "Burglary opportunities are shaped by the interactions between victim employment and lifestyles and type of dwelling, with more expensive and less guarded properties targeted in the daytime, and down-market and more heavily guarded properties targeted at night" (Coupe and Blake, 2006, p. 460).

The final area concerns household residents. As alluded to above, occupancy is a robust correlate of burglary victimization. Individuals whose lifestyle necessitates that they spend longer periods of the day away from the home therefore exhibit comparatively higher burglary risks, consistent with the lifestyle/RAA. Household occupancy is also a function of household composition, such that one-parent families suffer higher risks by virtue of being unable to spread daily tasks among family members, though an alternative explanation could be a lack of guardianship (Kershaw et al. 2000).

Historically, the above risk factors have been studied separately. Yet by the 1990s this practice had received mounting criticism which centered on the failure of such studies to determine 1) whether aggregate-level effects were merely a function of pooling individual differences and 2) whether observed individual-level effects were accurate if neglecting the wider contextual factors that influence behavior (Miethe and McDowall, 1993). This discontent sparked a shift from studying particular macro or micro-aspects of burglary in favor of a multilevel approach, thereby integrating individual-level explanations with contextual-level theories, specifically opportunity theories of victimization with social disorganisation theory. From an analytical perspective, this meant a transition from standard linear regression to multilevel models. As Zhang, Messner and Liu write: "[this] technique … has emerged as the preferred statistical tool for applying the multilevel framework because it facilitates the identification of the effects of variables and sources of variation at both the household and neighbourhood levels of analysis" (2007, p. 919).

A number of studies have adopted a multilevel framework to explore variations in burglary risk (see for e.g. Miethe and McDowall, 1993; Rountree, Land and Miethe, 1994; Wilcox, Madensen and Tillyer, 2007; Tseloni, 2006). While the research site may differ, these studies typically take the same form: using victim survey data to *simultaneously* examine whether a household's risk of burglary victimization is influenced by the routine activities of its residents, its characteristics and the features of the neighbourhood in which it is located. A much referenced paper is Miethe and McDowall (1993). Using survey data for 5,098 adults from Seattle, Washington, they report several important findings at both the household and neighbourhood level. For example, they demonstrate that the risk of burglary victimization is positively associated with higher target attractiveness (measured using family income and the availability of expensive items) and poorer guardianship (inoccupancy, patchy security measures). At the neighbourhood level, they also show that poorer social conditions appear to elevate burglary risks, as would be predicted by social disorganisation theory.

As Zhang et al. (2007) observe, the geographic coverage of multilevel studies of burglary victimization is somewhat limited. Few are available using data arising from non-Western settings. This partly reflects the type of data required for multilevel analysis, namely information at both the household and neighbourhood level that reasonably approximates the theoretical constructs of interest and which has been collected using a sampling design that yields a sufficiently large number of higher level units to allow for multivariate statistical analysis. In many atypical research settings this is rare.

Encouragingly, in the past decade this has begun to change. Zhang, Messner and Liu (2007) report the findings of a multilevel burglary study using data drawn from a household survey in the Chinese city of Tianjin. Several measures of target attractiveness and guardianship acting in accordance with what the routine activity approach would predict, as did measures of collective efficacy and public control whose measurement was guided by the social disorganisation perspective. There were also inconsistencies, however. Several neighbourhood variables exhibited no effect on burglary risks, prompting the authors to question the applicability of certain concepts to the Chinese context. Similar unexpected findings are reported by Roh, Kim and Yun (2010) in their study using survey data from Seoul, South Korea. Contrary to what would be predicted by the literature, community cohesion and the use of target hardening measures was associated with an *increased* risk of burglary victimization. They attribute these findings to the specific context of and recent changes in Korean society.

As far as the author is aware, no studies have adopted a multilevel framework to explore how household- and area-level explanations of burglary risk commonly applied in Western countries fare in the African context. This absence can be largely attributed to the lack of victim surveys carried out in African countries. The multipurpose nature of the IHS II provides a rare chance to begin to address this research gap. With this in mind, this chapter reports the first multilevel study to explore the correlates of burglary victimization in Malawi.

Method and Measures

This study uses the same dependent variable as that of the previous chapter, namely a binary measure of self-reported residential burglary victimization based on the question: "*In the past year, did anyone enter your dwelling to steal, to try to steal something, or to commit other crimes?*"

Household-level Variables

Eighteen explanatory variables are considered (twelve household-level variables and six community-level variables). The household-level variables are intended to bespeak core tenets of the routine activity approach, namely *target attractiveness* and *guardianship*.

For acquisitive crimes, *target attractiveness* is usually measured as the monetary value of the target at risk; higher value targets are expected to experience higher rates of crime because, all things being equal, they are perceived as more profitable (Miethe and Meier, 1990). Following on from the previous chapter, four target attractiveness variables are included. The first concerns the estimated value of the respondent's home as reported by the head of household (converted into $US using the PPR rate described previously). Households are categorized as 1 = below $US1,000; 2 = $US1,000 – 1,999; 3 = $US 2,000 – 4,999; 4 = $US5,000 – 9,999; 6 = $US10,000 over. The second variable captures the (potentially *thievable*) items inside the household and is an enumeration of the total value of items that a household is reported to contain. To reiterate, this is a composite measure of two IHS II questions. The first asks respondents to indicate which of a series of durable goods their household contains at the time of survey, and if so how many. The second question asks, "*If you sold one of [ITEM] today, how much would you receive?*" Households are categorized based on the total estimated value for all items reported in the property: 1 = below $US500; 2 = $US 500 – 999; 3 = $US1,000 – 1,999; 4 = $US2,000 – 4,999; 5 = $US5,000 over.

The third measure pertaining to target attractiveness relates to reported household expenditure, specifically whether such expenditure is below the poverty line. As described previously, in developing countries reported expenditure is widely considered to be a more accurate measure of household wealth than declared earnings (Kidman et al. 2010). This measure is used here to determine if a household is classified as poor, defined by the Malawi NSO as a dwelling whose total annual per capita consumption expenditure is below the poverty line (16,165 MK per person per year or US$ 575 at the time of survey). Using this threshold, households are thus dichotomized into 1 = poor and 0 = non-poor. Grounded in the rational choice model of the offender (Cornish and Clarke, 1986), it is hypothesised that offenders perceive poorer households as less attractive burglary targets, on the assumption that they will reap a less profitable burglary yield.

The final measure of target attractiveness concerns housing type, measured using the materials with which the property was constructed. The previous chapter demonstrated that burglary is unevenly distributed across the different types of household sampled in the IHS II (permanent, semi-permanent and traditional). In this chapter, housing type is set against the other covariates to investigate whether it is significantly associated with variations in the risk of burglary victimization. For ease of interpretation a dummy variable is used: 1 = house is constructed of fully permanent materials and 0 = house is not constructed of fully permanent materials (i.e. is made of semi-permanent or traditional materials). As alluded to previously, it is expected that all things being equal burglars will prefer to target permanent households on the assumption that they contain greater riches than is available in non-permanent dwellings.

Guardianship, simply put, refers to the people whose presence – intentionally or unintentionally – reduces the likelihood of crime occurring (Reynald, 2011). Guardianship is a multi-layered metric comprising physical, personal, social and natural dimensions (Wilcox, Madensen and Tillyer, 2007). In this study, physical guardianship refers to the implementation of security measures that may reduce burglary risk. It is based on the question: "*What steps have you taken to protect*

yourself from crime in the past year?" Each property could provide a maximum of two responses from a list of six (joined neighbourhood watch, employed a watchman, acquired guard dogs, improved house security (bars, walls, fence), changed location and/or used traditional remedies). The answers were dummy coded to generate a single measure: 1 = implemented a security measure and 0 = implemented no security measures. Again consistent with the RCP, it is predicted that the presence of security measures will be negatively associated with experience of burglary because such dwellings are perceived to be harder or more risky households to burgle compared to properties with no such measures. There are two limitations however. The first is that the data say nothing about security measures in place *prior* to survey participation; implementing no security measures in the past year might reflect investments in security in the years previous. The second limitation concerns directionality. It is unclear whether security precautions were taken in *response* to being the victim of crime or were implemented *independent* of victimization experience (for a related discussion see Tseloni, 2006). This is a common concern with cross-sectional survey data.

Four variables are intended to measure the personal dimensions of guardianship. The variable 'lone guardian' refers to whether the head of household lives alone and is responsible for children also residing in the same dwelling. Analysis of crime victim surveys in Western settings repeatedly finds that lone guardians suffer higher rates of criminal victimization (see Mawby, 2001). The common explanation for this finding is that lone guardian households display a relative lack of capable guardianship compared to dual guardian households and, additionally, may leave their household unoccupied more frequently (by virtue of only one adult living there). The number of adults (16+) per household is the second measure. Increased adult occupancy is predicted to be negatively associated with burglary experience due to a greater degree of guardianship. The next variable captures the number of months in the past year that adults belonging to a household were absent. It is based on responses to the following question: *"For how many months during the past 12 months has [NAME] been away from this household?"* For each household, the total number of months absent in the past

year for each adult aged 16 or over was computed and divided by the number of adults residing at that property. Higher levels of home occupancy are taken to indicate greater guardianship and therefore be negatively associated with burglary risk. An obvious problem with this and the previous variable is that it assumes that individuals residing at a property spend a non-trivial amount of time there, thereby acting to deter potential burglars. Regrettably there is no information on the amount of time *per day* that individuals are away from the home.

The next variable concerns disease prevalence at the household level. As mentioned in Chapter 3, Malawi displays a high disease burden (Bowie, 2006). This refers to the many societal costs of disease prevalence and associated risk factors. The disease profile of Malawi contrasts sharply with that of countries in Western Europe and North America with, say, Malaria and diarrhoeal diseases being significant contributors to the high mortality rates observed. The relationship between a household's health status and victimization risk is rarely explored, both in developed and developing settings. It is plausible however that variations in the burden that ill health places on individual households may affect their vulnerability to crime, here burglary. Two possible mechanisms are suggested here. First, higher levels of disease burden at the household level may impair the capability of household members experiencing such conditions to guard against criminal victimization, as perceived by potential offenders, thereby leading to higher risks of burglary. The reverse may also be true; increased burden of disease may be associated with increased household occupancy thereby increasing guardianship and deterring potential offenders.

This study takes advantage of the health module of the IHS II to include a measure of the household-level burden of disease. It is computed as follows. Each respondent is asked if they suffer from a chronic illness (broadly defined). Only respondents aged 16 or over are selected based on the assumption that those under this age are less likely to effectively guard against burglars. Participants' responses were then used to compute a dummy variable for a HH-level burden of disease: 0 = no adult members in HH report suffering a chronic disease, 1 =

household contains one or more HH members suffering from a chronic illness. A limitation with this measure concerns the validity and/or accuracy of self-assessments of health. There are certain circumstances where respondents may feign illness, to justify unemployment for example. However, for diabetes at least, previous research does indicate relatively high levels of concordance between self-assessments and official reports (Kriegsman, Penninx, van Eijk, Boeke and Deeg, 1996). Regrettably there was no way of independently verifying the accuracy of health-related responses in the IHS II data.

Consistent with previous research, three household-level control variables are also included. These are the head of households' age, sex and educational attainment.

Community-level Variables

The community-level variables used in this analysis are intended to capture the following components of social disorganisation theory: neighbourhood incivilities, poverty levels and residential mobility, all of which previous research has identified as contributing to individuals' propensity to reduce crime with a view to maintain community harmony. Three measures pertain to neighbourhood incivilities. The first is a perception variable based on the question: *"How safe do you feel against criminals in your own house?"* Three response categories were used in the original survey: 'very safe', 'fairly safe' or 'unsafe'. For the purposes of this study a dummy variable was computed, 1 = unsafe and 0 = safe (a combination of 'very safe' and 'fairly safe'). These were then aggregated to give the proportion of dwellings per EA that felt unsafe. It is expected that communities in which members are fearful in their own homes will exhibit higher burglary risks, assuming that respondents' risk perceptions are faithful to reality.

The second variable indicated the total number of burglaries per EA. Again this was computed by summing the number of residential burglaries reported for each HH per EA (up to a maximum of four). As has been demonstrated for violent crime in the U.S. (Sampson and Lauritson, 1990), it is predicted that burglary

victimization risks will be greater in communities that suffer higher burglary counts. The third variable is the proportion of the EA population aged between 15 and 19. This speaks to the age-crime curve which shows that crime tends to peak among individuals in their mid to late teens and dwindle as age increases (for e.g. see Farrington, 1986). It is included here to approximate exposure to the most criminally active age group, so that a higher proportion of individuals in their late teens per EA is predicted to be positively associated with burglary risk.

Community-level poverty is measured as the proportion of properties per EA whose annual expenditure is below the internationally agreed-upon poverty line (at the time of survey). This is a culmination of the household-level poverty measure abovementioned. The next community-level predictor, residential mobility, is the proportion of household heads that moved into the EA in the past two years. Consistent with social disorganisation theory, the hypothesis is that higher rates of population turnover weaken collective efficacy thereby elevating the risks of burglary, reflecting a reduction in the likelihood of community members to act in ways that lessen crime. A final community-level control variable distinguished between whether EAs are classified as urban or rural.

Before proceeding, the reader should note several limitations concerning the community level variables used here. First, the use of EAs to approximate communities is imperfect. The IHS II manual specifically informs field staff that the two are non-equivalent and that the area which respondents define as their community may transcend or fall short of the EA administrative boundaries. However, for convenience and in order to compute the variables of interest here, we employ EAs as a crude indicator of a Malawian community. Similarly, it is clear that several of the community-level variables are aggregated from individual-level survey responses. This is unavoidable because independent data (such as census data) speaking to the community-level factors of interest here were unavailable to the author. Finally, while each household per EA has an equal chance of being selected in the final IHS II sample, the small sample of

households per EA (n = 20) does introduce concerns over the representativeness of these measures for the EA more generally.

On Multilevel Modelling

This chapter, and the two that follow, apply multilevel modelling techniques to estimate individual- and aggregate-level factors associated with the dependent variable of interest (in this chapter burglary victimization). Multilevel modelling is the appropriate statistical procedure because it accounts for the nested (or layered) structure in the IHS II data: households nested within EAs. Since this technique is used for the remainder of this thesis, it is considered useful to briefly describe the rationale for multilevel modelling and its application to criminological research.

Nested data structures refer to data that contain observations collected at multiple units. They are common in many disciplines. Examples are students attending the same schools, employees working for the same organisations and individuals belonging to the same neighbourhoods. The crucial feature of such data are that lower-level units (say individuals) nested within the same higher-level units (say neighbourhoods) tend to be more alike on the variable of interest than sampled individuals chosen at random. Put differently, the data are *dependent*. If this is the case, then the assumption that underpins many conventional statistical tests, that two observations are independent of one another – and that their error terms are similarly distributed – is violated. Failing to account for this property can generate erroneous results and inferences.

To illustrate, let us suppose that we have been tasked with the (not-so-coveted) job of identifying those factors associated with educational attainment among a series of school children in a given area. Where to begin? We might start by focussing on every pupil in one class in one particular school. We might then take measurements of all the things that previous research implicates in educational attainment: IQ, parenting style, nutritional intake, etc. Drawing conclusions as to

the determinants of educational attainment at this stage, would, however, be flawed. This is because two pupils randomly selected from one school are more likely to be similar in ways that might influence educational attainment than two pupils chosen at random from different schools. This makes intuitive sense; there are effects operating at broader levels of causation – school to school – that might conceivably contribute to a pupil's educational attainment: teacher competence, school disorder, the availability of educational resources, etc. This presents a methodological challenge, as Townsley and Sidebottom (2010, p.902) write the "attributes of higher level units [schools] influence groups of lower level cases [pupil educational attainment], resulting in observations no longer being independent of each other, which in turn, violates a major assumption of inferential statistics. Without correcting for this inherent nesting within the data, biased statistics might be generated, and our ability to detect relationships might be compromised".

The above scenario can also be expressed formulaically. Formula 1 denotes a standard regression equation:

$y_i = B_0 + B_1 x_i + e_i$

Where,

y_i=   estimated value of the dependent variable, here educational attainment, indexed by the individual pupil.

B_0 = constant.

B_1 = regression coefficient.

x_i=   the predictor variable, say IQ or parenting style.

e_i = residuals that, crucially, are assumed to be independently distributed.

As outlined above, with nested data the assumption that the residuals are independent is untenable. The formula of a multilevel regression model (formula 2), which accounts for the dependence in the data, is therefore extended:

$y_{ij} = B_0 + B_1 x_{ij} + u_j + e_{ij}$

In addition to the subscript $_i$ which indexes the individual pupil, $_j$ is now added which captures the schools. A separate residual is also included, u_j, which enables schools to wield an effect on the dependent variable, y_{ij}.

The change from formula 1 to formula 2 allows a multilevel model to correct for the bias present in nested data. In doing so it has advanced social scientists' ability to tease apart aforesaid nesting effects through simultaneously examining the interactions between individual- and aggregate-level data (Raudenbush and Bryk, 2002). Multilevel modelling is thus credited with boosting the realism of statistical models (Draper, 1995).

In practice there are different forms of multilevel model. The two most common are *random intercepts* (or effects) models and *fixed effects* models. Each is a slight variation on the same theme. Simply put, the distinction between the two is that random effects models treat the level two variables (such as schools) as a sample, drawn from a broader population about which we hope to make inferences. Under the fixed effects model, in contrast, it is assumed that the effect of the level two variables constitutes the entire population about which we hope to draw inferences. Goldstein (2007) observes that random effects models tend to be used more frequently, in part because they allow for the effects of level two predictors to be estimated, such as school disorder levels. The multilevel models used in this thesis are random intercepts (effects) models.

Statistical Analysis

The IHS II data exhibit a two-level hierarchical structure of households (level 1) nested within EAs (level 2). To account for this, multilevel logistic regression modelling with random effects was performed. A logistic regression is appropriate because the dependent variable in this study is binary: burgled household versus non-burgled household. A random intercepts model is selected in order to estimate the effect of community-level predictors (level 2) on the likelihood of burglary victimization.

Statistical analysis followed three steps. As is common practice in multilevel modelling, each step marked an increase in the complexity of the statistical model. First, an intercept-only (unconditional) model with no predictor variables was performed. This indicates whether there is any variation in the risk of residential burglary between the Malawian communities considered. Next, household-level variables were added to explore their contribution to explaining variations in burglary risk. In model three, community-level variables were included to assess the influence of community characteristics on burglary risk, over and above the household-level effects. All regressions were performed in Stata version 12.0 using the "xtmelogit" command.

Results

Descriptive statistics are displayed in Table 23. It shows that 13% of households reported being burgled in the previous year. This is slightly higher than the ICVS one-year burglary estimates for sub-Saharan Africa (Naudé, Prinsloo and Ladikos, 2006). However, as noted previously, this discrepancy may reflect the narrower definition of burglary used in the ICVS. Table 23 also emphasises some of the health and poverty challenges faced by many Malawians. For example, it shows that 25% of sampled households contained an adult who reportedly had a chronic condition and that the average Malawian property is valued at between $US 1,000 and $US 2,000.

Table 24 presents the results of the multilevel logistic regressions. Regression coefficients are expressed as odds ratios. Odds ratios are a common measure of effect size in many fields, partly owing to their easy interpretation (see Bowers, Sidebottom and Ekblom, 2009). In the present study, an odds ratio of 1 indicates that the independent variable has no effect on the risk of burglary victimization. An odds ratio above 1 denotes an increased chance of burglary victimization in the presence of the independent variable, an odds ratio below 1 indicates a reduction. Statistical significance is measured by reference to the corresponding Z score, which shows how many standard deviations an observation is from the

mean (i.e. an odds ratio of 1). Using the conventional measure of $p < 0.05$, an independent variable is found to have a statistically significant effect if the Z score is 1.96 or greater and the lower confidence limit of the odds ratio is over 1.

The first column of Table 24 is the random intercept-only model. This displays the log-odds of a household being burgled in an "average" Malawian EA in the past year. The odds ratio of .006 and associated z-score of -13.35 is statistically significant ($p < 0.001$), permitting the rejection of the null hypothesis that the variance in burglary risk between EAs is zero. Put differently, the risk of household burglary differs significantly between the Malawian communities examined. Further investigation to explain this variation is therefore warranted.

Model two includes the household variables. Eight are found to be significantly associated with an increased likelihood of residential burglary. Those properties where security measures were implemented in the past year displayed greater risks of victimization. While seemingly counter-intuitive, one explanation for this finding is that security measures were implemented *in response* to criminal victimization in a bid to reduce the likelihood of repeat offences (see also Roh et al. 2010). An alternative explanation is that burglars may interpret overt household security measures as an indicator of valuable belongings inside (Tseloni, Wittebrood, Farrell and Pease, 2004), though data on the proportion of attempts to successful burglaries to test this hypotheses are unavailable.

Malawian dwellings constructed of permanent materials display greater risks of burglary than households made of non-permanent materials. This is consistent with the previous chapter that showed that this type of housing experienced the highest burglary incidence rate across the three housing types.

Table 23 Descriptive Statistics for Burglary-Related Variables in Malawi, March 2004 – April 2005 (inclusive)

Variables	*Mean*	*SD*	*Minimum*	*Maximum*
Dependent variable				
Burglary victimization (1 = yes)	0.13	0.34	0.00	1.00
Household-level variables				
Number of adults (i.e. over 16)*	2.42	1.18	0.00*	16.00
Lone guardian (1 = yes)	0.08	0.27	0.00	1.00
Value of household in $US**	1.31	0.80	1.00	5.00
Value of household items in $US**	1.23	0.73	1.00	5.00
Security measures (1 = some)	0.25	0.43	0.00	1.00
Months absent from HH	0.38	1.09	0.00	11.00
House Type (1= permanent materials)	0.16	0.37	0.00	1.00
HH poverty (1 = poor)	0.44	0.50	0.00	1.00
Age of HHH*	42.46	16.35	14.00	99.00
Sex of HHH (1 = female)	0.23	0.42	0.00	1.00
Education of HHH (1 = education)[29]	0.27	0.44	0.00	1.00
BOD (1 = chronic disease HH member)	0.25	0.43	0.00	1.00
Community-level variables				
Proportion of 'poor' HHs per EA	0.17	0.16	0.00	0.85
Proportion HHs feeling unsafe in home per EA	0.09	0.11	0.00	0.54
Proportion of EA population aged 15 to 19	0.10	0.03	0.00	0.20
EA burglary count	4.09	3.73	0.00	19.00
Residential mobility	0.09	0.09	0.00	0.50
Area type (1 = rural)	0.87	0.33	0.00	1.00

Notes: The dependent and household-level variables are based on 11,280 respondents. Exceptions are the value of HH (n = 8,966); value of items in HH (n = 9,816); Months absent from HH (n= 11,276); the presence of security measures (n = 9,791); and burden of disease measurements (n = 11,277). Community-level statistics relate to the sampled EA and are therefore drawn from an N of 564.*One HHH was aged 14.**Adjusted to US$ using the PPR rate. *Source*: Malawi Integrated Household Survey 2004/05.

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[29] This is lower than the national average in Malawi and likely reflects the fact that head of households are more likely to be older and may therefore less likely to have attended formal education than younger family members.

Contrary to expectation is the finding that the number of adults in a household is positively associated with burglary risk. We would expect the reverse to be true: properties containing more adults are better guarded and therefore are less attractive burglary targets. One possible explanation for this finding is that many multi-adult households are dwellings in which (unrelated) adults cohabit rather than those which contain extended families. This may in turn be associated with a greater through-put of individuals (including potential offenders) and a greater number of items to steal. Similar explanations have been offered in England and Wales, notably with student households (Tseloni, 2006).

Household-level poverty was found to hold a significant negative association with burglary risk; being in a dwelling with an annual expenditure below the poverty line decreases the estimated risk of burglary by 40%. This is consistent with expectation and is interpreted as indicating reduced target attractiveness. However this conclusion is necessarily cautious given the additional target attractiveness variables – estimated value of house and estimated value of the items within the house – are not significantly related to burglary risks.

It is noteworthy that the burden of disease measure at the level of the household is found to be a strong predictor of residential burglary victimization. Households containing adults with chronic illnesses are 80% more likely to experience burglary than dwellings free of illness. Possible reasons for this are provided in the Discussion.

The three demographic variables concerning the head of household all yielded significant effects. Dwellings in which the household head received formal education exhibit significantly lower risks of residential burglary. In line with research conducted in Europe, age of the head of household is negatively associated with burglary risk (see Tseloni et al. 2002). Finally, a female headed household increases the estimated risk of burglary by 59%. Such properties are rare in Malawi and constitute less than a quarter of the sampled dwellings. As Davies and Hinks (2010) report, Malawian houses in which females are the head

typically reflect the death of the husband or his absence due to work. Again the inference here is that increased risk of burglary in such households is due to a relative lack of guardianship.

In the final model community-level variables are included. Only one is found to exhibit a statistically significant relationship with burglary victimization; the risk of burglary is considerably higher for households located in EAs with greater burglary counts. Consistent with the findings in Chapter 6 concerning the relationship between poverty and burglary (re)victimization, the proportion of households per EA that are defined as poor is unrelated to burglary risk. The inclusion of community variables also renders the number of adults per household and the education of the household head non-significant.

Post Analysis Checks

Several checks were made to ensure the robustness of the findings. First was the likelihood ratio test. This provides a measure of the goodness of fit of the statistical model. Specifically, it assesses whether the introduction of predictor variables improves the model's fit. Unlike the R^2 statistic, commonly used to assess the explanatory power of regression models (as in Chapter 5), for the likelihood ratio test we seek a *reduction* in the likelihood ratio test score. In this sense the test is described as a deviance test, in that it tests for the deviance between a given model and a model that (theoretically at least) fits the data perfectly. As shown in the bottom row of Table 24, in each of the three models the likelihood ratio test is statistically significant, indicating that the addition of the predictor variables improves the fit of the model. Second, and in view of concerns over collinearity among the explanatory variables, Variance Inflation Factor (VIF) estimates were computed. The VIF statistic measures the extent to which collinearity inflates the variance of the regression coefficients. It is widely held that VIFs above 10 denote unacceptable levels of collinearity (Myers, 1990). Analysis here finds a mean VIF of 1.26 (1.03 − 1.89) indicating that levels of collinearity are acceptable.

Table 24 Random-intercept Multilevel Logistic Regression models of Residential Burglary Victimization in Malawi, March 2004 – April 2005 (inclusive)

Variables	Model 1		Model 2		Model 3	
	OR	**z-score**	**OR**	**z-score**	**OR**	**z-score**
Intercept	0.006**	-13.35	0.021**	-6.87	0.002**	-9.13
Household-level variables						
Number of adults (i.e. over 16)	-	-	1.17*	2.30	1.12	1.55
Lone guardian (1 = yes)	-	-	0.67	-1.19	0.65	-1.17
Value of household in $US	-	-	0.98	-0.22	0.99	-0.07
Value of household items in $US	-	-	1.12	0.84	1.05	0.36
Security measures (1 = some)	-	-	3.92**	5.80	3.65**	7.21
Months absent from HH	-	-	0.95	-0.60	0.92	-1.02
House type (1= permanent materials)			1.97*	2.51	1.91*	2.34
HH poverty (1 = poor)	-	-	0.60*	-3.12	0.63*	-2.70
Age of HHH	-	-	0.98**	-3.56	0.98*	-3.26
Sex of HHH (1 = female)	-	-	1.59*	2.24	1.57*	2.09
Education of HHH (1 = education)	-	-	0.70*	-1.98	0.70	-1.89
BOD (1 = chronic disease HH member)	-	-	1.80*	3.32	1.41*	1.99
Community-level variables						
Proportion of 'poor' HHs per EA	-	-	-	-	1.16	0.29
Proportion HHs feeling unsafe in home per EA	-	-	-	-	3.03	1.66
Proportion of EA population aged 15 to 19	-	-	-	-	1.35	0.13
EA burglary count	-	-	-	-	1.56**	12.72
Residential mobility	-	-	-	-	2.40	0.91
Area type (1 = rural)	-	-	-	-	1.10	0.27
Likelihood ratio test (MLM vs. Logistic)	195.28**		119.08**		28.88**	

Note:*$p< .05$; **$p<.001$. *Source*: Malawi Integrated Household Survey 2004/05.

Discussion

Over the past two decades, there has been a noticeable increase in the use of multilevel statistical models when analysing criminological data spanning several units of analysis. To date, however, few studies in this tradition have been conducted in developing countries, reflecting a general paucity of suitable data. Hypotheses concerning the correlates of criminal victimization in many developing settings therefore remain untested. This study is the first multilevel assessment of burglary victimization in Malawi, using data from a cross-sectional, nationally representative survey of 11,280 households. As is standard practice for studies of this sort, explanatory variables were intended to capture elements of the dominant theories of victimization, namely the routine activity approach and social disorganisation theory.

The analysis of household-level variables yielded both consistencies and contradictions with the research literature. For example, households that were defined as poor and those made from non-permanent building materials exhibited lower burglary risks compared to more affluent households. This is consistent with the rational choice model of the offender and, presumably, is expressive of poorer households being perceived as less desirable burglary targets. This supports the findings of previous research that shows that perceived attractiveness (typically measured in monetary terms) is positively associated with victimization risks (Miethe and Miethe, 1990). However, this assumption is called into question by the non-association between burglary risks and the two further indicators of target attractiveness – the estimated value of the household and the estimated value of items within the household. A possible explanation for this finding is that estimates on the value of a respondent's home and the items inside it may be less accurate than the measure of poverty based on annual consumption. Consequently, they may be imprecise proxies for target attractiveness, as intended here. A further possibility is that despite the VIFs being at an acceptably low level for analysis to be undertaken, there remains a non-trivial amount of overlap between what these variables actually measure.

The attractiveness of a household as a potential burglary target is also influenced by the levels of guardianship it is perceived to afford. Again, the measures of guardianship employed here as possible predictors of burglary victimization produced mixed results. Unexpectedly, the implementation of security measures was found to be positively associated with burglary risk, for the reasons put forward previously; contrariwise and consistent with expectation, female headed households displayed greater risks of burglary victimization. Picking up on the latter point, Davies and Hinks (2010) note that in Malawi a female head of household typically signifies the death of a husband or situations where the husband has sustained periods away from the home for, or in search of, employment. Such properties are also often asset-poor given the tendency for males to be the primary labourer and income generator (see Huisman, 2005). It is plausible that offenders perceive these households as more attractive targets, due to a reduced physical guardianship potential as well as, on average, reduced financial resources to invest in crime prevention measures. The latter is supported by the significant negative association between the implementation of security measures and being a female headed dwelling (analysis not shown). This mechanism might act in a similar manner as the flag hypothesis explains why certain properties experience higher rates of repeat victimization (Sparks, 1981) - time-stable attributes that *denote* certain dwellings as attractive. Other proxies for guardianship such as the number of adults present in the household and lone-parent dwellings were found to have no effect on burglary risks.

Rarely explored in Western studies on burglary victimization, the results indicate that Malawian households that contain individuals with a chronic illness displayed higher risks of burglary than households that did not. This can be interpreted in numerous ways. Persistent illnesses may be associated with weakened guardianship which serves to increase the attractiveness of households as burglary targets. Alternatively, one or more chronically ill individuals may place a large financial burden on household resources thereby reducing the investments made in anti-burglary measures. It is also conceivable that the medication used to treat certain illnesses are themselves attractive theft targets. For example, antiretroviral

drugs that are commonly used to treat HIV/AIDS display many of the features known to increase an item's susceptibility to theft (Clarke, 1999), such as being anonymous, valuable and readily disposable. This is amplified in resource-limited settings where demand for drugs routinely outstrips supply and, as remains the case for HIV/AIDS, there is often stigma associated with the condition that may discourage people from accessing medical services (see Mahajan, Sayles, Patel, Remien, Ortiz, Szekeres and Coates, 2008).

These proffered explanations are deliberately speculative, with the intention of stimulating others to more directly explore the possible relationship between health status and criminal victimization (a point which is elaborated on in Chapter 10), akin to research exploring the relationship between health and fear of crime (see Jackson and Stafford, 2009). While evidence converges on the finding that individuals with mental illnesses experience higher rates of criminal victimization than the general population (Nettlebeck and Wilson, 2002), research on the possible criminogenic effect of physical and mental illnesses in developing countries is rare, particularly for acquisitive crimes such as burglary. This omission is important given the comparative burden of disease is typically much greater in the developing world.

Turning to potential community effects on burglary risk, as predicted, households located in EAs with higher burglary counts exhibited greater risks. This supports the findings of previous research (Sampson and Lauritsen, 1990) and is likely attributable to increased greater proximity to burglars.

That no other community level variables were found to be significantly associated with variations in burglary risks warrants discussion and brings forth (at least) two questions, one theoretical and other methodological. First, are the community level effects commonly found to influence crime risks in Western industrialised settings transferable to a developing country such as Malawi? Take residential mobility. Numerous American studies have demonstrated that a greater level of neighbourhood turnover is positively associated with levels of crime (see Boggess

and Hipp, 2010). This is put down to weakening the social bonds between neighbourhood members that affects their willingness to intervene to reduce crime. This is most pronounced in neighbourhoods displaying considerable racial and ethnic heterogeneity. Malawi is not characterized by the high degree of racial heterogeneity that is common in many Western cities in which social disorganisation theories have been tested. Consequently, it may be that residential mobility in the Malawian context plays less of a role in explaining variations in burglary risk, as has also been demonstrated in Korea (Roh et al. 2010). Of course a second explanation is that the community-level predictors used herein are inadequate to capture the core tenets outlined in social disorganisation theory, as well as the measure of community employed here. Regrettably, due to a lack of similar research in sub-Saharan Africa there is little evidence with which to compare. That said, it is recognised that the measurement of a community used in this study may not be practically meaningful to the sampled respondents and, consequently, that the effects that are deemed to operate at the community level may be insufficiently captured.

Limitations

The shortcomings associated with specific variables used in this study have already been discussed. Beyond these, a further limitation that is common to many cross-sectional surveys is that the data are time insensitive, thereby limiting the ability to infer the causal direction between variables. This is most obvious with respect to security measures being *positively* associated with burglary risk. Second is the familiar limitations associated with survey-based research, namely the possibility of response error (particularly telescoping), failure to include pertinent information in survey responses, and variation in respondent's willingness to respond honestly about their experiences as victims. Finally, though trite, it is worth reiterating that the findings reported here are correlations and not causal links. Undoubtedly there are other correlates of burglary victimization (household- and community-level) unaccounted for in the models fitted in this

chapter, such as the physical accessibility of communities as measured by road access, for which data were not available.

Implications of the findings for policy and practice

This chapter reported the first study to explore the correlates of burglary victimization in Malawi using a multilevel model. Comparable to similar studies conducted in Western societies, the outcome measure was the binary variable of whether a property was burgled or not burgled. Given that the IHS II data collects information on the number of burglaries per household (up to 4), an informative next step would be to perform a similar analysis but using the number of burglary incidents as the dependent variable. This corresponds to the suggestions of Tseloni, Wittebrood, Farrell and Pease (2004), who observe that simple victim/no victim distinctions often fail to take account of the skewed distribution of crime and overlook the fact that factors predictive of a single experience of crime may differ considerably from those underlying multiple victimizations.

From a policy perspective, two risk factors that appear to significantly elevate burglary risk in Malawi warrant further investigation. The first are female-headed households. The development literature is broadly in agreement that female-headed households in Southern Africa are comparatively more disadvantaged than male-headed households due to a general lack of assets, land and financial resources, the implications of child-rearing responsibilities and limited opportunities to gainful employment (Huisman, 2005). Many poverty alleviation efforts have therefore sought to target these groups. That these households might also be increasingly vulnerable to burglary victimization compared to male-headed households might usefully act as a platform to develop community-based strategies to increase the awareness of risk heterogeneity as well as work towards ways of reducing susceptibility, possibly in the form of the implementation (or maintenance) of anti-burglary measures or through requesting that neighbours pay closer attention to such properties. The same could also apply to households containing individuals who defined themselves as chronically ill. Pursuing the

development of partnerships between non-governmental organisations or related agencies working with Malawian communities is therefore considered useful.

Chapter 8 - On Assault in Malawi: Incidence and Correlates of Victimization

Chapter Summary

This chapter marks a shift in the thesis as the focus turns from acquisitive crimes to personal crimes. The focus is on 1) the incidence and patterns of assault and 2) the correlates of assault victimization. The results show that males experienced higher levels of stranger-perpetrated assault while females experienced greater levels of domestic assault. Assault victimization was found to be positively associated with being male, age, having a heightened fear of crime, whether a victim was chronically ill or physically or mentally impaired, and several community-level variables such as residing in a community with a greater proportion of 15-19 year olds. Implications of the findings for victim services in Malawi and further research are then discussed.

Introduction

Discussion on Africa invariably makes reference to high levels of violence and conflict. Estimates from the ICVS repeatedly show that victimization rates in Africa are greater than in Europe and North America (van Dijk and Alvazzi del Frate, 2004). Data collected by the World Health Organization ranks the continent first on deaths attributed to homicide and war (WHO, 2002). Similarly, the *Global Study on Homicide* suggests that Africa accounts for over a third of homicides globally (UNODC, 2011). High levels of crime, perceived or actual, can have far-reaching implications: it is suggested that crime is a significant contributor to Africa's development challenges (Leggett et al. 2005) and in reference to gender-based violence, the prevalence of HIV/AIDS (Garcia-Moreno and Watts, 2000; Jewkes et al. 2010). Violence prevention is therefore of as much interest to development and public health researchers as it is to criminologists.

This chapter is concerned with assault in Malawi, defined here as a threat or physical attack against the person. Assault is a common form of violent crime and

is often associated with psychological harms. Evidence is however limited on the prevalence of assault and, to a greater extent, the risk factors associated with assault victimization in Malawi. This chapter contributes to addressing these gaps and focuses on 1) the incidence and patterns of assault and 2) the correlates of assault victimization.

The chapter is formed of five parts. The next section provides a brief overview of the dominant theories of victimization, aspects of which will be drawn upon in the analysis which follows. Whilst several of these theories were described in general terms in Chapter 2, the discussion here relates specifically to the crime of assault. Second, available evidence on the patterns of assault in Malawi is reviewed. Third is a description of the data and variables used in this study. The results are presented in part four and the chapter concludes with a discussion of the implications of the findings.

Assault and Theories of Victimization

Victimization theories (as they relate to assault) cover a range of causal factors, from the characteristics and behavioural patterns of victims, to the relationships and interactions between victims and offenders, and ultimately to the wider contextual effects that might influence victimization risks. The first is commonly associated with lifestyle-exposure theory (Hindelang et al. 1978) and the routine activity approach (Cohen and Felson, 1979) outlined in Chapter 2. To reiterate, both approaches maintain that the evident variation in victimization risks is a function of different lifestyle patterns and daily movements, the former concerned mostly with "discretionary" activities while the latter speaks mainly to "unavoidable" tasks such as going to and from work. For assault in particular, exposure-rich lifestyle patterns include regularly visiting bars and nightclubs since such environments are found to facilitate patron collisions and retaliations, though some more than others (see Graham and Homel, 2008). Young males often emerge as the archetypal risky lifestyle group, as manifest in their comparatively high rates of criminal victimization.

Recall also that an important feature of the routine activity approach is the emphasis it places on crime victims in the aetiology of crime, noting that variations in value, inertia, visibility, and accessibility (VIVA) help explain individual differences in victimization risks. This has a direct bearing on explaining and preventing assault: if assault, like any crime, is dependent on the spatio-temporal convergence of offenders and victims in the absence of capable guardians, then implementing measures that prohibit this coalescence through, say, changing the environment or altering the behaviour of relevant agents can lead to crime reductions. Moreover, it also helps explain why certain victims experience higher rates of assault than others. For example, research evidence converges on the finding that cognitively impaired individuals suffer significantly higher levels of criminal victimization than the general population (Nettelbeck and Wilson, 2002). From a routine activity perspective this is understood in terms of failure to recognise dangerous situations, an inability to adequately protect oneself and higher degrees of compliance.

A further approach specific to assault victimization is *victim precipitation theory*. This concentrates on the relationship between the victim and the crime event and suggests that the behaviour of victims may, knowingly or unknowingly, contribute to their subsequent victimization. Early evidence for this comes from Wolfgang's (1959) analysis of homicide patterns in Philadelphia that found that the behaviour of murder victims may have provoked or motivated the murderer in nearly a quarter of all homicides. Similar patterns have also been observed for aggravated assault albeit using a broader definition of precipitous behaviours to include threatening or abusive language and gestures (Curtis, 1974). Such behaviours are termed active precipitation. By contrast, passive precipitation refers to the characteristics or behaviours of the victim that unwittingly initiate victimization. Examples include spousal jealousy or (perceived) competition for a job or partner.

The suggestion that victims might play an active role in initiating victimization has been met with much controversy, often simplified to accusations of "blaming the victim". This is most clearly seen in the responses to Manachem Amir's

(1971) much-storied assertion that dressing provocatively is a contributory factor to sexual assault. Moreover, the study of victim precipitation is dogged by measurement problems given the majority of crime data fail to contain adequate information to determine the precursors to crime events. Despite these concerns, at root, the victim precipitation theory is useful in overturning the common view that victims play a passive part in crime causation, emphasising that their behaviour can contribute to the probability of assault victimization.

The third major theoretical theme is concerned with the wider contextual factors associated with criminal victimization, most notably the social disorganisation approach covered in Chapter 2 (Shaw and McKay, 1942; Bursik and Grasmick, 1993). The central premise of this approach is equally applicable to assault: cohesive and tightly integrated neighbourhoods give rise to shared norms and goals - such as the desire to live in a crime-free environment - which community members strive to maintain through their behaviour and through monitoring (and possibly intervening in) the behaviour of others (Sampson, Raudenbush and Earls, 1997).

Most of the empirical studies concerned with aspects of social disorganisation theory have focussed on violent crime. For example, Miethe and McDowall (1993) demonstrate that an individual's risk of violent victimization is heightened if residing in a disadvantaged neighbourhood that contains several busy public places, attributed to an elevated exposure to motivated offenders. Similarly, using survey data from 343 neighbourhoods in Chicago, Sampson, Raudenbush and Earls (1997) show that collective efficacy was negatively associated with incidents of violent crime, reflecting an increased tendency of residents to intervene in unwanted behaviours on behalf of a commonly shared neighbourhood cause.

While the above theories of victimization are discussed individually, in practice, few would dispute that assault victimization is determined by factors operating at the situational, individual and contextual level, as with burglary victimization

covered in the previous chapter. Fittingly, much of the research of the past decade has adopted an ecological perspective and sought to integrate different theoretical approaches to assess their relative contribution in explaining victimization risks. The study by Rountree, Land and Miethe (1994) is typical. Multilevel analysis of victimization survey data for over 5,000 Seattle residents finds that the risks of violent crime are significantly associated both with crime opportunity variables and wider contextual measures, lending credence to the notion that micro- and macro-level factors help explain patterns of criminal victimization.

It should be clear from the above discussion that the central theories of criminal victimization all have their origins in Western industrialised settings. Empirical studies applying such theories in different socio-cultural contexts, particularly resource-poor developing countries are rare. The atypical research setting of Malawi therefore provides an interesting opportunity to explore the generalizability of such theories and improve our understanding of assault in a developing context.

Patterns of Assault in Malawi

Reliable estimates on the extent and nature of assaults in Malawi are limited. As alluded to already in this thesis, police recorded crime data are not readily available in Malawi nor does it participate in victimization surveys such as the ICVS or the United Nations *Crime Trends Survey*. Data are however available from the 2003 MNCVS described in detail in Chapter 3.

The MNCVS defines assault as "*being attacked, physically beaten or threatened by an attacker in a frightening way without the attacker taking anything from the victim*" (Pelser et al. 2005, p. 39). The survey finds that 1.4% of participants experienced assault in the past year. However the study authors suggest that this probably underestimates the true extent of the problem, in part because of variations in what respondents consider assault to constitute; many acts may fit the definition employed by the MNCVS but are not included because respondents

do not consider them to be assault[30]. They add that this is particularly likely for domestic violence against women, and make reference to a 2003 study that found that male-on-female spousal violence in Malawi was commonplace and widely accepted (Saur, Semu and Ndau, 2003)[31]. Further analysis shows that assaults typically occurred in the victim's home, were disproportionately experienced by those aged 16 to 25, and in just over half of all cases resulted in injuries to the victim.

More recently, Davies and Hinks (2010), using the same dataset as the one analysed here, explored the relationship between experience of assault and subjective feelings of wellbeing in Malawi. Focussing only on adult respondents, they demonstrate that while females experienced a lower proportion of assaults than males, they experienced far more attacks committed by fellow household members. In terms of life satisfaction, they also report that experience of assault in Malawi is negatively associated with subjective ratings of well-being, controlling for the possible influence of covariates.

Finally, information on assault in Malawi can be gleaned from the public health literature. This tends to focus specifically on sexual violence against women and its role in the spread of HIV/AIDS (for e.g. see Kathewera-Banda et al. 2006; and for a general global discussion see UNAIDS, 2004). While a systematic review of this literature is unavailable, there is broad consensus that women are at greater risk of experiencing sexual assault than males which, in turn, is associated with an elevated risk of contracting sexually transmitted infections including HIV/AIDS.

Building on previous research in Malawi (Pelser et al. 2005; Davies and Hinks, 2010), this chapter contributes to the criminological literature by using IHS II data

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[30] Because of the subjective nature of terms such as assault, instruments such as the *International Violence Against Women Survey* require respondents to identify which (if any) of a series of violent acts they experienced.

[31] Pelser et al. (2005; 39), following the study by Saur et al. (2003) write "violence against women is so open and so often spoken about that it "is the norm in Malawi". Moreover, "there is a common acceptance amongst men and women of "educational beating" for instruction purposes and that women apparently accept being beaten by their spouses "if they have done something wrong…".

to explore several aspects of assault victimization in an atypical research setting. Common to studies of this sort, the analysis concentrates on 1) the incidence and patterns of assault and 2) the correlates of assault victimization.

Method and Measures

Dependent Variable

The dependent variable in this study is experience of physical assault in the previous year. It is derived from individual responses to the following IHS II question, "*In the past year, were you personally attacked, physically beaten or threatened with violence by someone?*" The variable is coded 1 for an assault victim and 0 if the respondent did not experience assault. Two issues deserve mention at this point. First, respondents are unable to report the *number* of physical assaults they experienced in the past year; multiple victimization is therefore unaccounted for. Consequently, the estimates reported here likely undercount the true extent of physical assault in Malawi. Second, as mentioned in Chapters 3 and 4, definitions of crime are clearly culturally sensitive. Disparities might exist between what is perceived as assault and a strictly legal definition, particularly in those instances where violence is not committed. This may systematically under- or over-estimate the levels of assault experienced by certain population groups. Regrettably, no obvious solution to this problem presents itself and for convenience, therefore, all participants that responded yes to be the above question are considered to be victims of assault.

Independent Variables

The independent variables used here constitute individual-specific measures and community-level measures. Each category of variable is described below.

Individual-specific measures include the respondent's age, sex, educational attainment, self-rated physical and mental capability, self-rated health status and

fear of crime. Community-level measures are the proportion of survey respondents per enumeration area (EA) feeling unsafe in their neighbourhood when alone during the day, when alone at night, the proportion of the EA population aged between 15 and 19, the proportion of the EA population experiencing assault in the past year and residential mobility.

Individual-specific measures. Respondent age is measured in years. Sex is dummy coded (1 = male and 0 = female). The education measure relates to the highest level of educational attainment at the time of survey. Responses are ordered sequentially: 1 = primary school and below, 2 = secondary school, training college or other vocational courses and 3 = university level.

Several studies have shown that individuals suffering disabilities (broadly defined) experience higher rates of criminal victimization than the general population (e.g. Petersilia, 2001). In the current study, the respondent's physical and mental capability is measured by the question: *"Are you physically or mentally handicapped in any way?"* Respondents who said yes – which relates to missing hands, missing feet, being lame, blind, deaf, unable to speak, mentally disabled and other – were assigned 1 and those who replied "no" were assigned a 0.

A related variable concerns the respondent's health status. Malawi, like many countries in sub-Saharan Africa, displays a high disease burden (Bowie, 2006). It is plausible that an individual's health status might affect their vulnerability to assault. The IHS II asks, *"Do you suffer from a chronic illness*?" Responses are dummy coded so that 1 denotes a chronic illness sufferer and 0 denotes a participant absent of chronic illness.

Two binary fear of crime measures were computed. The first relates to the following question: *"When walking alone in your neighbourhood or village during the day, how safe do you feel against criminals?"* Survey respondents could indicate very safe, fairly safe or unsafe. The responses were dummy coded

so that 1 = unsafe and 0 = safe (referring to both very safe and fairly safe). The second measure differs only by time of day, asking respondents their feelings of safety at night, and is coded in the same way.

Community-level measures. There are five measures in this category:

The first is the proportion of respondents per EA that report feeling unsafe in reply to the IHS II question: "*When walking alone in your neighbourhood during the day, how safe do you feel against criminals?*"

The second measure is a slight variation on the above in specific reference to feelings of safety when alone at night. Both are intended to measure variations in resident's perceptions of crime in their community and are common variables in studies of this sort.

The third variable is the proportion of the EA population that are aged between 15 and 19. Evidence from many settings converges on the finding that these ages are typically responsible for disproportionately high levels of crime compared to other age groups (Farrington, 1986). It is taken here to approximate the comparative chance of potential victims located in different EAs coming into contact with individuals in the age group the literature suggests is most prone to commit crime.

The fourth variable is the proportion of survey respondents per EA that reported experiencing assault in the twelve months prior to the survey. Again this is taken as a proxy measure of exposure to motivated offenders, following Sampson and Lauritson's (1990) finding that risk of victimization is increased when residing in neighbourhoods with higher levels of violent crime.

The final community-level measure concerns residential mobility. It is measured as the proportion of household heads that report moving to their current EA in the past two years. This is designed to approximate community instability. It is predicated on the assumption that greater population turnover decreases the likelihood that community members will intervene in offending behaviour.

Proportions are used for the abovementioned variables to account for any variation in the number of individual respondents (per 20 households) across EAs.

As with the previous chapter, the community level variables used in this analysis have several shortcomings, namely that the use of EAs as a proxy for Malawian communities is less than ideal and that many of the community variables are computed by aggregated individual survey responses, thereby introducing concerns regarding the representativeness of the sampled respondents for the EA more generally.

To summarise, based on previous research it was hypothesised that being female, having a chronic illness, having a physical or mental impairment, feelings of insecurity in the neighbourhood (both individually and collectively), and living in a community with a greater proportion of individuals aged 15-19, higher rates of residential mobility and a greater count of assaults would be positively associated with the probability of experiencing assault. Age and educational attainment are hypothesised to be negatively associated with victimization risks. Descriptive statistics for these variables are displayed in Table 25.

Data Cleaning and Final Sample

Data were cleaned prior to analysis. Of the originally sampled 52,707 individuals, 20,438 (39%) were removed because no information was provided on their experience of assault in the past year. This omitted group is largely made up of children (9 and under) in combination with a small number of non-responders, as is inevitable with large surveys. The final sample comprised 32,269 individuals across 11,268 Malawian households.

Table 25 Descriptive Statistics for Assault-related Variables in Malawi, March 2004 – April 2005 (inclusive)

Variables	Mean	SD	Min	Max
Dependent variables				
Assault victimization (1 = yes)	0.04	0.19	.00	1.00
Individual-level variables				
Age	30.10	17.49	4*	110
Sex (1 = male)	0.48	0.50	.00	1.00
Education (1 = primary school and below, 2 = secondary school, training college or other vocational courses and 3 = university level.	1.36	0.49	1.00	3.00
Chronic illness (1 = yes)	0.12	0.32	.00	1.00
Physically or mentally handicapped (1 = yes)	0.03	0.16	.00	1.00
Fear of crime when walking alone in neighbourhood in the day (1 = unsafe)	0.05	0.21	.00	1.00
Fear of crime when walking alone in neighbourhood at night (1 = unsafe)	0.37	0.48	.00	1.00
Community-level variables**				
Proportion of respondents per EA feeling unsafe when walking in neighbourhood in the day	0.03	0.06	.00	0.39
Proportion of respondents per EA feeling unsafe when walking in neighbourhood at night	0.23	0.19	.00	0.72
Proportion of EA population aged 15 to 19	0.10	0.03	.00	0.20
Proportion of respondents experiencing assault per EA	0.04	0.05	.00	0.31
Residential mobility	0.08	0.09	.00	0.50
Total N = 32,269				

Notes: *The IHS II asks questions of all household members aged 10 years or over. However ten respondents under this age also provided relevant information on assault victimization and are therefore included (0.11% of this sample).** Community-level variables were computed using the full IHS II sample and not just those that provided information on their experience of assault in the past year. *Source*: Malawi Integrated Household Survey 2004/05.

Results

The Incidence and Patterns of Assault in Malawi

In the year prior to the survey, four percent of respondents said they were the victim of physical assault (Table 25; n = 1,275)[32]. Men reported twice the prevalence rate of physical assault than women (53 per 1,000 individuals and 27 per 1,000 individuals respectively) and individuals residing in rural areas experienced marginally higher rates than those living in urban areas, 40 assaults per 1,000 individuals compared to 33 per 1,000 individuals. Recall that the absence of information on the *number* of assaults per respondent almost certainly implies that these estimates are conservative.

Assault victims were asked, "*Was the individual* [i.e. the perpetrator] *a household member, a relative, a neighbour, or a stranger?*" Each victim can report up to two perpetrators. However, only 29 respondents (2.3%) reported a second offender being present. Due to this small sample only the respondent's first response is used in the analysis here. Table 26 displays the percentage of self-reported assaults by the victim-offender relationship. Over half of all assaults were committed by someone unknown to the victim. A quite large number were committed by neighbours while domestic assaults constituted the lowest proportion. These patterns are found to vary widely according to victim sex (Table 27). Less than two percent of assaults against males were committed by individuals residing in the same dwelling. For female victims the same statistic is eight percent. Assaults against males that are committed by strangers are more frequent than stranger-perpetrated assaults on females. In fact, stranger assaults were more likely for males, whereas women were more likely to be assaulted by someone known to them (i.e. a household member, relative or neighbour).

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[32] Note that this differs slightly from the estimates of Davies and Hinks (2010) who focus only on adult victims.

Table 26 Distribution of Assaults by Victim-Offender Relationship in Malawi,
March 2004 – April 2005 (inclusive)

Victim-offender relationship	Frequency	Percentage of Assaults
Household member	51	4.0
Other relative	173	13.7
Neighbour	346	27.3
Stranger	697	55.0
n	1,267	

Source: Malawi Integrated Household Survey 2004/05.

Table 27 Assault Victim-Offender Relationship by Sex in Malawi, March 2004 –
April 2005 (inclusive)

Victim-offender relationship	Male	Female
Household member	15 (1.8%)	36 (8.1%)
Other relative	97 (11.8%)	76 (17.1%)
Neighbour	212 (25.8%)	134 (30.1%)
Stranger	498 (60.6%)	199 (44.7%)
n	822	445

Source: Malawi Integrated Household Survey 2004/05.

Assault victims were also asked: "*Was a knife or panga* [machete] *used in the attack or to threaten you?*" and "*Was a gun or pistol used in the attack or to threaten you?*" This is interpreted as an indicator of crime seriousness. For convenience, the responses to these questions are collapsed to form a single crime seriousness measure, dummy coded so that 1 indicates a weapon was present and 0 indicates the absence of weapons. The data reveal that a weapon (either a gun, pistol, knife or *panga*) was present in 37% of assaults. As a tentative comparison

given the variation in setting, estimates from the 2010 NCVS suggest that weapons were used in 22% of violent assaults (Truman, 2011).

Table 28 explores the association between weapon use and the relationship between the victim and offender. Knifes are reportedly common in many assaults. This is most pronounced in assaults committed by strangers, where nearly half of all assault victimizations involved a blade. A Chi-square test indicates the difference between blade presence and the victim-offender relationship is statistically significant ($\chi^2 = 97.108$, p < .001). Assaults involving firearms are rarer. This is unsurprising given previous research, which suggests that there are fewer firearms in circulation in Malawi compared with many other sub-Saharan countries (Mthembu-Salter, 2009). Nonetheless, the use of firearms is dramatically higher for stranger-perpetrated assaults than when the offender is known to the victim[33].

Table 28 Assaults involving Weapons by Victim-Offender Relationship in Malawi, March 2004 – April 2005 (inclusive)

Victim-offender relationship	Assaults involving knifes or *pangas*		Assaults involving guns or pistols	
	Frequency	**%**	**Frequency**	**%**
Household member	7	14.0	0	0.0
Other relative	41	23.7	1	0.6
Neighbour	79	22.8	2	0.6
Stranger	340	49.00	11	1.6
N	467		14	

Source: Malawi Integrated Household Survey 2004/05.

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[33] A Chi-square test found no association between the use of firearms and the victim-offender relationship ($\chi^2 = 3.341$, p = .342). However, this result should be treated with caution since Chi-square tests are less accurate when using data where the observed value of any one cell is less than five, as is the case here.

Table 29 examines the relationship between weapon presence and victim sex. It shows that a greater proportion of assaults against men involve knifes than assaults against women. This association is statistically significant ($\chi^2 = 27.506$, p < .001). For both sexes the proportion of assaults where a gun is present is low.

Table 29 Assaults involving Weapons by Victim Sex in Malawi, March 2004 – April 2005 (inclusive)

Sex	Male		Female	
	Frequency	**%**	**Frequency**	**%**
Assaults involving knifes or *pangas*	348	42.23	121	27.31
Assaults involving guns or pistols	13	1.59	1	1.23
n	361		122	

Source: Malawi Integrated Household Survey 2004/05.

Correlates of Assault Victimization

This section is concerned with the correlates of assault victimization. Here comparisons are drawn between respondents that experienced assault in the past year and those that did not. Multilevel logistic regression is used to account for the nesting in the data – individuals nested within communities (EAs) – and provide estimates on the relative contribution of individual-level and area-level factors on assault victimization, informed by the lifestyle/routine activities approach and social disorganisation theory mentioned previously. As in Chapter 7, three models were produced, successively increasing in sophistication. The first was an intercept-only model without the independent variables. This estimates whether there is any variation in the risk of assault between EAs. In the second model individual-level predictors are included as possible correlates of victimization. In the third model, community-level variables are added to assess the possible influence of community-effects on victimization risk, beyond that of the individual-level variables. The results are presented in Table 30, with regression coefficients expressed as odds ratios.

Table 30 Random-intercept Multilevel Logistic Regression models of Assault Victimization in Malawi, March 2004 – April 2005 (inclusive)

Variables	Model 1		Model 2		Model 3	
	OR	**z-score**	**OR**	**z-score**	**OR**	**z-score**
Intercept	3.27**	20.37	1.04**	-9.99	.000**	-13.30
Individual-level variables						
Age	-	-	0.99*	-2.31	0.99	-1.81
Sex (1 = male)	-	-	7.80**	10.58	4.08**	9.20
Handicapped (1 = yes)	-	-	3.90**	3.08	2.20*	2.96
Chronic illness (1 = yes)	-	-	3.65**	5.22	1.97**	4.47
Education	-	-	0.82	-1.02	1.03	0.24
FOC when walking alone in neighbourhood in the day (1 = unsafe)	-	-	7.86**	5.45	3.42**	5.37
FOC when walking alone in neighbourhood at night (1 = unsafe)	-	-	3.40**	5.53	2.07**	4.76
Community-level variables						
Proportion of respondents per EA feeling unsafe when walking in neighbourhood in the day	-	-	-	-	0.04*	-2.97
Proportion of respondents per EA feeling unsafe when walking in neighbourhood at night	-	-	-	-	0.52	-1.68
Proportion of EA population aged 15 to 19	-	-	-	-	29.66*	2.01
Proportion of respondents experiencing assault per EA	-	-	-	-	3.55**	13.98
Residential mobility	-	-	-	-	0.26*	-2.04
Likelihood ratio test (MLM vs. Logistic)	1137.19**		703.26**		86.04**	

Note:*$p < .05$; ** $p < .001$. *Source*: Malawi Integrated Household Survey 2004/05.

Model 1 shows the log-odds of a Malawian citizen experiencing assault in an "average" Malawian EA. The odds ratio of 3.27 and z-score of 20.37 is statistically significant (p < 0.001), indicating that the risk of being assaulted differs between Malawian communities more than would be expected on the basis of chance. Exploring this variation via a multilevel approach is therefore justified.

In model 2 the individual-level variables are added. Six are found to hold a statistically significant relationship with assault victimization. Age is shown to be negatively associated with assault risk. Put differently, older individuals are less likely to experience assault. This is consistent with the lifestyle/RAA and the findings of the MNCVS (Pelser et al. 2005). Men are significantly more likely to experience assault than women. As will be covered in the Discussion, this finding is likely attributed to an increased risk-exposure resulting from long-standing gender roles that characterise Malawi, particularly a greater amount of time spent outside the home in public places. Regrettably there was no way of explicitly measuring this using these data.

Survey respondents who reported a chronic illness and physical or cognitive impairments displayed much higher risks of assault victimization than those that did not. This is tentatively interpreted as suggesting that persistent or activity-limiting conditions might act to increase vulnerability to assault. Finally, the two measures relating to an individual's fear of crime both during the day and night were positively correlated with assault victimization. Common to many cross-sectional studies, a weakness with this estimate is the inability to infer directionality between the two variables. However, it is considered more plausible that fear of crime, as measured herein, is a function of experience of assault as opposed to heightened fear of crime increasing one's susceptibility to assault victimization.

Model 3 includes the community level variables. Four are shown to be significantly related to assault victimization. As expected, the risk of assault is higher for those individuals located in EAs with higher levels of physical assaults.

The same is true for EAs with a greater proportion of individuals feeling unsafe during the day, although feeling unsafe at night was found to be unrelated. Individuals residing in EAs with a greater proportion of individuals aged 15-19 displayed higher risks of experiencing assault. Presumably this reflects a greater likelihood of coming into contact with persons typically found to be the most criminally active. Finally, higher levels of residential mobility were found to be negatively associated with assault victimization. This is contrary to expectation.

Post Analysis Checks

Variance inflation factors (VIF) were computed to assess the robustness of the findings, particularly the presence of collinearity. Encouragingly, the mean VIF of 1.25 (1.02 − 1.86) falls short of the levels taken to denote unacceptable collinearity (Myers, 1990). In addition, for each of the described models, the likelihood ratio test statistic, which assesses the goodness of fit of the multilevel model compared with a conventional logistic regression model, is statistically significant. This indicates that the use of a multilevel approach is warranted and is an improvement on a model that fails to correct for the nesting in the data.

Discussion

The analysis reported in this chapter focussed on 1) the patterns and levels of assault and 2) the correlates of assault victimization. The results show that assault rates in Malawi are relatively high by international standards, not least because the IHS II does not measure multiple victimizations. Males overall experienced higher rates of assault than women, particularly those committed by individuals unknown to the victim. This was confirmed in the multilevel assessment of victimization risks. Women on the other hand were found to experience much higher levels of domestic assault.

Though not directly tested in the present study − the data were insufficient to do so − these patterns are consistent with what would be predicted by the lifestyle

/routine activities approach (Hindelang et al. 1978; Cohen and Felson, 1979). Malawi is predominantly a patriarchal society with long-standing gender roles, defined by Huisman as "socially constructed relations of power between men and women as expressed in, among others, the division of roles, labour, resources, representations and behavioural patterns" (2005, p. 254). In the Malawian context this is expressed by men ordinarily working outside the home while women typically tend to domestic duties and child rearing, especially in rural settings. Activities commonly associated with elevated violent crime risks, such as frequenting alcohol-serving establishments or spending time out in public places after dark are almost exclusively male. It follows that men, all things being equal, are exposed to a greater number of opportunities to be assaulted by unknown assailants, as was observed in the findings reported here. A similar hypothesis has also been confirmed in the neighbouring country of Mozambique (Barslund, Rand, Tarp and Chiconela, 2005), as well as in the U.S. through the use of agent-based models, where Groff (2008) shows that increases in the time "targets" spend away from the home is associated with increases in street robbery rates. Further research computing better estimates of risk exposure by sex, such as quantifying the number of hours spent on non-household activities or in drinking establishments will enable a better test of this opportunity-exposure hypothesis (see Lemieux, 2010; Lemieux and Felson, 2012).

Turning to the correlates of assault victimization, the observation that age is negatively correlated with victimization risk supports the findings from previous research. Similarly, that assault risk is positively associated with increased feelings of insecurity in an area conforms to expectations. As alluded to previously however, because the IHS II data do not provide information on the time ordering of events, an obvious shortcoming is that it remains unclear whether increased fear of crime is a *product* of experiencing assault or vice versa.

An important feature of this study is that it draws attention to the plight of vulnerable population groups. It shows that those that define themselves as chronically ill or physically or mentally disabled are significantly more likely to

experience assault than survey respondents that do not. Regrettably, the precise reasons for and time sequence of this association cannot be determined from the IHS II data. For example, it is plausible that the experience of assault may increase the likelihood of suffering a chronic illness, rather than the other way round. There is evidence to support this claim since stress, a common consequence of assault, is strongly associated with many adverse health outcomes (Crofford, 2007). Additionally, in the present study there is no information on the perpetrators of assault. An extensive literature finds that offenders tend to experience the highest rates of victimization - the so-called "victim-offender overlap" (Lauritsen and Laub, 2007). This is important because longitudinal research shows that those involved in violent behaviour tend to display elevated health risks in later life, again attributed to the cumulative effects of stress associated with acting violently (see Reingle, Jennings, Piquero and Maldonado-Molina, 2012). It is therefore possible that those who experience assault also commit more of it, and that the adverse health effects documented here relate to both. Regrettably the data are insufficient to tease apart these two possibilities.

The reverse may also be true: individuals who define themselves as chronically ill or physically or mentally disabled may be less able to protect themselves against assault victimization and, consequently, are perceived as easier targets by offenders. In specific relation to mental disabilities, it may also relate to a disproportionate involvement in volatile social relationships that give rise to violence, as was found by Silver (2002). A further limitation with this health-related analysis is that it is unable to distinguish *within* chronic illnesses and physical and mental deficits in ways that might influence victimization risks.

In acknowledgement of the abovementioned limitations and as a possible avenue for further research, a simple analysis was conducted to see if the profile of chronic disease differed between IHS II respondents who experienced assault and the majority of the sample that did not. Table 31 presents the ten most common illnesses as reported by survey respondents and displays the rates per 1,000 individuals for each group. Whilst chronic illnesses were generally rare for both

groups (11% of non-assault victims and 21% of assault victims reported a chronic illness), it is clear that the *rates* of ill health are considerably higher in the group that experienced physical assault. Put differently, respondents who defined themselves as chronically ill are overrepresented among assault victims. This is most striking for Malaria, Schistosomiasis[34] and stomach disorders, though the explanation for why these particular conditions appear high on the list is far from clear. Malaria and Schistosomiasis are both water-related tropical diseases which often co-exist (Michaud, Gordon and Reich, 2008). Abdominal pain is a common symptom of Schistosomiasis. This result may simply reflect double counting of the same individuals. Alternatively, there may be some as-yet unidentified covariate that links these three conditions with assault risk, perhaps associated with living in marshland areas with a high prevalence of Malaria and Schistosomiasis.

Presently, the impact of health on criminal victimization has received little scholarly attention, particularly the various mechanisms that might increase (or decrease) an individual's risk of criminal victimization and how that differs across different medical conditions – a point that is taken up further in Chapter 10. Pursuing this area of research at the intersection between public health and criminology would usefully inform prevention efforts with the potential to yield both crime reduction and quality-of-life benefits, akin to research concerned with the health effects of *offending* (see Reingle, Jennings, Piquero and Maldonado-Molina, 2012). To this end, the *WHO Global Burden of Disease* study provides estimates on the average disability weights associated with a wide range of health conditions that can usefully be drawn upon to better explore the comparative effects of illnesses on the likelihood of being victimized in different settings (WHO, 2004).

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[34] Schistosomiasis is an infection caused by several types of parasites (such as certain flukes and snails) commonly found in fresh water in tropical countries. Lake Malawi is known to house a particularly large abundance of these parasites.

Table 31 Chronic Illnesses per 1,000 Members of the Non-Assaulted versus Assaulted Integrated Household Survey 2004/05 Sample, March 2004 – April 2005 (inclusive)

Chronic Disease and Condition	Chronic illnesses per 1,000 non-assaulted respondents (n = 3,509)	Chronic illnesses per 1,000 assault victims (n = 273)	% Difference*
Arthritis/rheumatism	28.75	43.92	52.78
Asthma	14.65	25.10	71.34
Chronic malaria	13.00	34.51	165.41
Stomach disorder	10.49	28.24	169.27
Heart-related problems/Hypertension	6.42	10.98	71.02
Other	6.10	10.98	80.07
Pneumonia	4.81	8.63	79.46
Schistosomiasis**	4.65	11.76	153.22
Tuberculosis	4.29	4.71	9.66
Pain of limbs, joints or swellings	3.65	7.06	93.61
Total N	30,994	1,275	

Note:*= (column 2 - column 3)/column 3*100.
Source: Malawi Integrated Household Survey 2004/05.

Limitations

This study has several limitations. First, there are certain pieces of information that are not captured by the IHS II. These include the number of assaults respondents experienced in the past year, the location where the assaults took place, the type of assault experienced (i.e. did it involve sexual behaviour?) and information pertaining to the offender beyond their relationship to the victim. While such data would undoubtedly extend the present research, they fall outside the primary objectives of the IHS II. The second concern relates to causal inferences. The IHS II, like many cross-sectional surveys provides data that relate to specific moments (or periods) in time. This is problematic if the time-specific response is not representative of the one year period over which experience of assault is measured, thereby potentially leading to false conclusions (for example

the time of assault and time of chronic illness). Finally, as described in Chapter 4, any variables derived from the IHS II are vulnerable to the familiar problems of response bias, both intentional (i.e. more likely to report stranger violence than domestic violence) and unintentional (i.e. telescoping, forgetfulness and social desirability).

Implications of the findings for policy and practice

The secondary analysis of cross-sectional data is naturally open to critique and behoves caution when making inferences on the generalizability of the findings. Nevertheless, it is useful to speculate how, and to what extent, the results reported here might yield practical dividends. Arguably the most important finding is that individuals with persistent illnesses and cognitive and physical impairments were shown to display increased risks of assault victimization. Presently, largely owing to a lack of resources, support services for victims of crime in much of sub-Saharan African are limited (Leggett et al. 2005). Recognition that these population groups display higher risks of assault victimization may provide opportunities to integrate crime prevention advice with extant health services or donor-led interventions, particularly focussing on efforts to reduce the deleterious effects of assault victimization. From a resource perspective, broadening government, non-governmental and/or community-based schemes to encompass locally-attuned crime prevention advice might prove more feasible than formulating new interventions from scratch.

Chapter 9 - On the Correlates of Reporting Assault to the Police in Malawi

Chapter Summary

This chapter explores the factors associated with reporting assault to the Malawian police. It uses the conventional, analytical framework for studies of this sort by estimating the association of victim-specific, crime-specific and community-related variables with the likelihood of notifying the police. In addition to this and mindful of the context of Malawi, it also explores whether variations in the opportunities to report assault to the police influences victim's likelihood of doing so. The results are found to largely mirror those of comparable studies undertaken in developed countries, with, say, victim reporting being positively correlated with crime seriousness. A novel finding is that the availability of a working phone in the a victim's household emerges as a strong predictor of reporting assault to the police. The implications of the findings for further research and the reliability of police recorded crime data in Malawi are discussed.

Introduction

The police and the public need each other. In many instances the public look to the police as the first port of call for all things crime related. Less obviously, the police's knowledge about crime and their ability to successfully detect it is highly reliant on the public informing them of their experience of victimization, amongst other things[35]. Victim reporting is thus critical. In developed countries, several studies have explored the correlates of victim reporting (see Felson, Messner, Hoskin and Deane, 2002; Goudriaan, Wittebrood and Nieuwbeerta, 2006; Xie, Pogarsky, Lynch and McDowall, 2006); in developing countries, less so (a notable exception is Bennett and Wiegand, 1994). This lack of research in developing settings is mainly attributed to two factors: concerns over the accuracy

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[35] The role and involvement of the public in policing is clearly not limited to crime reporting. Witness testimonials are often crucial in securing convictions. At a more abstract level, police performance and legitimacy is (increasingly) viewed through the prism of public confidence.

and reliability of official crime statistics (where available), and the paucity of crime victim survey data with which to compare (Marenin, 1997).

This study is the first to investigate the victim-specific, crime-specific and community-level correlates of reporting assault to the police in Malawi. It begins by describing research concerned with reporting crime to the police. The next section summarises the data and variables used herein. The results are then presented followed by a discussion of their implications. It is worth reiterating at this point that the IHS II only asks victims of *assault* whether they notified the police. Analysis of victim reporting behaviour for livestock theft and residential burglary was therefore not possible.

Research on Reporting Crime to the Police

It is an old truism that many crimes fail to reach the police's attention. The wide disparities commonly observed between official recorded crime statistics and victim survey data reflect this. While reporting rates vary considerably by crime type, as a general indicator, the BCS 2010/11 estimated that the police were made aware of around 38% of all crimes committed (Chaplin, Flatley and Smith, 2011). Several studies have asked *why* victims report crime to the police. The literature points to several reasons (see Skogan, 1984; Tarling and Morris, 2010). First, victims of crime often feel an obligation to bring offenders to the attention of the police thereby ensuring that justice (in principle) prevails and that the offender is apprehended, punished and deterred. Second, there are personal reasons. Victims of crime may inform the police due to fears for their own safety and, where appropriate, to receive medical care (e.g. in the case of sexual assault). A third reason for reporting, common to many acquisitive crimes, is to obtain a crime reference number for insurance purposes and the replacement of stolen goods. And finally, research suggests that notifying the police can have psychological benefits, acting as a form of coping mechanism to dampen the negative consequences associated with criminal victimization (Frieze, Hymer and Greenberg, 1987).

Other studies have rephrased the question, to ask why victims of crime do *not* inform the police. Several reasons are again apparent (see Tarling and Morris, 2010). For many (minor) crimes there is often a tension between a victim's sense of obligation to report the crime and concerns over wasting police resources. Victims of crime may also feel embarrassed or ashamed, particularly if their behaviour unwittingly precipitated victimization (or at least might be perceived by others to have done so). They too might be fearful of reprisals both from the offender and their associates. Furthermore, reporting crime exacts costs: from initially contacting the police, to participating in lengthy, sometimes stressful interviews on the circumstances surrounding the crime, to the possible giving of evidence in court.

Research on what underpins the decision to notify the police has tended to adopt a rational choice framework (Cornish and Clarke, 1986) and explore the costs and incentives of reporting (for example see Felson et al. 2002). Put simply, victims are considered more likely to report crime to the police when the perceived incentives in doing so outweigh the perceived costs. Several studies have investigated the manifold factors that might influence this decision, as they relate to the crime-event, characteristics of the victim and offender, and the wider environment (see Gottfredson and Gottfredson, 1980; Skogan, 1994). For example, there is broad agreement in the literature that the seriousness of crime is positively correlated with a victim's propensity to report it (Skogan, 1994; Bennett and Wiegand, 1994; Zhang, Messner and Liu, 2007). Second, perceptions on whether the police are likely to satisfactorily resolve the crime is a further issue; many victims of cycle theft, for example, fail to inform the police because they consider it unlikely that the thief (or stolen cycle) will be seized (Johnson, Sidebottom and Thorpe, 2008). On a related point, Xie, Pogarsky, Lynch and McDowall (2006) show that the thoroughness of the police response to prior experiences of crime increases the probability of the respondent reporting future victimizations. Interestingly, this relationship remained constant regardless of whether the police investigation did or did not result in an arrest.

Repeat victimization, at least as it relates to domestic burglary, is found to reduce the probability that victims will report subsequent victimizations to the police (Mukherjee and Carcach, 1998). Those who resent or have had negative experiences with the police are also found to be less likely to report crime (Skogan, 1994). Finally, there is some evidence to suggest that there are community-level effects on victim reporting (Baumer, 2002). It is plausible that victim reporting rates are lower in communities characterized by an enduring police-citizen disconnect. Goudriaan, Wittebrood and Nieuwbeerta (2006) for example, using data from a large Dutch victim survey, show that neighbourhood-level social cohesion is positively associated with the probability of reporting crime to the police while the reverse is true for socio-economic disadvantage.

More recently, a "behavioural intention" experiment undertaken by Tolsma, Blaauw and te Grotenhuis (2012) used vignettes to explore how components of the police reporting process influence participants' willingness to notify the police. Overall, they find that intention-to-report is positively associated with the number of reporting channels available (i.e. in person, via telephone, online) and whether the police encourage victims to inform them. They also demonstrate that the probability of reporting increases significantly as the estimated duration of the police reporting procedure reduces. Providing the opportunity to report crime anonymously or outside of standard "office hours" was not associated with a significant increase in willingness to report. Interestingly, the magnitude of these effects is found to vary by crime type[36]. For cycle theft, which the authors consider to be the least serious offence used in their study, estimated duration is found to have a greater impact on intention to report than for the other more serious crimes. Similarly, encouragement to report is found to have a greater effect on the reporting of cycle theft than for these other crime types.

Identifying what motivates or restrains the reporting of crime to the police is of practical and scholarly importance. Reiss (1971) notes that citizen reporting is by far the most common channel through which the police are alerted to criminal

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[36] The study vignettes refer to four offence types: residential burglary, cycle theft, threat of physical assault and mistreatment.

incidents. Information on the barriers to reporting can usefully inform policy as to those who routinely go unnoticed in official recorded crime statistics, particularly the chronically victimized. From a criminological perspective, police recorded crime data are the lifeblood of much criminological enquiry; awareness of their limitations in relation to the 'dark figure' of crime is therefore important.

Given the resource constraints and lack of victim survey data it is unsurprising that research on the correlates of victim reporting in developing countries is limited. An exception is the study by Bennett and Wiegand (1994) using data from a household victim survey in Belize, Central America. Their study found strong affinities between the findings in Belize and the criminological literature (largely comprised of Anglo-American research): incident-specific variables such as crime seriousness yielded strong positive effects on the likelihood of informing the police; victim-specific measures such as household income held a minor but significant association; and community-level factors such as estimates of cohesion and the prevalence of illegal drugs had no significant effect on victim reporting. Bennett and Wiegand (1994) conclude that measures associated with the crime event and victim's experience of victimization outperform broader social measures (such as the "particularistic" nature of policing in Belize) in explaining the decision of victims to inform the police.

Comparable studies on the correlates of reporting crime to the police in Southern Africa are rare. That research which is available is largely descriptive and typically only provides assessments of the extent to which crime is reported using international victim survey data, mindful that such data are vulnerable to several well-documented limitations (see Zvekic and Alvazzi del Frate 1995), that only a small proportion of African states participate in international victim surveys and of those that do, the sample is often based predominantly in urban locations (Naudé et al. 2006). Despite these concerns, estimates generated from the ICVS point to an unfortunate paradox: in regions where victimization risks are highest, such as sub-Saharan Africa, reporting rates to the police are generally the lowest (van Dijk and Alvazzi del Frate, 2004). In the African context, Alemika suggests

that low reporting rates result from a common perception that the police are "ineffective, corrupt, and brutal or uncivil" (2009, p. 484).

Yet comparing reporting rates in North America and Western Europe with those in sub-Saharan Africa can be misleading. As described in Chapter 3, this is because in many parts of Africa, including Malawi, what are generally considered to be the functions of the police are provided both by the official state police *and* non-state authorities (Baker, 2004; 2008), the latter ranging from community groups to private security firms. According to data collected as part the MNCVS, 44% of respondents claimed to be involved in non-police-affiliated community groups (Pelser et al. 2005). These include (in descending order) community-based schemes such as neighbourhood watch, private security agencies and finally vigilante-type groups. Many respondents report witnessing such groups providing "police" functions such as apprehending suspected offenders (55.8% of respondents) and administering physical punishment (33%).

Pelser et al. (2005) also suggest that reporting rates to the Malawian police are generally low. They estimate that just over a third of assaults were reported to the police (36.1%) whereas 72.9% of assault victims reported the crime to non-state police agencies. Leading explanations for victims failing to inform the police were that the crime was not considered serious enough and that the victim would resolve the matter through other means. In the Malawian context these "other means" might refer to the abovementioned unofficial police authorities and, according to Pelser and colleagues (2005), a desire to resolve the matter locally and speedily. Regrettably, to the author's knowledge there is no research detailing the specific types of non-state police authorities in Malawi and the rationale for and rates of victim reporting *between* non-state police groups.

The Current Study

There is a long line of research exploring the obstacles and enablers of victim reporting. Examples of this type of research are, however, limited in developing

countries, for the reasons explained above. This chapter reports the first study to explore what factors are associated with assault victims notifying the police in Malawi.

Method and Measures

Dependent Variable

The dependent variable in this study is whether an assault victim reported the crime to the police. The response is dummy coded (1 = reported assault to the police and 0 = did not report assault to the police).

Independent Variables

The independent variables in this study constitute victim-specific measures, crime-specific measures and community-level measures. Victim-specific measures include the victim's age, sex, educational attainment, self-rated physical and mental capability, self-rated health status, fear of crime and household access to a working phone and a working bicycle. Crime-specific measures relate to the victim-offender relationship and whether a weapon was present during the assault. Community-level measures are assault prevalence per EA, the proportion of households per EA defined as ultra-poor, residential mobility and whether the EA is urban or rural. While many of these variables can be found in similar studies, others were designed to capture the specific context of Malawi – notably the high disease burden and poverty levels – and are hence novel, but with sufficient theoretical grounding to warrant their inclusion as possible influences on the likelihood of reporting assault to the police.

Victim-specific measures. Victim age is measured in years. Victim sex is dummy coded (1 = male and 0 = female). The education measure relates to the highest level of educational attainment at the time of survey. Responses are ordered

sequentially: 1 = primary school and below, 2 = secondary school, training college or other vocational courses and 3 = university level.

Several studies (and the previous chapter) have shown that individuals with disabilities (broadly defined) experience higher rates of criminal victimization than the general population (e.g. Petersilia, 2001). In Malawi, it remains to be examined whether intellectual or physical impairments may stymie the ability of individuals to notify the police of their experience of assault. In the current study, a victim's physical and mental capability is measured by the question: *"Are you physically or mentally handicapped in any way?"* Victims who responded yes – which relates to missing hands, missing feet, being lame, blind, deaf, unable to speak, mentally disabled and other – were assigned 1 and those who replied no were assigned a 0. A related variable concerns the victim's health status. It is plausible that a victim's health status might affect their propensity to report crime to the police, just as the last chapter indicated with respect to the risks of assault victimization. The IHS II asks, "*Do you suffer from a chronic illness*?" Responses are dummy coded so that 1 denotes a chronic illness sufferer and 0 denotes a participant absent of chronic illness.

Two binary fear of crime measures were again used. The first relates to the following question: *"When walking alone in your neighbourhood or village during the day, how safe do you feel against criminals?"* Survey respondents could indicate very safe, fairly safe or unsafe. Responses were dummy coded so that 1 = unsafe and 0 = safe (referring to both very safe and fairly safe). The second measure differs only by time of day, asking respondents about their feelings of safety at night, and is coded in the same way.

As Bennett and Wiegand (1994) report, accessing police services in many developing nations is unevenly distributed across population groups. The growth of non-state policing in many African countries is, in part, testament to the inability of the state police to equitably serve its citizens (Baker, 2004). Many rural-poor households will not have access to a telephone and may be required to

travel large distances to report crime in person at the nearest police station or post[37]. To the author's knowledge, this relationship is yet to be specifically examined for an African country in the research literature. Typically, as in Bennett and Wiegand's (1994) study, some measure of affluence is used as a proxy for police accessibility; wealthier households are assumed to have sufficient resources to access the police should they so wish. This study used an improved measure. Survey participants are asked: "*Is there a landline telephone in working condition in the dwelling unit?*" and "*Does someone in the household own a cellular telephone in working condition?*" These responses were used to create a household phone availability measure, dummy coded so that 1 denotes the presence of a working phone (mobile and/or landline) and 0 denotes its absence. This is consistent with Skogan (1994), whose analysis using BCS data found no relationship between having access to a telephone and reporting crime to the police in England and Wales.

A related measure concerns bicycle ownership. Bicycles are a common mode of transport in Malawi and may, therefore, act as an important facilitator for victims who wish to report a crime in person (or to access the nearest phone). The IHS II asks heads of household whether they currently own a bicycle. This is used to compute a bicycle availability measure, dummy coded as 1 = the household possesses a bicycle and 0 = it does not. Two issues with these measures warrant mention at this point. The first is that *availability* need not imply *accessibility*. In Malawian households resources such as bicycles and mobile phones are often "male" items and therefore the ability to use such resources may differ by sex (Miller, Zulu and Watkins, 2001). Second, implicit in the hypothesis that phone and bicycle availability will increase the chance of victim reporting is the assumption that assault victims are motivated to call the police (akin to the assumed readiness to offend underlying opportunity theories of crime). For the

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[37]Some European countries have now introduced online reporting for non-emergency crimes. As far as the author is aware this is not available in many parts of Africa, not least because internet access, while increasing over time, is nonetheless only available to around 10% of the population (Porter, 2012).

reasons given above, in certain instances the victim may not want or need to notify the police.

Crime-specific measures. Two crime-specific variables were computed. The first concerns the victim-offender relationship. Assault victims were asked, "*Was the individual* [i.e. the perpetrator] *a household member, a relative, a neighbour, or a stranger?*" As with the previous chapter, while each victim could report up to two perpetrators, only the respondents' first response is used in the analysis here since very few indicated the presence of two offenders. For the purposes of analysis, responses are dummy coded with 1 denoting a stranger and 0 an offender with whom the victim is familiar (household member, relative, neighbour). The second crime-specific variable speaks to the seriousness of the assault and relates to the presence of weapons. Victims are asked: "*Was a knife or panga* [machete] *used in the attack or to threaten you?*" and "*Was a gun or pistol used in the attack or to threaten you?*" For convenience, these responses are collapsed to form a single crime seriousness measure, dummy coded so that 1 indicates a weapon was present and 0 indicates the absence of weapons.

Community-level measures. There are three measures in this category. The first measure relates to the levels of assault in the communities in which respondents live, specifically the proportion of respondents per EA that reported experiencing assault in the past year. This speaks to the hypothesis that variations in the levels of assault are associated with victims' willingness to report such crimes to the police. For example, high levels of assault in an area may be indicative of a certain degree of social acceptance and subsequent low reporting rates, as found by Saur et al. (2003) for the case of male-on-female spousal violence in Malawi.

The second and third community measures are designed to tap into variations in community accessibility to the police, both physically and electronically. One is the proportion of households per EA that are defined as ultra-poor. Households are denoted ultra-poor if their reported annual per capita consumption expenditure falls below 10,029 MK per person per year (US$ 358), calculated by the World

Bank as the amount required to meet basic calorific requirements (World Bank, 2006). Given the widespread poverty in Malawi, in this study the lower threshold of ultra-poor was used in an attempt to better capture those households facing chronic challenges which may hinder their ability to report assault to the police. It is expected that individuals residing in these ultra-poor properties are less able to access the police than those living in more affluent areas due to a lack of resources (money to travel, transport options etc).

The final community-level variable is binary and indicates whether an EA is defined as urban or rural. In Malawi, police stations and police activity tends to concentrate in urban business districts. It is hypothesised that households located in rural areas may therefore find it more difficult to contact the police than those located in urban parts of the country.

Once again, it is important to note that the concerns raised in the two previous chapters regarding community level variables are also applicable in this study, namely issues surrounding the definition of a community, the aggregation of individual responses to form community indicators and the relatively small number of households per EA.

The hypotheses in this study based on previous research are thus: being male, higher educational attainment, feelings of insecurity in the neighbourhood, the availability of a household phone and bicycle, the seriousness of the assault (i.e. the use of a weapon) and the assailant being a stranger would increase the likelihood of notifying the police. Age, having a chronic illness, having a physical or mental impairment and residing in an EA that is rural, has higher levels of assault and a greater proportion of poor households is hypothesised to decrease the probability of reporting the assault to the police. Descriptive statistics are displayed in Table 32.

Table 32 Descriptive Statistics for Variables Associated with Assault Victims Informing the Police in Malawi, March 2004 – April 2005 (inclusive)

Variables	Mean	SD	Min	Max
Dependent variable				
Reported Assault to the police (1 = yes)	0.17	0.38	.00	1.00
Individual-level variables				
Age	29.62	14.25	7*	89
Sex (1 = male)	0.65	0.48	.00	1.00
Physically or mentally handicapped (1 = yes)	0.06	0.23	.00	1.00
Chronic illness (1 = yes)	0.22	0.41	.00	1.00
Education (1 = primary school and below, 2 = secondary school, training college or other vocational courses and 3 = university level.	1.34	0.48	1.00	3.00
Fear of crime when walking alone in neighbourhood in the day (1 = unsafe)	0.13	0.33	.00	1.00
Fear of crime when walking alone in neighbourhood at night (1 = unsafe)	0.51	0.50	.00	1.00
Household-level variables				
Household phone (1 = available)	0.03	0.16	.00	1.00
Household bicycle (1 = available)	0.43	0.50	.00	1.00
Crime-specific variables				
Victim-offender relationship (1 = offender is a stranger)	0.55	0.50	.00	1.00
Weapon involvement (1 = weapon present)	0.37	0.48	.00	1.00
Community-level variables				
Proportion of Assault victims per EA	0.11	0.07	.01	0.31
Proportion of ultra-poor households per EA	0.12	0.13	.00	0.75
Rural/Urban (1 = rural)	0.89	0.31	.00	1.00
Total N = 1,275				
Reporting N = 217				
Non-reporting N = 1,058				

Note: *The IHS II asks questions of all household members aged 10 years or over. However one seven-year old also provided relevant information on assault victimization and is therefore included (0.08% of this sample). *Source*: Malawi Integrated Household Survey 2004/05.

Results

Table 32 shows that less than a fifth of assaults were reported to the Malawian police (n = 217, 17%)[38]. This is considerably lower than the 51% of violent crimes that reached the police's attention in the U.S. (Truman, 2011) but is in line with the 24% of assault victims from sub-Saharan countries participating in the 2004/05 ICVS (Prinsloo, 2006).

Table 33 reveals a clear sex difference in reporting rates. Overall 12% of assaults against woman were reported to the police compared to 20% of those committed against men. The higher reporting pattern in males is shown to be consistent regardless of the victim-offender relationship. Most pronounced is the difference in the proportion of stranger-perpetrated assaults that were reported. For female victims, for every one assault by an unknown offender to which the police are notified, (at least) a further eight actually took place.

Table 33 Sex Differences in the Percentage of Assaults Reported to the Police by Victim-Offender Relationship in Malawi, March 2004 – April 2005 (inclusive)

Victim-offender relationship	*Percentage of assaults against Males reported to the police*	*Percentage of assaults against Females reported to the police*
Household member	13.3	11.1
Other relative	14.4	11.8
Neighbour	18.9	14.3
Stranger	21.3	10.6

Source: Malawi Integrated Household Survey 2004/05.

Respondents were questioned as to why they did not inform the police (Table 34). The most common response was that the victim did not consider the assault sufficient to warrant police involvement (n = 421, 40%). This is consistent with findings reported elsewhere (Pelser et al. 2005; Prinsloo, 2006; Bennett and Wiegand, 1994). The second most common reason for not reporting was that the assault was considered a neighbourhood issue (n = 248, 24%). It is plausible that

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[38] 6 victims failed to provide information so the total *n* here is 1,269.

victims in this response category may have reported the assault to non-police affiliated groups, but this cannot be examined with the present data. Third, 14% of victims (n = 148) did not inform the police because they were too far away, indicating how increased travel-time might act as a barrier to victim reporting (as is explored below). It is noteworthy that contrary to the popular image of police in sub-Saharan Africa, just 3% of victims cited police corruption as the primary reason they did not report experiencing assault.

Table 34 Assault Victims' Reasons for Not Informing the Malawian Police,
March 2004 – April 2005 (inclusive)

Reason for not reporting	*N*	*%*
Crime not serious	421	40.3
Neighbourhood issue, didn't want police	248	23.7
Police too far	148	14.2
Other	110	10.5
Reporting would cause trouble	92	8.8
Police corrupt	26	2.5
Total	1,045	100.0

Source: Malawi Integrated Household Survey 2004/05.

Correlates of Assault Victim Reporting

Multilevel logistic regression was performed to explore the relationship between victim-specific, crime-specific and community-level factors on the likelihood of assault victims' informing the police. A multilevel model is the appropriate statistical technique because it accounts for the non-independence data structure of the IHS II – households nested within EAs. Three models were run. The first was an intercept-only model without any independent variables. This estimates whether there is any variation in the likelihood of victims reporting assault to the police between EAs. In the second model the individual-level predictor variables are added as possible correlates of reporting. In the third model, community-level variables are added to assess their influence on victim reporting, over-and-above

that of the individual-level variables. The results are presented in Table 35, with regression coefficients expressed as odds ratios.

Model 1 shows the log-odds of an assault victim reporting the crime to the Malawian police in "average" Malawian EA. The odds ratio of 0.18 and z-score of -15.22 is statistically significant (p < 0.001), indicating that the chance of an assault victim notifying the police varies between Malawian communities more than would be expected on the basis of chance. Exploring this variation via a multilevel approach is therefore justified.

Model two shows that males were more likely to report assault victimization to the police than females (*OR* = 1.64). Increased age also is found to be positively associated with an increased likelihood of reporting (*OR* = 1.02).

Assault victims residing in households with access to a working phone (mobile or landline) were significantly more likely to report the crime to the police than assault victims in a phone-less dwelling (*OR* = 4.24). This emerged as the strongest predictor among the household-level variables considered. The finding emphasises the practical importance of being able to report crime to the police, something that, understandably, is often taken for granted in research conducted in Western industrialised settings. No support was found for the hypothesis that the availability of a working bicycle increases the likelihood of victim reporting.

For the crime-specific variables, victims of assaults involving weapons were more likely to report the crime than assaults where weapons were absent (*OR* = 3.51). This conforms to the criminological literature that crime seriousness is a key predictor of whether the police are contacted (Skogan, 1984). By contrast, being assaulted by an unknown individual was found to hold no significant association with victim reporting; the consensus view would suggest that stranger perpetrated crimes are more likely to be reported to the police.

Despite the high disease burden in Malawi, having a chronic illness or a physical and mental impediment was not associated with the likelihood of reporting assault to the Malawian police.

Model 3 includes the community level variables. Only one is shown to be significantly related to victims' likelihood of reporting: assault victims residing in houses located in rural EAs were significantly less likely to report the crime to the police. Residing in a community containing a higher proportion of poorer households or a larger number of assault victims in the past year was not significantly associated with the likelihood of victim reporting.

The inclusion of the community-level variables had little effect on the direction or strength of the other covariates. The exception is the victim-offender relationship variable which now emerges as significant: being assaulted by a stranger is shown to *reduce* the likelihood of reporting the crime to the police ($OR = 0.67$). This reveals an interesting household-level and community-level interaction. At the level of the household, the relationship between the victim and the offender does not appear to have an influence of victim reporting. Yet at the community level, residing in an area characterized by stranger-perpetrated assaults is found to decrease the likelihood of an assault victim notifying the police, perhaps because of apathy on the part of victims that reporting the incident would bear little fruit.

Post Analysis Checks

Consistent with Chapters 8 and 9, several checks were carried out to assess the robustness of the statistical models. The Variance Inflation Factor (VIF) estimates, which assess for collinearity among the modelled explanatory variables, were all within tolerable levels (1.03 -1.24, mean = 1.12). Second, the likelihood ratio test indicates that the inclusion of the predictor variables (in models two and three) improved the overall fit of the model than when no predictor variables were included.

Table 35 Random-intercept Multilevel Logistic Regression models of Reporting Assault to the Police in Malawi, March 2004 – April 2005 (inclusive)

Variables	Model 1		Model 2		Model 3	
	OR	z-score	OR	z-score	OR	z-score
Intercept	0.18**	-15.22	0.03**	-8.80	0.09**	-4.80
Individual-level variables						
Age			1.02**	4.43	1.03**	4.04
Sex (1 = male)	-	-	1.64*	2.42	1.58*	2.22
Physically or mentally handicapped	-	-	1.01	0.02	1.04	0.12
Chronic illness (1 = yes)	-	-	0.79	-1.04	0.86	-0.70
Education	-	-	1.17	0.39	1.11	0.58
FOC when walking alone in neighbourhood in the day	-	-	1.22	0.72	1.30	0.95
FOC when walking alone in neighbourhood at night	-	-	0.90	-0.50	0.94	-0.31
Household-level variables*						
Household phone (1 = available)	-	-	4.24*	3.07	2.90*	2.18
Household bicycle (1 = available)	-	-	0.90	-0.58	1.00	-0.00
Crime-specific variables						
Victim-offender relationship (1 = offender is a stranger)	-	-	0.72	-1.71	0.67*	-2.07
Weapon involvement (1 = weapon present)	-	-	3.51**	6.65	3.49**	6.44
Community-level variables*						
Proportion of assault victims per EA	-	-	-	-	0.05	-1.82
Proportion of ultra-poor households per EA	-	-	-	-	2.35	1.15
Urban/Rural (1 = rural)	-	-	-	-	0.44*	-2.72
Likelihood ratio test (MLM vs. Logistic)	20.60**		11.37**		7.67**	

Notes: Total N = 1,275, Reporting N = 217, Non-reporting N = 1,058; *p*<.05; ** *p*<.001; *Source*: Malawi Integrated Household Survey 2004/05.

Discussion

This chapter was concerned with the reporting of assault to the police in Malawi and explored whether victim-specific, crime-specific and community-level variables were correlated with victim reporting. The results show that across all assaults, only a small proportion reached the police's attention. This was most pronounced for stranger-perpetrated assaults against females. If generalizable, the results indicate that police recorded crime data in Malawi will at best underestimate the prevalence of assault and at worst neglect vulnerable population groups. This is of course true of many settings - crime's dark figure appears omnipresent - but is particularly pertinent given the levels of under-reporting documented here. This raises concerns over the adequacy of official Malawian police statistics to inform the development and evaluation of assault prevention policy and practice, and possibly for other crime types too.

In terms of the correlates of reporting assault to the police, despite the atypical research setting many of the results are consistent with those of the Western literature. Supporting the findings from developed (Skogan, 1994) and developing settings (Bennett and Wiegand, 1994), crime seriousness, measured herein as the presence of weapons was significantly related with notifying the police while its opposite - the crime was not serious enough - emerged as the most common reason for not reporting. Unexpectedly, in the final model which accounted for variations between EAs, assaults committed by strangers (individuals *unknown* to the victim) were less likely to be reported to the police. The research literature would predict the opposite, attributed to an increased fear of repercussions if reporting on a person that the victim is familiar with and, particularly in the African context, a preference to deal informally with crimes involving family and community members. One possible explanation for this divergence is that stranger-perpetrated assaults tend to be reported to non-police agencies in the hope that there is an increased likelihood of someone identifying the suspect.

Two additional findings speak to the specific context of Malawi as it relates to crime reporting. The first is that male victims were found to be more likely to report assault than female victims. Several explanations may account for this finding. First is the gender disparities in Malawi, whereby females ordinarily have less access to resources (money, phones, transport) than males which might inhibit their ability to report crime to the police. Second, females were found to experience higher rates of domestic assaults than males (see Chapter 8) and may, therefore, be reluctant to report such crimes due to fear of reprisals or of being abandoned by the primary income generator. A third reason may relate to Malawian police officers being overwhelmingly male (although data to confirm this were not available to the author). Women may therefore feel uncomfortable or apprehensive about reporting assaults to males.

The second noteworthy finding is that reporting assault to the police was strongly associated with whether the victim's household contained a working phone. To the author's knowledge, this is the first time phone availability has been quantitatively examined in an African country as a potential determinant of reporting behaviour, although previous studies in Central America have used proxy measures (Bennett and Wiegand, 1994). In comparable Western studies no such relationship is observed (Skogan, 1994) and in many cases the question is understandably omitted; universal access to phones is simply assumed. The findings reported here suggest that this is untenable in a resource-limited setting such as Malawi and, more importantly, that phone inaccessibility may be a significant obstacle to reporting crime to the police – *opportunity makes the reporter* – and one that likely disproportionately affects those living in rural areas (also found to be negatively associated with victim reporting). It must be stressed however that victims of assault might contact the police using communal phones (see Tall, 2004), public phones, phones belonging to friends, through channels other than a phone (i.e. in person) as well as report crime to non-police authorities, as is evidently commonplace in Malawi (Pelser et al. 2005).

The significant association between phone availability and victim reporting suggests further research is warranted, and timely. It is timely because since the IHS II was carried out, sub-Saharan Africa has witnessed an explosion in the availability of mobile phones (Porter, 2012; Aker and Mbiti, 2010). If these regional trends are also mirrored in Malawi, which emerging evidence suggests that they are (see Porter, 2012), then we might expect an increase in the number of households with access to working phones. Consequently, it is hypothesised that increased access to phones might lead to increases in the proportion of victims reporting crime to the police (and possibly increases in mobile phone theft – see Chapter 10). Using the findings reported here as a baseline with which to compare would allow this hypothesis to be tested.

A related research question concerns the subtle difference between phone *availability* and phone *accessibility*. Burrell (2010), conducting research in Uganda, reports that rural women experience persistent difficulties in accessing household mobile phones because their husbands typically assume control. Abraham (2009) reports similar findings from Zambia, where husbands, out of fear of spousal infidelity, kept close tabs on their wives' phone usage. These findings suggest that increases in phone availability may have a highly differentiated effect on victim reporting, initiating little change in the opportunities for *female* crime victims to inform the police. This is a testable hypothesis, and the collection of sex-disaggregated data to explore this idea is encouraged.

Implications of the findings for policy and practice

From at least the 1980s onwards, particularly in the U.S., there has been a strong and sustained push for policing to be more evidence-based (see Sherman, 1998), akin to evidence-based medicine. At root, this calls for policing methods to be grounded in robust scientific evidence (though scholars differ both in the methods they advocate for the production of such evidence and what evidence they accept

as robust). The idea is undeniably attractive, yet in practice progress has been halting (for broader discussions see Sherman, 2009).

Nonetheless, few in the world of policing would dispute the value of reliable evidence for informing policy and practice. Central to this notion is accurate measurement: if policy and practice is formulated using shaky statistics it is more liable to be ineffective, as well as unintentionally generate harms rather than the sought-after outcomes. The results reported here indicate that, for the crime of assault at least, police recorded crime data in Malawi paint only a partial picture of the true extent of the problem. Consequently, there is much to be gained from developing ways to combine official Malawi police statistics with information reported to other relevant agencies, in particular the previously mentioned non-state police groups. An illustration of this, albeit in a developed setting, is the work of Shepherd and colleagues who developed a system for combining police records with Accident and Emergency data to better understand (and respond to) the patterns and effects of violent crime at licensed premises in Cardiff, U.K. (see Shepherd and Lisle, 1998; Warburton and Shepherd, 2004). Investing in crime victim surveys is a further possibility.

Chapter 10 - General Discussion

Chapter Summary

This chapter summarises the main results of the thesis, highlights the contributions of the research to criminological theory and discusses the implications of the findings for crime prevention research and practice. The chapter begins by briefly reviewing the five case studies presented herein. Next, whereas previous chapters have discussed the scholarly and practical implications of each case study individually, in this chapter the study findings are considered jointly in light of the original aims of the thesis: applying an environmental criminology framework to victim survey data in the hope of informing explanations of and responses to victimization patterns in Malawi. This includes a critical appraisal of the generalizability of victimization theories and a discussion on the feasibility of applying opportunity-reduction measures in resource-limited settings such as Malawi. The chapter ends by reflecting on what we now know and asking where we go from here, setting out a number of areas deserving of further research.

Summary of Thesis Aims and Findings

This thesis has been primarily concerned with the application of crime opportunity theories in the atypical research setting of Malawi – "atypical" because, to date, little opportunity-oriented criminological research has taken place in sub-Saharan Africa, for the reasons outlined previously. It sought to determine whether crime opportunity theories could contribute towards a better understanding of victimization in Malawi. This accords with what we might call the "geographic expansion phase" currently afoot in environmental criminology, referring to several recent studies concerned with the feasibility of applying this approach to explain and respond to crime in non-Western countries (see De Souza and Miller, 2012; Kruger and Landman, 2008; Lemieux and Clarke, 2010; Pires and Clarke, 2011). Various benefits to be gained from this line of research were outlined, not

least the production of knowledge to reduce victim vulnerability and inform crime prevention in areas where crime rates are often high and preventive resources typically low. To that end, five case studies were presented using data collected as part of a large, cross-sectional household survey. The rationale for and findings from these studies are briefly described below. While this information is not new, recapping on the results of each case study is considered a useful prelude for the broader discussion that follows, in which the findings are taken together and their theoretical and practical implications discussed.

Study 1: On the Application of CRAVED to Livestock Theft

Livestock theft is an understudied problem. That research which has taken place is limited to the U.K., U.S. and Australia and has focused on differences in victimization between farms (or variations thereof) as opposed theft targets, such as livestock. While reliable information on the scale of livestock theft in Malawi is scarce, available estimates suggest that it is a frequent and harmful problem, partly owing to the critical role that livestock plays in the lives of many Malawians.

To the author's knowledge, no study has systematically examined whether the characteristics of different types of livestock has any bearing on their risks of theft. This was the theme of study one. Initial analysis supported the conclusion of Pelser et al. (2005) that livestock theft is a widespread problem in Malawi, affecting around a fifth of households who reported owning livestock in the year prior to questioning. The volume and rate of theft was found to vary by species, with chickens the most popular theft target even when standardising for the number of available opportunities.

In keeping with similar studies concerned with the theft of *wild* animals (Pires and Clarke, 2012), Clarke's (1999) CRAVED model was used to explore whether those factors that account for variations in the theft levels of mass consumer items are also applicable to the theft of *domesticated* animals in Malawi. Using livestock

species as the unit of analysis, it was found that higher *availability* and *disposability* were strongly associated with higher levels of theft. At the community (EA) level, *removability*, *availability*, burglary count and being rural were identified as significant predictors of livestock theft. While several limitations were acknowledged, particularly in relation to operationalizing CRAVED, the findings were interpreted as providing initial support that the attributes of crime targets – here livestock – can inform a better understanding of the livestock theft patterns observed. Possible extensions of CRAVED and its role in identifying "at risk" livestock species were also outlined.

Study 2: On the Extent and Patterns of (Repeat) Burglary Victimization

The regularity with which crime is found to concentrate and the implications for crime prevention cannot be over-emphasized. Crime concentrates. It concentrates in ways that are modestly predictable and, typically, in sufficiently large numbers so that reducing the number of repeat offences would make significant inroads into the presenting problem. And therein lies the rub: identifying targets that are repeatedly exposed to crime and determining ways to effectively reduce their chance of further victimization is a compelling crime control strategy, one that has proven effective for various crime types and, arguably, is more ethical in its distribution of preventive resources than alternative mechanisms: selection is based on prior victimization as opposed to other supposed risk factors or folk wisdom. Moreover, reliable information on prior victimization is often easier to acquire than that of other variables that conceivably might be predict future victimization (Farrell, 1995). It is therefore also a practical crime prevention strategy.

For these reasons, countries with limited crime prevention resources have much to gain from allocating them on the basis of repeat victimization. At the national level, this would clearly include many developing countries (such as Malawi) where resources (broadly defined) are sparse. Yet as described in Chapter 6 and the bibliography of Grove and Farrell (2011), there are few studies available on

the extent and patterns of repeat victimization in developing countries, particularly in sub-Saharan Africa.

Study two, presented in Chapter 6, partially addressed this gap. It reported the first study to examine repeat burglary victimization in Malawi. It confirmed that many of the hallmarks of repeat victimization are also apparent in the data analysed here. Burglary was highly concentrated among the sampled households, more than would be expected by chance alone; and being burgled increased the likelihood of experiencing further burglary offences. The possible influence of housing type and the affluence of the surrounding area was also investigated, guided by previous research attesting to the uneven distribution of repeat burglary victimization across different types of households located in areas of contrasting deprivation in England (Bowers et al. 2005). The results were again largely consistent with expectation: households suggestive of a greater burglary yield exhibited higher rates of repeats, particularly when located in areas that are less affluent.

Study 3: Multilevel Analysis of Burglary Victimization

The next three chapters all used a multilevel analytical framework to identify those factors reliably associated with the outcome of interest, drawing on the theories outlined in Chapter 2. Chapter 7 explored the factors associated with burglary victimization in Malawi. The results indicated that burglary was unevenly distributed across Malawian communities. It was also found that properties of greater affluence, constructed of permanent materials, with a female household head, and containing chronically ill residents exerted the expected effect by elevating the risk of residential burglary. At the community level, only area-level burglary count was shown to exhibit a (positive) significant relationship. There was no evidence to suggest that other community-level factors that are commonly found to influence burglary risks, such as residential mobility and poverty, had a similar effect in the Malawian context.

Study 4: On Assault in Malawi: Incidence and Correlates of Victimization

Study four focused on the correlates of assault victimization, using individual survey respondents as the unit of analysis. The results showed that stranger-perpetrated assaults were more frequently committed against males whereas females experienced higher levels of domestic assault. Weapons were common, particularly the use of knifes in assaults committed by strangers. In terms of the multilevel regression modeling, it was found that assault victimization was positively associated with being male, older age, being fearful of crime, having a chronic illness or physical or mental impairment and several community-level variables such as residing in a community with a greater proportion of 15-19 year olds.

Study 5: On the Correlates of Reporting Assault to the Police in Malawi

Chapter 9 explored what factors are associated with assault victims contacting the Malawian police. A novel contribution of this study was the inclusion of variables that approximated police accessibility as a possible determinant of victim reporting, namely access to a working phone and a working bicycle. The results indicated that reporting assault to the Malawian police was atypical, particularly among women who experienced assault at the hands of strangers. In terms of the correlates of victim reporting, many of the results were consistent with the consensus in the literature: crime seriousness, being male, and having access to a working phone were all predictive of informing the police. Possible mechanisms to facilitate victim reporting and ways to overcome the "dark figure" of assault in Malawi were then suggested.

The Case Studies Taken Together

Implications of the Findings for Criminological Theory

The case studies summarised above each explore a specific research question (or questions) in relation to a specific crime type. Linking each case study is a preoccupation with the crime event and associated theories. This next section takes a broader perspective to discuss how these theories fared when applied in the Malawian context and where scope for fruitful further development lies.

Overall, the findings reported in this thesis provide tentative, though not unanimous, support for crime opportunity theories. Setting aside the question of what motivates individuals to commit crime – central to mainstream criminology – this thesis finds that many target-oriented characteristics, ranging from the material with which a house is built to the ease with which livestock can be sold, appear to offer an explanation of the victimization patterns observed in Malawi.

To be clear, variables intended to bespeak the tenets of crime opportunity theories were not predictive of *all* the outcomes measured in this thesis. For example, ill health was found to increase the risk of burglary and assault victimization (a point that will be expanded on shortly) yet it was found to have no association with the reporting of assault to the police. This is perhaps unsurprising. Crime opportunity advocates stress that specific crime types have specific opportunity structures which influence the decision making of offenders - universal determinants of crime are therefore not expected. The same can be said of factors implicated in involvement in crime and victim reporting.

In several of the case studies presented here, variables designed to measure the more proximal influences of crime were set alongside broader community-level predictors of criminal victimization. Overall, the latter were found to hold less of an association with the dependent variables measured here. For example, residential mobility, often found to be positively associated with neighbourhood

crime rates in Western settings, yielded no relationship with residential burglary. It must be stressed, however, that this should not be interpreted as suggesting that situational factors are stronger determinants of criminal victimization in the Malawian setting. The findings may reflect several methodological issues, not least the *ease of measurement*, namely that factors associated with crime opportunity theories such as, say, the presence of security measures are more amenable to unambiguous measurement than more nebulous community-oriented concepts such as collective efficacy and residential mobility which reside at the core of macro-oriented approaches such as social disorganisation theory. With respect to the latter, for example, Gough (2008) notes that "mobility" in the African context can be conceptualized in several ways, " rural–rural, urban–urban, rural–urban, nomadism, and refugeeism at a range of scales from the local to the global" (2008, p. 244). In this sense, a true test of social disorganisation theories would need to be confident that the measures used speak both to the core themes of the theory and the specific context in which it is applied. Given the secondary data used in this study, this required degree of confidence is not reached.

A further issue of relevance is that the definition of a community used in this study may not accurately reflect what the sampled population define as "their community". The theoretical constructs believed to influence crime at the community level, as outlined in social disorganisation theories, may therefore be imprecisely captured.

Returning to crime opportunity theories, that evidence was found in support of several hypotheses is taken here as a provisional indicator that the concept of opportunity as a causal factor in generating crime is applicable beyond the Western, urban contexts in which it was forged and routinely applied. Clearly, generalizability is not achieved on the findings of one study. Further research is required and encouraged to discern the accuracy of this statement, examples of which will be detailed shortly. If confirmed however, a broader question then emerges: why might we expect the proximal causes of crime events to be generalizable across markedly different settings? This speaks to the very core of

theories concerned with the proximate influences on human behaviour and, in the context of crime, suggests that regardless of context, a crime event is dependent on the same spatio-temporal convergence of ready offenders, suitable targets and absent guardians, and that the situational features associated with this convergence influence the situated decision-making of those present, including offenders.

Implications of the Findings for Crime Prevention

How can the knowledge gained from this study effect positive change on crime prevention policy and practice in Malawi? If, as the above section suggests, opportunities in the immediate environment play a role in generating crime, it follows that attempts to effectively block such opportunities can lead to crime reductions. As briefly alluded to in previous chapters, this approach is known as situational crime prevention (SCP), what Clarke defines as "opportunity-reducing measures that (1) are directed at highly specific forms of crime, (2) involve the management, design and manipulation of the immediate environment in as systematic and permanent a way as possible, [and] (3) make crime more difficult and risky, or less rewarding and excusable as judged by a wide range of offenders (1997, p. 4)".

Since its inception in the mid-1970s, SCP has become a widely practiced form of crime control and has amassed a large body of case studies attesting to its effectiveness (see Clarke 1997). Enduring criticisms that SCP simply displaces crime (see Guerette and Bowers, 2009) and is applicable only to instrumental offences (Trasler, 1986) have, in most parts, been effectively debunked[39]. Encouragingly, over time the remit of SCP has expanded to cover, at least in principle, 'unconventional' crimes such as terrorism (Clarke and Newman, 2006), corruption (Graycar and Sidebottom, 2012), sexual abuse against children (Wortley and Smallbone, 2006), cybercrimes (Newman and Clarke, 2003) and

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[39] "In most parts" because, for displacement at least, prior studies tend to focus exclusively on spatial (or geographic) displacement, with a limited number concerned with temporal crime displacement. The prevalence and patterns of other types of crime displacement – method, crime type and offender – therefore remains largely unknown.

organised crimes (Bullock, Clarke and Tilley, 2010). A lesser explored area pertains not to the category of crime but to the context in which crime occurs, specifically the application of SCP beyond the Western settings in which it has traditionally been implemented. As Tilley and Sidebottom (in press) write, "situational crime prevention has yet to be systematically trialled in developing resource-limited countries…a key question relates to the challenges of carrying out the preventive process in settings where data are often absent".

This understudied area is the focus of the next section. Drawing on the findings reported here and fieldwork by the author, it set outs some of the anticipated challenges in applying SCP in the developing setting of Malawi. Providing a detailed account of the origins and development of SCP is beyond the purpose of this chapter (for that the reader is pointed to Clarke, 2008 and Tilley and Sidebottom, in press). Instead, the next section concentrates on the *process* of doing SCP in light of suggestive evidence that the *principles* of SCP are generalizable. It begins by describing *how* SCP is typically carried out, before moving on to consider the feasibility of applying this approach in resource-limited places like Malawi. To be clear, the guiding assumption of the below discussion is that the chosen response is situational, i.e. it is concerned with altering nearer situational causes of crime as opposed to offender predispositions. This is not to say that SCP is the only form of crime prevention strategy available or that it trumps alternative methods in the Malawian context.

On Situational Crime Prevention in Resource Limited Settings

SCP typically follows an action-research model (Clarke, 1997). This method is what Ekblom (1988), following Goldstein (1979), terms the "preventive process", whereby engaged parties (researchers, practitioners, policy makers) go about 1) gathering data on the presenting problem, 2) analyse and interpret the obtained data, 3) formulate preventive strategies justified by the analysis conducted, 4) implement the chosen response(s) and 5) monitor the impact of the preventive

action on the outcome measure(s) of interest[40]. This process is largely an exploratory one. It does not specify a response in advance but calls for a detailed analysis of specific crime categories in the pursuit of pinch points for situational intervention.

The stages of Ekblom's (1988) preventive process provide useful entry points for a discussion on the *transferability* and expected challenges associated with doing SCP in Malawi. These are now discussed in turn.

Stage 1: Gathering data on the crime problem of interest

The action research model of SCP explicitly calls for a detailed study of the presenting problem. It is deliberately vague as to the specifics of that "study", instead favouring an open-ended analysis to identify exploitable characteristics that can inform response development. What is assumed, however, is that the analysis draws on data relevant to the problem of interest.

In Western countries, such data sources are numerous. To give an illustration from Britain, below is a list of data sets put forward by a group of crime and partnership analysts attending a training course[41] at the author's institution. The data were a response to the following question: what data sources do you use when analysing offenders?

- Police recorded crime statistics
- Custody data
- Open source social media data: Gumtree, ebay, Facebook, twitter
- Automatic Number Plate Recognition data
- DNA/forensic data
- Probation data

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[40] Popular formulations of this process associated with problem-oriented policing include SARA (Eck and Spelman, 1987) and the 5I's (Ekblom, 2011; for a review see Sidebottom and Tilley, 2011).
[41] The training course was a Crime Analysis short course, held at the UCL Jill Dando Institute of Crime Science in July 2012, delivered by Spencer Chainey, Lisa Tompson and I.

The above is not an exhaustive list of all the possible data sources available; for that see Chainey (2010). It does however hint at that which might, in the British context at least, be usefully interrogated to better understand crime as part of the SCP process.

What, then, of obtaining suitable data in resource-limited settings such as Malawi? This can be considered in three ways: Do the data exist? If so, are they accessible? And if accessible, are they sufficient for the task at hand? Take police recorded crime data, the lifeblood of many SCP projects. All police services the world over should, in theory, collect information concerning their activities and the demands on their time. Strictly speaking, these types of data do exist regardless of the context of study, albeit in a rudimentary often incomplete form in certain countries, not least in Africa because of the described plurality of policing. More pertinent is whether such data are available? As stressed throughout this thesis, many resource-limited settings are unable to provide official police recorded crime statistics. This is attributed to several factors, from a lack of capacity and resources to collate (and transfer) police related data to an unwillingness on the part of government agencies to release crime statistics.

Assuming police recorded crime data are available, their quality in many developing settings is questionable (Marenin, 1997; Leggett et al. 2005) because of the high rates of underreporting which may systematically underrepresent certain population groups. It goes without saying that underreporting is not unique to developing countries. Yet other data-quality issues are particularly pronounced in developing settings. For example, reporting the spatial and temporal characteristics of crime is now a mainstay of crime analysis in Western countries. This is possible because of improvements in the quality of data over time, increasingly reported to finer and finer levels of granularity without diminishing the data's accuracy. This is helpful for the purposes of SCP so as to better specify where and when crimes occur and hence what interventions might best be implemented. Information of this type and quality is limited in countries such as Malawi.

This paucity poses several challenges for doing SCP. First, it would seem to limit the precision with which problems can be understood and interventions designed. Second, it suggests that it is unrealistic to assume that "foreign" researchers with no connection to the "data keepers" of interest will be able to access data. The forging of partnerships between researchers seasoned in SCP and individuals associated with the data of interest seems a more likely option, and one with the potential to boost the knowledge base and skill sets in the country of interest. An alternative option is the collection of primary data that speak to the characteristics judged to be contributing to the problem of interest. This method offers scope for collecting richer information than would normally be available from official sources, yet it is also clearly constrained by the considerable time and financial costs associated with this type of endeavour, not to mention the practical constraints of language and cultural barriers that might affect data collection.

Locally generated data are a promising option, working with communities and/or key stakeholders to collect pertinent information[42]. This method is common in the evaluation of community-based public health interventions in rural Africa. However, measures such as, say, mother and child mortality are likely an easier (more unambiguous) outcome to measure than incidences of crime, especially for crime types where the offender may protest against any wrongdoing, as with domestic violence for example. Assessing the feasibility of this data collection procedure would therefore need to be explored, perhaps best achieved through an initial localised case study.

The issue of locally generated data speaks to a broader issue first raised in Chapter 5, namely that of fostering a "think crime" mentality amongst other researchers working in settings like Malawi. Whilst criminological research conducted in sub-Saharan Africa is notably scarce, the opposite is true for disciplines such as public health and livestock science. One prospect for the collection of crime-related data is to encourage different fields to collect information where it is reasonably believed that the measures put in place could have an impact on crime, positive or

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[42] The author thanks Tim Colbourn for introducing the concept of locally generated data in rural Africa, discussed in the context of a forthcoming public health project in Malawi.

negative. The building of sturdier chicken coups shown in Chapter 5 is one such example; the establishment of women's groups in rural Africa as a possible mechanism of reducing vulnerability to victimization is conceivably another.

A critic might interject by stating that data collection is a costly undertaking, especially in resource-limited settings. Expanding the range of information to include possible tangential effects may therefore negatively affect the primary outcome of interest, such as the size of livestock herd or maternal mortality. Clearly a balance must be struck between the value of obtaining extra (crime-related) information and the resources required to do so. That said, in the public health field at least, it is commonplace to test for non-health benefits resulting from a particular intervention, such as quality of life measures and subjective ratings of wellbeing. Better specifying the link between and raising the awareness of crime and the various other activities that might conceivably affect victimization risks may present opportunities for the collection of valuable data.

Stage 2: Analysing and interpreting the obtained data

Let us suppose that some data are available and have been successfully obtained. The next step in the preventive process is data analysis. The aim here is to understand the characteristics of the presenting problem and from that generate hypotheses as to what the causal factors are. These causes then act as the focal point for the preventive interventions to follow. Over the last decade, several tools have been developed to aid crime analysis. These range from tools of thought, such as the "problem analysis triangle" which draws heavily on the routine activity approach in highlighting the key elements that produce crime events (Sampson, Eck and Dunham, 2010), to generic guide books (for e.g. Clarke and Eck, 2005) to specific types of software, such as CrimeStat and the Near Repeat Calculator.

Fulfilling this step of the preventive process is arguably the least problematic. As demonstrated by this thesis, data obtained from a developing country might

subsequently be analysed elsewhere and therefore not be constrained by the resource shortages common in Malawi. Enabling indigenous researchers to analyse crime in settings like Malawi is more challenging, in three important ways. The first refers to a general lack of research and analytical skills. The second concerns a lack of knowledge on SCP and its cognate theories. For both issues, materials of the sort described above can help structure crime analysis alongside, ideally, training courses and context-attuned training materials (regarding the latter, see Ekblom et al.'s (in preparation) efforts to produce crime prevention guidance attuned to the context of Abu Dhabi).

The third concern relates to a lack of analytical software with which to perform crime analysis, particularly Geographic Information Systems (GIS) that are now used as standard when generating crime analysis products. This absence limits the depth with which data can be interrogated thereby blunting the suitability of any preventive measures. Encouragingly, however, on-going research by Moreto and Lemieux (in press) demonstrates how open source software might usefully act as a functional alternative in the absence of formal analytical products. Focussing on wildlife poaching in Queen Elizabeth Conservation Area, Uganda, Moreto and Lemieux (in press) describe how distributing easy-to-use and relatively cheap Geographic Positioning System equipment to patrolling park rangers could be mapped using free GIS software available on the internet to produce practically useful maps detailing the locations of poaching events over time. This in turn provided a platform on which to generate hypotheses as to what might explain the concentration patterns observed. In the context of this thesis, one can envisage a similar scheme proving useful to track livestock thefts in Malawi.

Stage 3: Formulating preventive strategies justified by analysis

Observations of practitioners following the preventive process in the U.K. and U.S. often converge on the same finding: many projects are *response-led*, whereby the measures put in place are not justified by crime analysis (Sidebottom and Tilley, 2011). Though this flouts the underlying principles of SCP, it is hardly

surprising; suspending judgement and intuition in favour of research evidence is not the way that crime prevention strategies are usually arrived at. This is coupled with the *context dilemma*: there is no menu of anti-crime interventions that work invariably across contexts.

Caution must therefore be exercised when considering whether a scheme of proven effectiveness in one setting might feasibly be applied to radically different circumstances. Yet this is a general concern with any SCP project, and necessitates a thorough understanding of how a given scheme is hypothesised to bring about the sought-after outcome(s), what conditions are required for this to be achieved and, crucially, whether the context into which the chosen scheme is to be implemented displays those conditions, a practice commonly associated with the realist evaluation perspective (Pawson and Tilley, 1997). This merely serves to reiterate the importance of articulating the causal mechanisms of an intervention when considering its appropriateness for the problem context, be that in a well-developed or less-developed setting.

One approach to best ensure this process is adhered to is through partnership work with those familiar with the circumstances in which the chosen strategies are to be installed. Harnessing local, "tacit" knowledge is likely an important ingredient in the success of any situational measure, especially for measures which require a succession of indirect changes such as, say, bystanders perceiving situational changes and adopting a different behaviour that is less crime-promoting (Ekblom, 2011).

Table 36 provides some illustrative examples of how strategies commonly employed in industrialised countries might be adapted to the Malawian context, whilst retaining the causal mechanism through which they are intended to work, namely through increasing risks and effort, reducing rewards, removing provocations and reaffirming rules (Clarke, 2008). To be clear, Table 36 presents information that is neither comprehensive nor grounded in any formal research evidence; the suggestions are speculative. Nonetheless, it is produced with the

intention of highlighting that whilst the *method* of SCP will likely need to adapt, the *mechanisms* underpinning SCP measures are, at least in principle, applicable to settings such as Malawi despite obvious constraints on resources.

Table 36 Translating Common Situational Crime Prevention Responses to the Malawian Context

Crime Type	Common SCP responses from Industrialised Settings	Potential SCP Alternative in Malawi
Theft of livestock	Tagging animals	Tethering animals
	Securing farms	Re-designing animal pens/cages
Burglary	Securing alleyways	Strengthening traditional/temporary structures
	Installing alarms	Conceal attractive targets
Assault (in public places)	Install street lighting	Use community members to safeguard recommended routes home at selected times

Stage 4: Implementation

Implementation here refers to delivering and sustaining the selected situational response as intended. In practice, this is not guaranteed; Western experience shows that implementation failures are a persistent feature of many crime prevention projects (Ekblom, 2011; Tilley, 2009). Moreover, good implementation is recognised as a major determinant in the success of crime prevention schemes (in relation to repeat victimization see Grove and Farrell, 2012). Several factors might explain implementation failures, but two challenges are routinely encountered: 1) challenges associated with persuading third parties to respond according to the ways that crime analysis suggests might reduce the

problem and 2) challenges associated with actually putting the chosen responses in place.

The implementation of preventive responses in Malawi is likely to face similar challenges, amplified by the general lack of resources. Against this backdrop, it might be fruitful to pursue a *bottom-up* approach to implementing SCP as opposed to the *top-down* model usually observed in Western settings. To expand, in countries where SCP is widely practiced, most documented case studies refer to efforts by the police and related agencies in which the immediate environment is changed in ways that are hypothesised to reduce opportunities for crime. This, of course, is not the only way that SCP is performed; situational measures are installed routinely in the retail and gambling industries for example, but are rarely formally evaluated and therefore do not appear in the scientific literature (Tilley and Sidebottom, in press). Nor does SCP privilege the police as the dominant implementers of such measures, this pattern merely reflects the way in which projects have been carried out to date.

In Malawi, relying on the state police and relevant government agencies to be the sole implementers of SCP is unrealistic. Resources are typically stretched and activities tend to concentrate in urban locales. Arguably a more promising approach is to develop ways to facilitate the implementation of SCP measures by individuals and ideally communities in the high risk areas identified by crime analysis. This may be able to run alongside the community policing forums that are common in Malawi (see Chapter 3) as well as the many NGOs that run community-based activities and forums. These groups would also be well placed to collect process-oriented information concerning the implementation of the chosen measures, allowing assessments of whether what was planned actually happened.

Stage 5: Monitoring the impact on the outcomes of interest

As with stage 2, the main issue likely to occur when evaluating the impact of a selected measure relates to the availability of suitable data. In most Western settings one can retrospectively access crime data to provide a suitably long pre-intervention time series (in statistical power terms) with which to measure any observed effect. This will rarely be possible in settings such as Malawi. This necessitates that the researcher consider evaluation issues from the very outset in order to collect pre-intervention data. Again, this may well be in the form of primary data collection efforts.

The above section was an attempt to illustrate some of the anticipated challenges associated with doing SCP in resource-limited settings like Malawi. The ideas presented are avowedly preliminary, and are no substitute for fully worked-up examples. Nonetheless, they point towards certain critical aspects that will undoubtedly influence the feasibility of following the preventive process beyond the industrialised settings in which it has hitherto been applied. Specifically, we find that the *data* and *action* stages are those that may well prove most challenging. Clearly, this discussion has focussed exclusively on the process of doing SCP. There are myriad other elements to SCP (such as the transferability of concepts or costs of intervention) which, for reasons of scope, cannot be sufficiently addressed here. It is hoped that others will take this further to provide initial answers as to how to effectively deal with some of the challenges outlined above.

The Criminogenic Burden of Ill Health

The concept of crime concentration has been a major theme of this thesis. In the pursuit of deriving explanations that may account for the concentrations observed, one particular finding deserves further mention: the relationship between health and criminal victimization. Owing to the wide range of questions asked in the IHS II, this thesis explored whether ill-health (and cognitive and physical

impairments), as reported by survey respondents, was associated with criminal victimization. This hypothesis was based on the assumption that the heavy disease burden that characterises Malawi might influence crime risks. This was explored for two crime types using two different units of analysis, residential burglary using the household as the unit of analysis and assault using individual survey respondents as the unit of analysis. In both studies, self-reported chronic illness was positively associated with criminal victimization in the past year.

These findings should be interpreted with caution. The nature of cross-sectional data means that we cannot rule out the possibility that ill health is an *effect* of criminal victimization, not a *cause*, though for certain conditions such as Malaria and Schistosomiasis this causal relation is unlikely. Replication is required to assess the validity and nature of this association. Nonetheless, that the relationship is observed across two different crime types using two different units of analysis permits speculation that these findings might hint at a criminogenic effect of ill health in Malawi, defined here as an increased likelihood of being the *victim* of crime as opposed to generating criminal behaviour.

The effect of chronic illness on criminal victimization in Malawi has been little studied. In the criminological literature more generally, research that has considered the relationship between crime and health has tended to treat crime as an *independent variable* and examine its effect on health outcomes. This relates both to the *commission* of crime, the *experience* of criminal victimization and the *fear* of criminal victimization (Hirschfield, 2004). For the former, there is mounting evidence that criminal careers are bad for your health, based mainly on the findings of longitudinal research. For example, Piquero, Shepherd, Shepherd and Farrington (2011), using longitudinal data collected as part of the Cambridge Study in Delinquent Development, demonstrate that incidences of hospitalization and disability were significantly higher by age 48 for prolific life-course offenders than for other trajectory types in their cohort of males. Using nationally representative longitudinal data from the U.S., Reingle and colleagues (2012) also report robust associations between violent offending in adolescence and the

volume and risk of chronic illness in later life. The leading explanation thought to account for these findings is the high levels of stress associated with criminal involvement, which in turn is known to underlie many illnesses. A related explanation is that persistent offenders are more likely to make lifestyle choices that are conducive to poorer health, such as a reliance on drugs and alcohol (Piquero, Daigle, Gibson, Piquero and Tibbetts, 2007).

There are also several strands of evidence showing that *criminal victimization* is associated with myriad adverse health outcomes, often dependent on the severity of the crime. Most obviously, violent crime can result in physical injury and, in the case of sexual offences, sexually transmitted infections. There are also psychological effects, most notably stress-related disorders (Norris and Kaniasty, 1994). In a review of the literature on criminal victimization and wellbeing, Hanson, Sawyer, Begle and Hubel (2010) report evidence on the negative impact of criminal victimization on several elements of what they define as quality-of-life, such as difficulties holding down full time employment, maintaining intimate relationships and participating in social activities. Britt (2001) finds that self-reported health and wellbeing was poorer amongst survey respondents who were the victims of crime compared to non-victims. Even the fear of crime has been shown to influence health outcomes. Several studies highlight that excessive fear of crime is associated with deleterious health symptoms such as depression and overeating (for example see McCabe and Raine, 1997). It can also generate avoidance behaviours and unhealthy retreats from public life and social functioning.

Research concerned with the risks of criminal victimization for individuals with disabilities or chronic illnesses has tended to focus on the former, generally using data for persons with developmental disorders (for a review of the literature see Petersilia, 2001). The consensus view is that the risks of criminal victimization are usually higher than for persons free of such conditions, varying in degrees for different crime types. To the author's knowledge, this line of enquiry has not been pursued in the African context.

Based on the tentative findings reported here, let us suppose that increased risk of criminal victimization in Malawi *is* an indirect cost of disease burden. What, then, are the causal mechanisms linking ill health and victimization risk? Figure 14 shows a conceptual framework that seeks to answer this question, tailored to the specific context of Malawi. It depicts the relationship between chronic illness and criminal victimization, with each line representing a causal pathway. It is limited to the household as the unit of analysis. This is in keeping with Russell (2004) who notes that the (economic) costs resulting from illness are usually not confined to the afflicted individual(s) but also impact the household budget and caregivers more generally.

Starting with the box in the centre-left – household illness – and working our way around Figure 14 in a clockwise direction, firstly, afflicted individuals' may be less able to protect themselves against criminal victimization. They are therefore perceived as easier targets by offenders and thus experience higher levels of victimization (personal and property). Second is the bullying hypothesis, namely that the stigma and discrimination associated with certain conditions may increase the likelihood of being bullied which, on occasion, may amount to or facilitate criminal victimization. A related pathway is that the stigma associated with certain illnesses, most notably HIV/AIDS (see Brown, Macintyre and Trujillo, 2003), may lead to social exclusion from the community. This in turn may reduce the likelihood that community members would look out for or intervene in offending against the affected household; risk of criminal victimization thus increases. Of course, as is often the case with possible risk factors, what is *criminogenic* can also be *criminocclusive* (Ekblom and Sidebottom, 2008); social exclusion might *decrease* the risk of criminal victimization because offenders, cognisant of the diseased household, are less likely to offend there out of fear of contracting the illness, whether that belief be true or false.

Figure 14 Analytical Framework to Study the Criminogenic Effect of Household Disease Burden
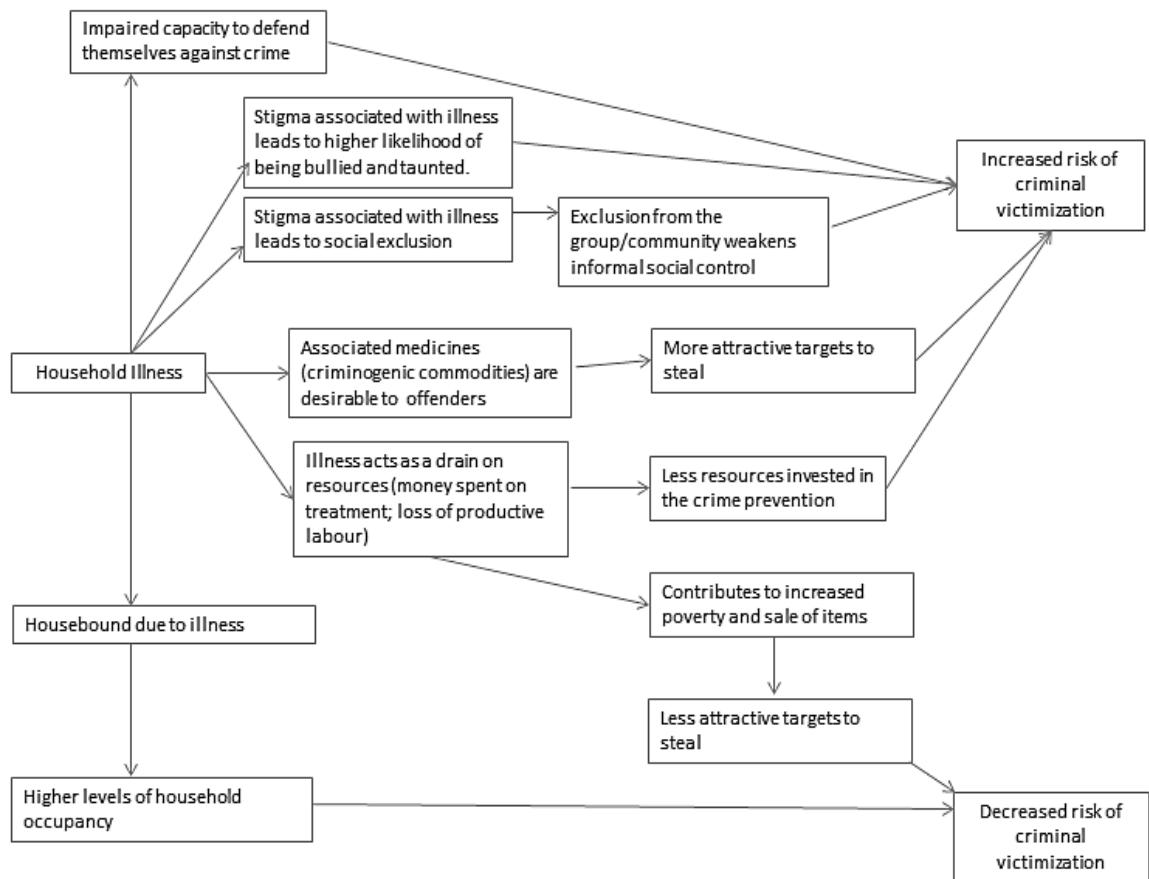
Fourth, many illnesses require treatment. Certain treatments are attractive items to steal: they fit many of the CRAVED attributes outlined in Chapter 5. This increase in attractive targets might therefore lead to an increase in theft, motivated by offenders seeking financial gain through selling the stolen medication or for personal use. The latter is a possibility given the frequent stock outs of drugs in Malawi and subsequent supply-demand imbalance. Next, illness might facilitate impoverishment, both directly – through costs associated with medication and health-seeking behaviour – and indirectly, because of lost earnings due to incapacitation. This may lead to a neglect of security measures which increases the vulnerability to crime. Again, however, poverty might stimulate a sale of assets thereby rendering the household less attractive to offenders. And finally,

certain (debilitating) illnesses render individuals homebound. This increase in household occupancy might deter burglars, as has been found in ethnographic studies with burglars in North America (Rengert and Wasilchick, 1985).

Figure 14 is neither a complete nor comprehensive model. Ill health may contribute to the risks of criminal victimization in other ways, likely differing by context and crime type. Moreover, as alluded to in Chapter 8, the relationships presented in Figure 14 will undoubtedly vary by the type and severity of different illnesses, influenced by the debilitating effect of the specific illness, its life-course, the resources required to treat it and whether offenders' can more often than not determine whether an individual has a particular condition without prior knowledge. Nonetheless, these are empirical questions that warrant investigation, and in the hope of achieving this aim, Figure 14 provides a framework for analysis.

There is clearly also room for development. The outcome measures in Figure 14 could be subdivided into ever-more specific crime types, which a situational approach would encourage. Moreover, at present it says nothing about the relationship between chronic illness and the *harms* of criminal victimization: afflicted individuals might suffer greater injuries following personal crimes; loss of life-saving or life-enhancing medications might also lead to an unhealthy decline in condition. Experience of criminal victimization more generally might prompt an unhealthy unwillingness to utilize health services in fear of future victimization (if possession of medication is found to increase burglary risks, for example). Questions of this sort pose important implications for efforts to improve the condition of many Malawians, an endeavour in which crime will likely play a part. Using Figure 14 as an initial template to facilitate discussions with researchers at the crime-health interface might prove helpful.

Where do we go from here? Directions for Future Research

This final section sets out some suggestions for future research, complementing that which has already been proposed in the previous case studies. These range from specific research questions based on the findings presented here, to broader research areas couched in the theoretical framework that structures this thesis.

On the Extent of Criminological Research in sub-Saharan Africa

References to the lack of criminological research in sub-Saharan Africa can be found throughout this thesis, echoing the sentiments of various scholars (Clifford, 1974; Arthur, 1991; Bowles et al. 2005). Yet, despite the ubiquity of this observation, there have been few attempts to systematically quantify the extent and patterns of criminological research originating in or using data from sub-Saharan Africa. This is not true of other disciplines. For example, Sumathipala, Siribaddana and Patel (2004) undertook a retrospective analysis of articles published in five leading medical journals to determine their country of origin, concluding that developing nations were significantly under-represented in the scientific literature.

In the context of criminological research, two questions are important. The first is the contribution of scholars based in *African countries* to the criminological literature, most likely measured using author affiliation addresses (for example see Guillaume, Sidebottom and Tilley, 2012). The second concerns the number of published articles using *Africa-originated data*. Answers for both could be arrived at through a systematic review of the research literature, akin in method to other cumulative evidence reviews (such as meta-analyses) but without the need to summarize or statistically pool the findings contained in the identified studies.

There are several methodological issues to consider in advance of such an exercise: that peer-reviewed articles indexed by international databases are a less-than-perfect measure of scholarly activity, especially if publication biases increase

the difficulty of getting non-Western research published; that a suitable control group would be required, such as the number of articles published by Africa-based scholars in related fields and the number of U.S. based criminology-related articles published over the same time period; as well as standard considerations such as the eligibility criteria to use and the breadth with which possible publication outlets are trawled.

The incentives to doing this research are varied, particularly to gauge the north-south publication divide in criminology, and identify possible obstacles and enablers to close this gap. To be clear, a goal is not to encourage "token" criminological research in Africa, but rather to take stock of where criminology in the region presently stands and identify if barriers to research that can helpfully address pressing problems in Africa can be removed. In this vein it is hoped that evidence, as opposed to exhortation, on the lack of criminological research across Africa will be a more potent mechanism for raising awareness of this issue and persuading academics and research-funding bodies to develop ways to resolve it.

What does the future hold for Malawi?

We now turn to two broader areas for further research. At the turn of the 20th century, Dutch sociologist Willem Bonger became the first recognised criminologist in The Netherlands. His Ph.D. thesis, titled "Criminality and Economic Conditions", shared much in common with this thesis. Bonger eschewed the dominant offender-orientation of the time to examine the relationship between crime rates and economic conditions. He was also strongly prevention-minded, later writing that criminology should "before anything else show mankind the way how crime can be effectively combated and, most of all, prevented" (Bonger, 1932, cited in Van Dijk, 2012). In his thesis, Bonger described the analysis of annual fluctuations in the price of bread in Bavaria between 1835 and 1861 and its relationship with the number of arrests for theft and vagrancy. Bread prices and numbers of arrests matched each other closely, leading Bonger to conclude that arrest rates increased during periods of elevated

prices because individuals were unable to afford bread. Simply put, economic conditions induced people to commit crime. Extrapolating these findings, Bonger went on to argue that improvements in economic conditions would result in reductions in crime (Van Dijk, 2012).

Bonger's message can be seen in many contemporary discussions about how best to tackle crime. Yet his hypothesis failed to stand the test of time. Several lines of evidence demonstrate that crime has grown considerably in most Western countries since WWI, despite general improvements in many of the classic "root causes" assumed to be criminogenic, such as levels of poverty and the quality of education (Laycock, 2005). As discussed in Chapter 2, the most plausible explanation to account for the sustained growth in crime is increases in the number of crime opportunities[43]. This suggests that crime is not static but changes in response to social, technological and economic developments. Put simply, progress often brings crime.

This observation holds important lessons for countries such as Malawi that are currently experiencing dramatic development changes; it also presents opportunities for research and knowledge transfer. This thesis is limited to providing a snap shot of crime in Malawi over a specified period, but it is also useful to consider what the trajectory of crime in Malawi might be. With this aim is mind, below are two examples of areas deserving of further research with implications for crime and development in Malawi.

Mobile Phones in Malawi and the Implications for Crime, Victim Reporting and Data Gathering

There is a large body of research concerned with the effects of transferring technology from more-developed countries to Africa (see James, 2002). Mobile telephony is a prime example. As touched upon in the previous chapter, the

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[43] This explanation has gained further support following the notable reductions in acquisitive crimes experienced in many Western countries, which have convincingly been ascribed to improvements in the prevalence of security measures (Farrell et al. 2011).

mobile phone penetration rate – the percentage of active mobile phones per population – in Africa has soared in recent years. Boosted by infrastructural developments (such as phone masts) and falling hardware prices, it is estimated that over half of the population of sub-Saharan African now has mobile phone coverage (Aker and Mbiti, 2010). As Porter writes, "even for many very poor people in sub-Saharan Africa, including children, the mobile phone is now perceived as an essential requisite: an object of desire and a symbol of success" (2012, p. 241). This pattern is also true of Malawi which has experienced large increases in the prevalence of mobile phones, particularly among adolescents in urban areas (Porter, 2012).

Few would dispute that increases in mobile telephony will likely revolutionise life in Africa, just as it has transformed many aspects of life in more prosperous countries. This presents several positive and varied opportunities, from better connecting people in areas where land line access is typically poor to facilitating greater business opportunities in domains that historically were entirely face-to-face affairs. One of the most dramatic changes concerns the huge growth in financial transactions – from paying bills and wages to money transfers – using mobile phones, so-called "mobile money", thereby relieving the need to visit bank branches. But all that glitters isn't gold: growth in mobile phone technology can also provoke and facilitate crime, as a target and tool respectively.

In many Western countries mobile phones are one of the most frequently stolen items (see Mailley, Garcia, Whitehead and Farrell, 2008). They are "hot products" (Clarke, 1999), displaying many of the CRAVED features outlined in Chapter 5. In recent years, mobile phone theft in England and Wales has increased considerably (see Hall, 2009), at a time when for many other forms of acquisitive crimes the reverse is true[44].

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[44] It should be borne in mind that much of the increases in phone theft are commensurate with increases in phone ownership. Put differently, theft counts have increased while theft rates have remained relatively stable over time.

Crime opportunity theory proponents would predict that increases in the number of opportunities for phone theft will be associated with increases in the number of phone thefts observed, as has been observed in England and Wales. Nor may this be limited to phone theft. A stolen phone can also act as a *crime multiplier*, increasing the likelihood of concomitant crimes (Felson, 2002). For example, a stolen phone can be used to purchase items illegally or make obscene calls, to name but two. Cycle crime provides a useful illustration here. Firstly, there is strong evidence to show that an increase in the number of cycle owners (a proxy for usage) is positively associated with levels of cycle theft (see Johnson et al. 2008). In addition, a stolen bike can boost the chance of committing several other offences. For example, in possession of a bike, the once foot-bound thief can now forage for crime targets over a greater distance and travel at higher speeds.

The key point is that Malawi is currently undergoing this explosion in mobile phones as part of wider developmental changes. It is therefore timely for research using an opportunity framework to explore the effect these surges might have on phone-related crime – and possibly avoid "crime harvests" (Pease, 2001). Following the suggestions made in Chapter 9, this could also explore whether increases in the availability of phones has any effect on levels of victim reporting, both in general and for certain population groups, such as female domestic violence victims who traditionally may have struggled to access the police.

From a methodological perspective, the growth in mobile phone technology might also prove a useful research aid, particularly in light of the oft-mentioned shortage of data in Malawi and other developing countries. A recent study in Uganda demonstrates how widespread phone availability (and familiarity of usage) can be exploited for research purposes. Briefly, cassava is a staple crop in Uganda. Every year government officials monitor the condition of cassava and produce a map to document the patterns of any cassava disease. This is a necessary but resource-intensive exercise. To speed up the process, a recent initiative has developed a Smartphone application, distributed to a sample of farmers to provide them with the ability to report incidences of crop disease as they encounter it. Each report

uploaded from the Smartphone contains geographic coordinates that combined generate a real-time map of crop disease patterns. Moreover, farmers can use the Smartphone to take pictures of suspected cases of cassava disease that are then uploaded to the project team. Associated software then analyses the image to diagnose the extent to which the pictured cassava is infected (see Quinn, Leyton-Brown, Mwebaze, 2011)[45]. A similar monitoring scheme could be envisaged for livestock theft in Malawi. A sample of livestock owners equipped with a Smartphone might report cases of livestock theft as they encounter or experience it. This would overcome the problem of underreporting and indicate spatial (and temporal) patterns of livestock theft that can usefully inform the design, targeting and implementation of prevention efforts[46].

Urbanization in Malawi and implications for crime

The second example concerns urbanization. You'd be forgiven for missing it, but May 2007 heralded a significant turning point in human history. For the first time the world's urban population equalled that of the world's rural population. This urban shift shows little sign of stopping; projections estimate that by 2030 around 60% of world's population will reside in urban areas (Population Reference Bureau, 2007). The proposed drivers of urbanization are many and varied, with a principal cause being the search for greater economic opportunities that typically are more abundant in urban areas.

Sub-Saharan Africa in particular has experienced spiralling urban population growth. Though the *rates* of change are in keeping with those of other countries, the *absolute* change is considerably higher, equating to a near doubling of urban population figures in fifteen years (Kessides, 2005). Moreover, population growth in major African cities is forecast to be a primary driver of the projected global increases in urban living over the coming decades. According to estimates from

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[45] For further information see http://cropmonitoring.appspot.com/index.html

[46] It should be noted that CEWARN (Conflict Early Waning and Response Mechanism) have explored ways to better collect and analyse data on, among other things, livestock theft in the Horn of Africa region as part of a broader strategy to develop early warning systems for conflict in the area. See http://www.cewarn.org/

the human settlements branch of the United Nations, for example, cities such as Dar Es Salaam (Tanzania), Nairobi (Kenya) and Kinshasa (Democratic Republic of the Congo) will grow in population by over 60% come 2030 (UN-Habitat, 2010).

In the context of African urbanization, Malawi is an interesting case study. As mentioned in Chapter 3, the majority of Malawi's population live in rural areas, more so than in many other countries in sub-Saharan Africa. Yet the rates of urbanization in Malawi – around six percent per year – are comparatively high for the region and are almost double that of the African average (UN-Habitat, 2012). Sustaining urbanization is challenging: increases in urban populations requires commensurate increases in the many services on which they depend. In many African countries this has not occurred. These patterns, observed and predicted, have raised concerns among several commentators (for e.g. Potts, 2009) about the infrastructural weaknesses of many African cities (in terms of employment opportunities, available housing, sanitation etc) to absorb mass surges in population numbers, thereby spawning disease, exacerbating urban poverty, placing a greater burden on already-stretched health and education services, and, most salient here, generating crime.

Crime opportunity theories are well placed to guide research on urbanisation in Malawi and its implications for crime. The Routine Activity Approach (Cohen and Felson, 1979) was formulated following analysis of how changes in the everyday activities of individuals and society at large affected the number and types of crime opportunities available. Simply put, changes from an environment in which everyone is familiar with one another to vast more-anonymous cities, populated with cars and an abundance of tempting goods, alters the opportunities for crime (and its control), typically provoking crime increases.

There are useful lessons here that might allow for the possible criminogenic implications of urbanization in Malawi to be considered, and responded to, in advance of the costly and constrained retrofitting that has characterised many of

the "crime harvests" witnessed in Western settings (Pease, 2001). These can be formulated as hypotheses to furnish research studies in the Malawian setting. To take just one example: urban sprawl – the outward expansion of an urban setting – ordinarily trails urbanization. This leads to increased population density. How might this affect crime in Malawian cities? In the U.S., studies have shown that higher population density rates are associated with *reductions* in burglary but *increases* in pick-pocketing (Decker, Shichor and O'Brien, 1982). The explanation for this finding is that increased (housing) density increases the risks associated with committing burglary because burglars are more likely to be observed than in low-density (suburban) housing areas. In contrast, more people in an area effectively cloaks crimes such as purse pinching or bag dipping. Mindful of the differences in context, on the basis of these findings we might predict that burglary rates in high density areas in Malawi will decrease as population density soars but increase in the more affluent suburbs unaffected by such changes. Petty theft will also likely grow as footfall increases, though this will clearly have a temporal dimension; some areas will be congested during certain hours and quiet during others. Reliably testing such hypotheses can usefully inform preventive action and the targeting of resources.

Conclusion

Science privileges parsimony. Where competing theories exist to explain a given phenomenon, that which is *simpler* (not simple) and makes the fewest assumptions is ordinarily preferred. Darwin's theory of natural selection is a triumph in scientific parsimony. The growth of Twitter – an online social network where users post text-based "tweets" of up to 140 characters – has introduced a further twist on this tradition: #tweetyourthesis, in which Ph.D.-aspiring users have to summarise their thesis in 140 characters or less. Debate ensues as to the merits of this thesis-shrinking exercise, with some commentators arguing that the ability to do so demonstrates an intimate understanding of one's topic, while others have tweeted: "If you CAN summarise your [Ph.D.] research in a tweet, you're not working hard enough or on important qs!" Mindful of the continuing

debate and at risk of being accused of the above charge, below is an attempt to tweet this thesis:

"Opportunity theories of victimization have purchase beyond the Western settings in which they were forged and tested, with implications for crime prevention".

[125 characters]

To conclude then, this thesis sought to occupy a gap in the research literature by applying an environmental criminology framework in the atypical resource-limited setting of Malawi. It was hoped that in doing so it would usefully make sense of the crime patterns observed and inform responses to them. Using cross-sectional, self-report data from a large, household survey, it was found that several of the victimization patterns observed in Malawi conformed to theoretical expectation, with implications for crime prevention policy and practice. The findings also raised several possibilities which were framed as fruitful avenues for further research, building on that reported here. To that end, it is contended that the chapters contained in this thesis might provide both a stimulus and a template for comparable studies to be conducted in other hitherto understudied contexts.

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Appendix 1 The Malawi Integrated Household Survey 2004/05

FORM IHS-2

post enumerator training corrected version, March 2004

STRICTLY CONFIDENTIAL

Questionnaire
number

Malawi Government
National Statistical Office

SECOND INTEGRATED HOUSEHOLD SURVEY, 2004

THIS SURVEY IS BEING CONDUCTED BY THE NATIONAL STATISTICAL OFFICE UNDER THE AUTHORITY OF THE 1967 STATISTICS ACT.
THIS INFORMATION IS STRICTLY CONFIDENTIAL AND IS TO BE USED FOR STATISTICAL PURPOSES ONLY.

HOUSEHOLD CHARACTERISTICS, INCOME AND EXPENDITURE QUESTIONNAIRE

MODULE A-1: HOUSEHOLD IDENTIFICATION

WRITE CODES FOR TA, STA, OR TOWN; EA; AND HH ID. WRITE NAME OF DISTRICT; TA; VILLAGE; AND HOUSEHOLD HEAD.

CODE   NAME

A01. DISTRICT:

A02. TA, STA, or TOWN:

A03. ENUMERATION AREA:

A04. PLACE / VILLAGE NAME:

A05. HOUSEHOLD ID (FROM LIST):

A06. NAME OF HOUSEHOLD HEAD:

MARK BOX WITH AN 'X' AND NUMBER
FORMS BELOW IF YOU USE MORE
THAN THIS SINGLE FORM TO
COLLECT INFORMATION FROM THIS
HOUSEHOLD.
IF SO, BE SURE TO MARK IN THE
SAME WAY THE OTHER FORMS
USED FOR THIS HOUSEHOLD.

FORM ____ OF ___ FORMS IN TOTAL

A07. DWELLING STRUCTURE NO. (FROM LIST):   CODE [ ][ ][ ]

A08. DESCRIPTION OF LOCATION OF HOUSEHOLD - INCLUDE ANY IDENTIFYING CHARACTERISTICS OF DWELLING, NAME OF NEIGHBOURING HOUSEHOLDS & KEY PERMANENT CONTACTS, PHONE NUMBER (IF ANY). SKETCH MAP OF DWELLING LOCATION IN SPACE AT PAGE BOTTOM.

TELEPHONE NO.: _____

_____   CONTACT NAMES: a) _____

_____   b) _____

_____

A09. DOES THIS HOUSEHOLD REPLACE ANOTHER SAMPLE HOUSEHOLD CHOSEN FOR THE SURVEY   YES..1; NO..2 (»A12) [ ]

A10. WHICH HOUSEHOLD IN THIS EA DOES IT REPLACE?   HOUSEHOLD ID OF ORIGINALLY SELECTED HOUSEHOLD [ ][ ][ ]

A11. WHY WAS ORIGINALLY SELECTED HOUSEHOLD REPLACED? [ ]

1 - DWELLING FOUND, BUT NO HH MEMBER COULD BE FOUND.
2 - DWELLING FOUND, BUT RESPONDENT REFUSED.
3 - DWELLING FOUND, BUT APPEARS UNOCCUPIED.
4 - DWELLING FOUND, BUT NOT A RESIDENTIAL BUILDING.
5 - DWELLING DESTROYED.
6 - DWELLING NOT FOUND.

MODULE A-2: SURVEY STAFF DETAILS

A12. NAME OF ENUMERATOR: _____

A13. ENUMERATOR CODE: [ ][ ][ ]

A14. DATE OF INTERVIEW: [/ /]   (ENUMERATOR »NEXT PAGE)

A15. NAME OF FIELD SUPERVISOR: _____

A16. FIELD SUPERVISOR CODE: [ ][ ][ ]

A17. DATE OF QUESTIONNAIRE INSPECTION: [/ /]

A18. NAME OF ZONE SUPERVISOR: _____

A19. ZONE SUPERVISOR CODE: [ ][ ][ ]

A20. DATE OF QUESTIONNAIRE INSPECTION: [/ /]

A21. NAME OF DATA ENTRY CLERK: _____

A22. DATA ENTRY CLERK CODE: [ ][ ][ ]

A23. DATE OF DATA ENTRY: [/ /]

A24. NAME OF DATA VALIDATION CLERK: _____

A25. DATA VALIDATION CLERK CODE: [ ][ ][ ]

A26. DATE OF DATA VALIDATION: [/ /]

(SKETCH MAP OF DWELLING LOCATION)

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INTRODUCTION TO THE HOUSEHOLD TO BE INTERVIEWED

CONVEY THE FOLLOWING INFORMATION TO THE RESPONDENT:

Every five years the National Statistical Office in Zomba selects at random several hundred households in each district of the country to ask them questions about how they are living. The responses which are provided by the households to these questions are intended to help the government of Malawi do a better job in meeting the needs of all Malawians.

Your household was selected as one of those to which the IHS questions will be asked this time. You were not selected for any specific reason. Simply your name appeared on a list of all of the households in this area, and your name was chosen randomly.

I would like to ask the questions in this form to you as head of household or spouse of the head. I will also need to ask questions to other members of your household, as well as weigh and measure the height of any children under age 5 years who live in your household. These questions will take several hours to complete. All of your answers will be held in confidence. The answers which you and the members of your household might give me will only be used by the NSO or under its supervision.

Before I start, do you have any questions or is there anything which I have said on which you would like any further clarification? May I proceed with interviewing you and members of your household?

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MODULE B: HOUSEHOLD ROSTER

IN ORDER TO MAKE A COMPREHENSIVE LIST OF INDIVIDUALS CONNECTED TO THE HOUSEHOLD, USE THE FOLLOWING PROBE QUESTIONS:

First, give me the names of all the members of your immediate family who normally live and eat their meals together here.
WRITE DOWN NAMES, SEX, AND RELATIONSHIP TO HH HEAD (B02 to B04). LIST HOUSEHOLD HEAD ON LINE 1.

Then, give me the names of any other persons related to you or other household members who normally live and eat their meals together here.
FILL IN B02 to B04.

Are there any other persons not here now who normally live and eat their meals here? For example, household members studying elsewhere or traveling.
FILL IN B02 to B04.

Then, give me the names of any other persons not related to you or other household members, but who normally live and eat their meals together here, such as servants, lodgers, or other who are not relatives.
FILL IN B02 to B04.

Finally, are there any other persons who slept here last night, but who do not normally live here?
FILL IN B02 to B04.

IF MORE THAN 12 INDIVIDUALS, USE SECOND QUESTIONNAIRE. MAKE SURE TO MARK BOX ON FIRST PAGE OF BOTH QUESTIONNAIRES.

B01	B02 NAME	B03 SEX	B04 RELATIONSHIP TO HEAD:	B05 How old is [NAME]?	B06 What is [NAME]'s date of birth?			B07 For how many months during the past 12 months (since MONTH/YEAR) has [NAME] been away from this household?
I D C O D E	MAKE A COMPLETE LIST OF ALL INDIVIDUALS WHO NORMALLY LIVE AND EAT THEIR MEALS TOGETHER IN THIS HOUSEHOLD, STARTING WITH THE HEAD OF HOUSEHOLD. (CONFIRM THAT HOUSEHOLD HEAD HERE IS SAME AS HOUSEHOLD HEAD LISTED ON COVER.) FILL IN B02 TO B04 BEFORE COMPLETING QUESTIONS B05 AND FOLLOWING.	MALE.1 FEMA-LE .2	HEAD. . . . . .1 WIFE/HUSBAND. . . . . .2 CHILD/ADOPTED CHILD . .3 GRANDCHILD. . . . . . .4 NIECE/NEPHEW. . . . . .5 FATHER/MOTHER . . . . .6 SISTER/BROTHER. . . . .7 SON/DAUGHTER-IN-LAW . .8 BROTHER/SISTER-IN-LAW .9 GRANDFATHER/MOTHER. . 10 FATHER/MOTHER-IN-LAW. 11 OTHER RELATIVE. . . . 12 SERVANT OR SERVANT'S RELATIVE . . . . . . 13 LODGER/LODGER'S RELATIVE . . . . . . 14 OTHER NON-RELATIVE. . 15 OTHER (SPECIFY) . . . 16	IF 6 YEARS AND OVER, GIVE YEARS ONLY. IF LESS THAN 6 YEARS IN AGE, GIVE YEARS AND MONTHS. YEARS | MONTHS	DAY	MONTH	YEAR	CUMULATED MONTHS
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

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B01		B08		B09	B10	B11	B12	B13	B14	B15	B16	B17	B18
ID CODE	TO CLASSIFY IN B8 EACH PERSON AS A HOUSEHOLD MEMBER OR NOT, LOOK AT THE ANSWER TO B07: **ALL PERSONS** FOR WHOM THE ANSWER IN B7 IS **9 MONTHS OR LESS** ARE **HOUSEHOLD MEMBERS**. THAT IS, HOUSEHOLD MEMBERS SHOULD HAVE BEEN RESIDENT IN THE HOUSEHOLD FOR AT LEAST 3 MONTHS OVER THE PAST 12 MONTHS. - GUESTS WHO HAVE COME TO VISIT FOR 3 MONTHS OR MORE ARE CONSIDERED HOUSEHOLD MEMBERS. - HOWEVER, <u>SERVANTS, HIRED WORKERS, AND LODGERS</u> ARE **NOT** HOUSEHOLD MEMBERS IF THEY HAVE THEIR OWN FAMILY ELSEWHERE. IF THE ANSWER TO B7 IS **MORE THAN 9 MONTHS** (RESIDENT IN HOUSEHOLD LESS THAN 3 MONTHS), <u>ONLY</u> THE FOLLOWING ARE HOUSEHOLD MEMBERS: - HOUSEHOLD HEAD. - YOUNG INFANTS. - NEW SPOUSES. - HOUSEHOLD MEMBERS RESIDING IN AN INSTITUTION ELSEWHERE, BUT STILL DEPENDENT ON THE HOUSEHOLD (e.g. BOARDING SCHOOL STUDENT).	HOUSE-HOLD MEMBER? CHECK CRITERIA AT LEFT FOR HH MEMBER-SHIP. YES..1 NO...2	FOR THE REST OF THE QUESTION-NAIRE, ONLY COLLECT INFORMA-TION ON HOUSEHOLD MEMBERS. IGNORE THOSE PRESENTLY IN THE HOUSEHOLD WHO ARE NOT HOUSEHOLD MEMBERS. LIST ALL MEMBERS, AND ONLY MEMBERS, ON THE HOUSEHOLD ROSTER FLAP OF THE QUESTION-NAIRE NOW. MAKE SURE TO ASSIGN EACH TO THEIR CORRECT ROW.	WAS INFOR-MATION ON THE INDIVID-UAL PRO-VIDED BY THE INDIVID-UAL HIM OR HER-SELF? YES..1 (»B12) NO...2	WHICH HOUSE-HOLD MEMBER PRO-VIDED INFOR-MATION ON BEHALF OF THE INDIVID-UAL? ID CODE	WHY WAS INDIVIDUAL NOT INTER-VIEWED? ON SHORT ABSENCE (<2 WKS) . .1 ON LONG ABSENCE (>2 WKS) . .2 AT BOARDING SCHOOL OR OTHER INSTITUTION.3 PRESENT, BUT UNWILLING TO BE INTERVIEWED.4 OTHER (SPEC).5	Where were you born? THIS VILLAGE . . . 1 OTHER VILLAGE IN THIS DISTRICT . . 2 VILLAGE IN OTHER DISTRICT. . . . . 3 THIS TOWN OR URBAN CENTRE. . . 4 OTHER TOWN OR URBAN CENTER IN THIS DISTRICT . . 5 TOWN OR URBAN CENTRE IN OTHER DISTRICT. . . . . 6 OUTSIDE MALAWI . . 7	Where is your father? IF FATHER IS MEMBER OF HH, COPY ID. (»B15) LIVING OUTSIDE OF HH . 97 (»B15) DEAD. . .98 DOES NOT KNOW . .99 (»B15)	What was your age when your father died? YEARS	Where is your mother? IF MOTHER IS MEMBER OF HH, COPY ID. (»B17) LIVING OUTSIDE OF HH . 97 (»B17) DEAD. . .98 DOES NOT KNOW . .99 (»B17)	What was your age when your mother died? YEARS	Have you always lived in this village or urban location? YES..1 (»B21) NO...2	How long is it since you came to stay here, in this village or urban location? YEARS
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

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B01	B19	B20	B21	B22	B23	B24	B25	B26				B27	B28	B29
I D C O D E	Why did you move here? PARENTS MOVED. .1 TO LIVE WITH RELATIVES . . .2 SCHOOLING. . . .3 MARRIAGE . . . .4 FAMILY QUARREL .5 DIVORCE. . . . .6 RETURN FROM WORK ELSEWHERE.7 JOB TRANSFER . .8 LOOK FOR WORK. .9 START NEW JOB OR BUSINESS . 10 LOOKING FOR LAND TO FARM. 11 TO RECOVER FROM ILLNESS. 12 OTHER (SPEC.). 13	Where did you move from? OTHER VILLAGE IN THIS DISTRICT . 2 VILLAGE IN OTHER DISTRICT. . . . 3 OTHER TOWN OR URBAN CENTER IN THIS DISTRICT . 5 TOWN OR URBAN CENTRE IN OTHER DISTRICT. . . . 6 OUTSIDE MALAWI . 7	ASK OF ALL <u>AGED 10 AND OVER</u>. (UNDER AGE 10 »NEXT MODULE) What has been your <u>main activity</u> during the last 7 days? FARMER (*MLIMI*) . . . . . . 1 EMPLOYEE. . . . . 2 FAMILY BUSINESS WORKER . . 3 SELF-EMPLOYED. . . . . . . 4 EMPLOYER . . . . 5 UNEMPLOYED, WORKED BEFORE, SEEKING WORK. . . . . . 6 UNEMPLOYED, WORKED BEFORE, NOT SEEKING WORK. . . . . 7 UNEMPLOYED, NEVER WORKED BEFORE, SEEKING WORK. . . 8 NON-WORKER, NEVER WORKED BEFORE, NOT SEEKING WORK. 9 HOMEWORKER . . . . .10 STUDENT. . . . . .11 OTHER. 12	ASK OF ALL HH MEMBERS <u>AGED 12 YEARS AND OLDER</u>. (UNDER AGE 12 »NEXT MODULE) What religion, if any, do you practice? NONE . . . . . . 1 TRADITIONAL . . 2 ISLAM. . . . . . 3 CATHOLIC . . . . 4 CCAP . . . . . . 5 ANGLICAN . . . . 6 SEVENTH DAY. . . 7 PENTECOSTAL/ REVIVALIST. . . 8 OTHER CHRISTIAN. 9 OTHER RELIGION .10	What is your present marital status? MONOGAMOUS MARRIED OR NON-FORMAL UNION . . .1 (»B25) POLYGAMOUS MARRIED OR NON-FORMAL UNION . . .2 (»B25) SEPARATED. .3 DIVORCED . .4 WIDOW OR WIDOWER . .5 NEVER MARRIED . .6	IS RE-SPOND-ENT THE HOUSE-HOLD HEAD? YES..1 (»B29) NO...2 (»NEXT MOD.)	Does your spouse live in this house-hold now? YES..1 NO...2 (»B28)	COPY THE ID CODE OF THE WIFE/ HUSBAND. IF MORE THAN ONE WIFE, COPY ID CODES OF ALL WIVES RESIDENT IN HOUSEHOLD. (THEN, IF FEMALE »B29. MEN »NEXT QUESTION.) ID CODE				Do you have a spouse living outside of this house-hold now? YES..1 NO...2 (»B29)	How many spouses do you have who are residing else-where? NUMBER	ASK OF HH HEAD. How many children aged under 15 years who are children of an adult in this household <u>live elsewhere</u> than in this household? NUMBER
								SPOUSE	SECOND WIFE	THIRD WIFE	FOURTH WIFE			
1														
2														N/A
3														N/A
4														N/A
5														N/A
6														N/A
7														N/A
8														N/A
9														N/A
10														N/A
11														N/A
12														N/A

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MODULE C: EDUCATION

[ASK ALL PERSONS AGED 5 YEARS AND OLDER.]

C01 ID CODE	C02 PUT AN 'X' FOR ALL INDIVIDUALS WHO ARE AGED 4 YEARS AND YOUNGER. DO NOT ADMINISTER THIS MODULE TO THESE INDIVIDUALS.	C03 What language do you speak at home? CHEWA. . 1 NYANJA . 2 YAO. . . 3 TUMBUKA. 4 LOMWE. . 5 NKHONDE. 6 NGONI. . 7 SENA . . 8 NYAKYUSA 9 TONGA. .10 LAMBYA .11 SENGA. .12 SUKWA. .13 ENGLISH.14 OTHER. .15	C04 Can you read a one-page letter in Chichewa? YES..1 NO...2 (»C06)	C05 Can you write a one page letter in Chichewa? YES..1 NO...2	C06 Can you read a one-page letter in English? YES..1 NO...2 (»C08)	C07 Can you write a one-page letter in English? YES..1 NO...2	C08 Can you read a one-page letter in any other language? YES..1 NO...2 (»C10)	C09 Can you write a one page letter in any other language? YES..1 NO...2	C10 Have you ever attended school? YES..1 (»C12) NO...2	C11 What was the reason you never attended school? CAN GIVE UP TO 2 REASONS. STILL TOO YOUNG TO ATTEND SCHOOL. . . . . .1 NO MONEY FOR FEES, UNIFORM .2 POOR QUALITY OF SCHOOLS. . .3 ILLNESS OR DISABILITY. . . .4 NOT INTERESTED, LAZY . . . .5 PARENTS DID NOT LET ME . . .6 HAD TO WORK OR HELP AT HOME.7 SCHOOL TOO FAR FROM HOME . .8 SCHOOL CONFLICT WITH BELIEFS . . . . .9 OTHER (SPECIFY). . . . . .10 (»NEXT MODULE) 1st reason | 2nd reason	C12 What class are you in or what was the highest class level you ever attended? NURSERY/ PRE-SCHOOL-0 FORM 5 - 13 PRIMARY FORM 6 - 14 STND. 1 - 1 UNIVERSITY STND. 2 - 2 UNIV. 1 - 15 STND. 3 - 3 UNIV. 2 - 16 STND. 4 - 4 UNIV. 3 - 17 STND. 5 - 5 UNIV. 4 - 18 STND. 6 - 6 UNIV. 5 & STND. 7 - 7 ABOVE - 19 STND. 8 - 8 TRAINING SECONDARY COLLEGE FORM 1 - 9 TC YR. 1 - 20 FORM 2 - 10 TC YR. 2 - 21 FORM 3 - 11 TC YR. 3 - 22 FORM 4 - 12 TC YR. 4 - 23	C13 What is the highest educational qualification you have acquired? NONE. . . 1 PSLC. . . 2 JCE . . . 3 MSCE. . . 4 NON-UNIV. DIPLOMA. 5 UNIVER. DIPLOMA, DEGREE . 6 POST-GRAD. DEGREE . 7	C14 In which calendar year did you begin school for the very first time? CALENDAR YEAR
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C01	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24
I D C O D E	How old were you when you started school? YEARS	Did you attend school in the last com-pleted academic year? YES..1 NO...2 (»C18)	What class were you in during the last completed academic year? NURSERY/ PRE-SCHOOL-0 FORM 5 - 13 PRIMARY FORM 6 - 14 STND. 1 - 1 UNIVERSITY STND. 2 - 2 UNIV. 1 - 15 STND. 3 - 3 UNIV. 2 - 16 STND. 4 - 4 UNIV. 3 - 17 STND. 5 - 5 UNIV. 4 - 18 STND. 6 - 6 UNIV. 5 & STND. 7 - 7 ABOVE - 19 STND. 8 - 8 TRAINING SECONDARY COLLEGE FORM 1 - 9 TC YR. 1 - 20 FORM 2 - 10 TC YR. 2 - 21 FORM 3 - 11 TC YR. 3 - 22 FORM 4 - 12 TC YR. 4 - 23	Are you currently attending school or, if school is not now in session, did you attend school in the session just completed and plan to attend next session? YES..1 (»C21) NO...2	Why did you not continue your education? ACQUIRED ALL EDUCATION WANTED . 1 NO MONEY FOR FEES OR UNIFORM. . 2 TOO OLD TO CONTINUE . . . . . . 3 MARRIED / BECAME PREGNANT . . . 4 ILLNESS OR DISABILITY . . . . . 5 FOUND WORK. . . . . 6 NOT INTERESTED, LAZY. . . . . . 7 PARENTS TOLD ME TO STOP . . . . 8 HAD TO WORK OR HELP AT HOME . . 9 POOR/CROWDED SCHOOL FACILITIES.10 POOR QUALITY INSTRUCTION. . . .11 TEACHERS OFTEN ABSENT . . . . .12 SCHOOL TOO DANGEROUS FOR GIRLS.13 SCHOOL TOO FAR FROM HOME. . . .14 SCHOOL CONFLICT W/ BELIEFS. . .15 FAILED PROMOTION EXAM . . . . .16 DISMISSED / EXPELLED. . . . . .17 OTHER (SPECIFY) . . . . .18 1st reason 2nd reason	In which calendar year did you last attend school? CALENDAR YEAR (IF WITHIN PAST 12 MONTHS »C30) (OTHER-WISE, »NEXT MODULE)	What type of school do you attend? PRIMARY LEA/GOVERNMENT. . . . .11 PRIVATE NON-RELIGIOUS .12 CHURCH/MISSION SCHOOL .13 ISLAMIC SCHOOL. . . . .14 OTHER PRIMARY . . . . .15 SECONDARY GOVERNMENT (CONVENTIONAL). . . . 21 COMMUNITY DAY (CDSS) . 22 CHURCH/MISSION SCHOOL .23 ISLAMIC SCHOOL. . . . .24 NIGHT SCHOOL. . . . . .25 OTHER SECONDARY . . . .26 TERTIARY UNIVERSITY. . . . . . .31 TRAINING COLLEGE. . . .32 OTHER TERTIARY. 33	Are you a day scholar or a boarder at the school? DAY SCHOLAR. 1 BOARDER . 2 (»C25)	How do you get to school each day? FOOT . . 1 BICYCLE. 2 BUS/MINI- BUS . . 3 PRIVATE VEHICLE 4 OTHER. . 5	How long does it usually take you to get to school by this means of transport [C23]? MINUTE. 1 HOUR. . 2 TIME AMOUNT UNIT
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C01	C25	C26	C27	C28	C29	C30 How much was spent on your education in the last 12 months by the household, family, and friends for:							
I D C O D E	How many hours did you spend yesterday attending classes at school or university, or in some other training course?	How many hours did you spend yester-day doing home-work, that is, school work to be done at home?	How many days was your school in session over the past 2 weeks?	How many days did you attend school in the past 2 weeks?	At any time in the past 12 months, did you ever temporarily withdraw from school, so that you missed more than two consecutive weeks of instruction?	A. Tuition, including any extra tuition fees	B. School books & other materials	C. School uniform clothing	D. Board-ing school fees	E. Contri-bution for school building or maintenance	F. Parent associa-tion & other school related fees	G. Other expenses	TOTAL (»NEXT MODULE)
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MODULE D: HEALTH

[ASK OF ALL PERSONS IN THE HOUSEHOLD. MOTHERS OR GUARDIANS TO ANSWER FOR CHILDREN UNDER 10 YEARS OF AGE.]

D01	D02	D03	D04	D05		D06		D07		D08	D09	D10	D11	D12
I D C O D E	IS THE INFORMATION SELF-REPORTED OR IS IT BEING PROVIDED BY ANOTHER HOUSEHOLD MEMBER? SELF-REPORTED.1 (»D04) ANOTHER HH MEMBER .2	WHO IS REPORT-ING THE INFORM-ATION FOR THE INDI-VIDUAL? ID CODE	During the past 2 weeks have you suffered from an illness or injury? YES..1 NO...2 (»D12)	What was the illness or injury? FEVER, MALARIA . 1 DIARRHEA . . . . 2 STOMACH ACHE . . 3 VOMITING . . . . 4 SORE THROAT. . . 5 UPPER RESPIRATORY (SINUSES) . . . 6 LOWER RESPIRATORY (CHEST, LUNGS). 7 FLU. . . . . . . 8 ASTHMA . . . . . 9 HEADACHE . . . .10 FAINTING . . . .11 SKIN PROBLEM . .12 DENTAL PROBLEM .13 EYE PROBLEM. . .14 EAR/NOSE/THROAT.15 BACKACHE . . . .16 HEART PROBLEM. .17	BLOOD PRESSURE .18 PAIN WHEN PASS- ING URINE . . .19 DIABETES . . . .20 MENTAL DISORDER.21 TB . . . . . . .22 SEXUALLY TRANSMITTED DISEASE . . . .23 BURN . . . . . .24 FRACTURE . . . .25 WOUND . . . . . 26 POISONING . . . 27 PREGNANCY . . . 28 UNSPECIFIED LONG-TERM ILLNESS . . . .29 OTHER (SPECIFY).30	Who diagnosed the illness? MEDICAL WORKER (DOCTOR, CLINICAL OFFICER, NURSE) AT HOSPITAL . . . 1 MEDICAL WORKER AT OTHER HEALTH FACILITY. . . . . 2 TRADITIONAL HEALER 3 NON-HH MEMBER (NOT MEDICAL). . 4 HH MEMBER. . . . . 5 SELF 6		What action did you take to find relief for your illness? DID NOTHING, NOT SERIOUS . 1 DID NOTHING, NO MONEY. . . 2 USED MEDICINE HAD IN STOCK 3 PERSONALLY KNOWN REMEDIES. 4 SOUGHT TREATMENT AT GOVT. HEALTH FACILITY . . . . . 5 SOUGHT TREATMENT AT CHURCH/MISSION FACILITY . 6 SOUGHT TREATMENT AT PRIVATE HEALTH FACILITY . 7 WENT TO LOCAL PHARMACY . . 8 WENT TO LOCAL GROCERY FOR MEDICINE. . . . . 9 SOUGHT TREATMENT WITH TRADITIONAL HEALER. . . .10 SOUGHT TREATMENT WITH FAITH HEALER. . . . . . .11 OTHER (SPECIFY). 12		During the past 2 weeks did you have to stop your normal activities because of this (these) illness(es)? YES..1 NO...2 (»D12)	For how many days in the past two weeks did you stop your normal activities?	During the past 2 weeks did anyone else in the household have to stop their normal activities to care for you? YES..1 NO...2 (»D12)	For how many days in the past two weeks did someone stop their normal activities to care for you?	How much in total did you spend in the past 4 weeks for all illnesses and injuries, including for medicine, tests, con-sultation, & in-patient fees, if any? INCLUDE ESTIMATED VALUE OF ANY IN-KIND PAYMENTS.
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D01	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23	D24	D25	D26
I D C O D E	How much in total did you spend in the past 4 weeks for medical care not related to an illness - preventative health care, pre-natal visits, check-ups, etc., if any? INCLUDE ESTIMATED VALUE OF ANY IN-KIND PAYMENTS. MK	How much in total did you spend in the past 4 weeks for non-prescription medicines - Panadol, Fansidar, cough syrup, etc.? INCLUDE ESTIMATED VALUE OF ANY IN-KIND PAYMENTS. MK	During the last 12 months, were you hospital-ized or had an overnight stay(s) in a medical facility? YES..1 NO...2 (»D18)	What was the total cost of your hospital-ization(s) or overnight stay(s) in a medical facility? INCLUDE ESTIMATED VALUE OF ANY IN-KIND PAYMENTS. MK	Did you or other members of your household have to borrow money or sell assets in order to pay for these costs? YES...1 NO...2	During the last 12 months, did you stay over-night(s) at a traditional healer's or faith healer's dwelling? YES..1 NO...2 (»D21)	What was the total cost of your stay(s) at the traditional healer or faith healer? INCLUDE ESTIMATED VALUE OF ANY IN-KIND PAYMENTS. MK	Did you or other members of your household have to borrow money or sell assets in order to pay for these costs? YES...1 NO...2	How is your health today compared to what it was at this time last year? MUCH BETTER . .1 SOMEWHAT BETTER . .2 ABOUT THE SAME . . .3 SOMEWHAT WORSE. . .4 MUCH WORSE.5 CHILD LESS THAN ONE YEAR OLD .6	Are you physically or mentally handi-capped in any way? YES..1 NO...2 (»D24)	In what way(s) are you handicapped? LIST ALL MISSING HAND .1 MISSING FOOT .2 LAME . . . . .3 BLIND. . . . .4 DEAF . . . . .5 UNABLE TO SPEAK . . . .6 MENTALLY DISABLED. . .7 OTHER (SPEC.).8	If you had to sweep the floor of your house, could you do so easily, with difficulty, or not at all? WELL. . . 1 WITH DIFF-ICULTY . 2 NOT AT ALL. . . 3 TOO YOUNG 4	If you had to walk for 5 kilometers, could you do so easily, with difficulty, or not at all? WELL. . . 1 WITH DIFF-ICULTY . 2 NOT AT ALL. . . 3 TOO YOUNG 4	Do you suffer from a chronic illness? YES..1 NO...2 (»D30)
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D01	D27		D28		D29	D30	D31	D32	D33	D34	D35	D36	D37	D38
I D C O D E	What chronic illness do you suffer from? LIST UP TO 2. CHRONIC MALARIA/FEVER.1 TUBERCULOSIS . . . . .2 HIV/AIDS . . . . . . .3 DIABETES . . . . . . .4 ASTHMA . . . . .5 BILHARZIA/ SCHISTOSOMIASIS . . .6 ARTHRITIS/ RHEUMATISM. . . . . .7 NERVE DISORDER . . . .8 STOMACH DISORDER. . . 9 SORES THAT DO NOT HEAL . . . . . .10 CANCER. . . . . . .11 PNEUMONIA . . . . .12 OTHER (SPEC.) 13		How long have you suffered from this illness (these illnesses)?		Who diagnosed the illness? MEDICAL WORKER (DOCTOR, CLINICAL OFFICER, NURSE) AT HOSPITAL . . . 1 MEDICAL WORKER AT OTHER HEALTH FACILITY. . . . . 2 TRADITIONAL HEALER 3 NON-HH MEMBER (NOT MEDICAL). . 4 HH MEMBER. 5	Have you lost a lot of weight recently?	Are you usually feverish (feeling chills, skin feels warmer than normal to others)?	Do you have a cough all of the time?	Are you contin- ually having diarrhea?	IS RESPOND- ENT A WOMAN AGED 12 TO 49 YEARS? YES..1 NO...2 (»NEXT	In the past 24 months, did you give birth to a child, even if born dead? YES..1 NO...2 (»NEXT	Did you regularly go to a health clinic when you were pregnant with your last child born in the last 24 months?	Where did you deliver your last child born in the last 24 months? HOSPITAL/ MATERNITY 1 CLINIC. . .2	Who delivered this child? DOCTOR OR CLINICAL OFFICER . .1 NURSE. . . .2 MIDWIFE. . .3 TRADITIONAL BIRTH ATTENDANT .4 FRIEND OR RELATIVE. .5
	ILLNESS 1	ILLNESS 2	YEARS	MONTHS	SELF 6	YES..1 NO...2	YES..1 NO...2	YES..1 NO...2	YES..1 NO...2	MODULE)	MODULE)	YES..1 NO...2	AT HOME . .3 OTHER . . .4	SELF . . . .6 OTHER. . . .7
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MODULE E: TIME USE & LABOUR

(ASK ALL HOUSEHOLD MEMBERS AGED 5 YEARS AND OLDER.) IF DID NOT DO TASK, WRITE ZERO; LESS THAN 1/2 HOUR, WRITE '0.5'; OTHERWISE, ROUND TO NEAREST HOUR.

E01 ID CODE	E02 PUT AN 'X' FOR ALL INDI-VIDUALS WHO ARE AGED 4 YEARS AND YOUNGER. DO NOT ADMIN-ISTER THIS MODULE TO THESE INDI-VIDUALS.	E03 YESTER-DAY WAS WHAT DAY OF THE WEEK? SUN. .1 MON. .2 TUE. .3 WED. .4 THUR .5 FRI. .6 SAT. .7	E04 WAS YESTER-DAY A PUBLIC HOLIDAY? YES..1 NO...2	E05 How many hours did you spend yester-day cooking, doing laundry, cleaning your house, and the like? HOURS	E06 How many hours did you spend yester-day collect-ing water? HOURS	E07 How many hours did you spend yesterday collecting firewood (or other fuel materials)? HOURS	E08 How many hours in the last seven days did you spend on household agricultural activities (including livestock) or fishing, whether for sale or for household food? HOURS	E09 How many hours in the last seven days did you run or do any kind of non-agricultural or non-fishing household business, big or small, for yourself? HOURS	E10 How many hours in the last seven days did you help in any of the household's non-agricultural or non-fishing household businesses, if any? HOURS	E11 How many hours in the last seven days did you engage in casual, part-time or ganyu labour? HOURS	E12 How many hours in the last seven days did you do any work for a wage, salary, commission, or any payment in kind, excluding ganyu? HOURS	E13 REVIEW QUESTIONS E08 TO E12. DID THE RESPONDENT WORK FOR ANY HOURS AT THESE TASKS OVER THE LAST SEVEN DAYS? YES..1 (»E18) NO...2	E14 Even though you did not do any activities in the last seven days, do you have a job, business, or other economic or farming activity that you will return to? NOT GANYU. YES..1 NO...2 (»E16)	E15 What is the main reason you did not work at this activity during the last seven days? ON LEAVE . .1 ILL. . . . .2 BUSINESS CLOSED TEMPOR-ARILY . . .3 NOT FARMING SEASON. . .4 OTHER (specify) .5 (THEN »E18)
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E01 ID CODE	E16 In the past four weeks have you taken any action to look for any kind of work or start any kind of business / income generating activity? YES..1 NO...2	E17 If you were offered a job, would you be willing to accept the job? YES..1 NO...2	E18 At any time in the past 12 months, were you employed for a wage, salary, commission or any payment in kind, excluding *ganyu*? YES..1 NO...2 (»E29)	E19 Describe your main employed occupation over the past 12 months? WRITTEN DESCRIPTION	(Supervisor to put in occupational code after interview) OCCUP. CODE	E20 Describe what kind of trade or business your main employed occupation over the past 12 months is connected with? WRITTEN DESCRIPTION	(Supervisor to put in industry code after interview) IND. CODE	E21 Is your main employer for your main occupation in the last 12 months... (READ ALL RESPONSES) a private company.1 a private individual. . . .2 government . . . .3 a state-owned enterprise (parastatal). . .4 MASAF or other public works program . . . .5 Other (specify). .6
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E01 I D C O D E	E22 For how long of a time period did you do this work during last 12 months? TIME UNIT WEEK . 4 NUMBER MONTH. 5	E23 For how many days per month did you normally do this work? DAYS	E24 For how many hours per day did you normally do this work, excluding lunch and other breaks? HOURS	E25 How much was your last payment for wages and salary? IF NOT YET PAID, EXPECTED PAYMENT. MK	E26 What period of time do each of your salary payments cover? NUMBER OF TIME UNITS	TIME UNIT DAY. .3 WEEK .4 MONTH.5	E27 How much do you usually receive in allowances or gratuities, including in-kind payments such as uniform, housing, food, and transport, that were not included in the salary you just reported? ESTIMATE CASH VALUE OF ANY IN-KIND PAYMENTS RECEIVED. MK	E28 Over what period of time are you reporting your allowances and gratuity payments? NUMBER OF TIME UNITS	TIME UNIT DAY. .3 WEEK .4 MONTH.5	E29 At any time over past 12 months, did you engage in casual, part-time, *ganyu* labour for anyone who is not a member of your household? YES..1 NO...2 (»NEXT MODULE)	E30 For how many total days did you do *ganyu* labour over the past 12 months? DAYS	E31 What was the average daily wage you received for these days worked at *ganyu* over the past 12 months? ESTIMATE CASH VALUE OF ANY IN-KIND PAYMENTS RECEIVED. (»NEXT MODULE)
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MODULE F: SECURITY & SAFETY
(ASK OF ALL MEMBERS OF HOUSEHOLD AGED 10 YEARS AND OLDER.)

F01 I D C O D E	F02 PUT AN 'X' FOR ALL INDI-VIDUALS WHO ARE AGED 9 YEARS AND YOUNGER. DO NOT ADMIN-ISTER THIS MODULE TO THESE INDI-VIDUALS.	F03 How safe do you feel against criminals in your own house? VERY SAFE. . 1 FAIRLY SAFE. 2 UNSAFE . . . 3	F04 When walking alone in your neighborhood or village during the day, how safe do you feel against criminals? VERY SAFE. . 1 FAIRLY SAFE. 2 UNSAFE . . . 3	F05 When walking alone in your neighborhood or village at night, how safe do you feel against criminals? VERY SAFE. . 1 FAIRLY SAFE. 2 UNSAFE . . . 3	F06 (IF IN F03 TO F05, ANSWERED 'VERY SAFE' TO ALL, »F07. OTHERWISE, ASK.) If 'Unsafe' or 'Fairly safe', what are the threats? CAN LIST UP TO TWO. ARMED ROBBERS. 1 BURGLARS (NOT ARMED) . . . 2 OTHER CRIM-INALS. . . . 3 OTHER. 4	F07 In the past year, would you say that crime increased, decreased, or remained the same compared to the previous year? INCREASED. 1 DECREASED. 2 THE SAME . 3	F08 In the past year, were you personally attacked, physically beaten, or threatened with violence by someone? YES .1 NO. .2 (»F15)	F09 Was the individual a household member, a relative, a neighbour, or a stranger? CAN LIST UP TO TWO. HH MEMBER. 1 OTHER RELATIVE. 2 NEIGHBOUR. 3 STRANGER . 4	F10 Was a knife or panga used in the attack or to threaten you? YES .1 NO. .2	F11 Was a gun or pistol used in the attack or to threaten you? YES .1 NO. .2	F12 Did you report any of these offenses to the police? YES .1 NO. .2 (»F14)	F13 On the whole, were you satisfied with the way the police dealt with the matter(s)? YES .1 NO. .2 (THEN »F15)	F14 Why did you fail to report this incident to the police? CRIME NOT SERIOUS.1 POLICE TOO FAR . .2 POLICE CORRUPT . .3 REPORTING WOULD CAUSE TROUBLE . .4 NEIGHBOURHOOD ISSUE, DIDN'T WANT POLICE . . .5 OTHER (SPEC.). . . .6
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[ASK OF HOUSEHOLD HEAD, OR, IF UNAVAILABLE, ANOTHER INFORMED HOUSEHOLD MEMBER.]

F15	F16	F17	F18	F19	F20	F21	F22	F23
INDICATE WITH AN 'X' THE RESPOND-ENT TO QUEST-IONS F16 TO F23	In the past year, did anyone enter your dwelling to steal, to try to steal something, or to commit another crime? YES .1 NO. .2 (»F18)	How many times did it happen? ONCE . . 1 TWICE. . 2 THREE TIMES . 3 MORE THAN THREE TIMES . 4	In the past year, were any animals stolen from you? YES .1 NO. .2 (»F20)	What types of animals were stolen? CAN LIST UP TO THREE. CATTLE . 1 OXEN . . 2 GOATS. . 3 SHEEP. . 4 PIGS . . 5 CHICKENS 6 OTHER POULTRY 7 OTHER. . 8 FIRST | SECOND | THIRD	In the past year, were any crops stolen from you? YES .1 NO. .2	In the past year, were you personally a victim of petty theft such as pick-pocketing, theft of purse, watch, wallet, clothing, or jewelry? YES .1 NO. .2	In the past year, have you changed your behaviour in terms of crops grown, animals owned, or assets acquired because of insecurity? YES .1 NO. .2	What steps have you taken to protect yourself from crime in the past year? CAN LIST UP TO TWO. ESTABLISHED COM-MUNITY POLICING . . 1 NEIGHBOURHOOD WATCH. 2 EMPLOYED WATCHMAN. . 3 ACQUIRED GUARD DOGS. 4 IMPROVED HOUSE SECURITY (BARS, WALLS, FENCE) . . . 5 CHANGED LOCATION . . 6 TRADITIONAL REMEDIES (*KUTSILIKA*). . . . 7 OTHER (SPECIFY). . . 8 NOTHING. 9

MODULE G: HOUSING

[ASK OF HOUSEHOLD HEAD.]

G01	G02	G03	G04	G05	G06	G07	G08	G09	G10
Do you own or are purchasing this house, is it provided to you by an employer, do you use it for free, or do you rent this house?	If you sold this dwelling today, how much would you receive for it?	Estimate the rent you could receive if you rented this dwelling or one exactly like it to another person? (MK PER TIME UNIT)	How much do you pay to rent this dwelling? (MK PER TIME UNIT)	How many years ago was this house built? How old is it?	WHAT TYPE OF DWELLING DOES THE HOUSE-HOLD LIVE IN?	WHAT GENERAL TYPE OF CONSTRUCTION MATERIALS ARE USED FOR THE DWELLING?	THE OUTER WALLS OF THE MAIN DWELLING OF THE HOUSEHOLD ARE PREDOMINANTLY MADE OF WHAT MATERIAL?	THE ROOF OF THE MAIN DWELLING IS PREDOMINANTLY MADE OF WHAT MATERIAL?	THE FLOOR OF THE MAIN DWELLING IS PREDOMI-NANTLY MADE OF WHAT MATERIAL?
OWNED. . . . . .1 BEING PURCHASED . . .2 EMPLOYER PROVIDES (»G03).3 FREE, AUTHO-RIZED (»G03). .4 FREE, NOT AUTHO-RIZED (»G03). .5 RENTED (»G04). .6	(THEN »G05) MK	(THEN »G05) DAY. . 3 WEEK. 4 MONTH. 5 YEAR . 6 MK	DAY. . 3 WEEK. 4 MONTH. 5 YEAR . 6 MK TIME UNIT	DO NOT KNOW .99 YEARS	SINGLE HOUSE . . .1 SEVERAL SEPARATE STRUCTURES.2 FLAT . . . .3 ROOM IN LARGER DWELLING. .4 IMPROVISED HOUSING . .5 OTHER. . . .6	PERMANENT. . . 1 SEMI-PERMANENT 2 TRADITIONAL. . 3 (SEMI-PERMANENT IS MIX OF TRADITIONAL (GRASS, MUD) & MODERN MATERIALS (IRON SHEET, CEMENT)	GRASS . . . . . 1 MUD (YOMATA). . 2 COMPACTED EARTH (YAMDINDO). . 3 MUD BRICK (UNFIRED) . . 4 BURNT BRICKS. . 5 CONCRETE. . . . 6 WOOD. . . . . . 7 IRON SHEETS . . 8 OTHER 9	GRASS. . . . . 1 IRON SHEETS. . 2 CLAY TILES . . 3 CONCRETE . . . 4 PLASTIC SHEETING . . 5 OTHER. 6	SAND. . . . . 1 SMOOTHED MUD. 2 SMOOTH CEMENT 3 WOOD. . . . . 4 TILE. . . . . 5 OTHER 6
			TIME UNIT						

G11	G12	G13	G14	G15	G16	G17	G18	G19	G20	G21
How many separate rooms do the members of your household occupy? (DO NOT COUNT BATHROOMS, TOILETS, STOREROOMS, OR GARAGE)	What is your main source of lighting fuel?	What is your main source of cooking fuel?	Do you ever use firewood for fuel?	Do you ever collect firewood?	Where do you go to collect firewood?	How long does it take you to walk from your dwelling to where you usually go to collect firewood?	Of the firewood you used in the past week, how much of it did you purchase?	What is the total value of the firewood you used in the past week, whether gathered or purchased? (Estimate purchase cost of gathered firewood.)	Do you have electricity working in your dwelling?	Is your electricity from ESCOM, a generator, solar panels, or some other source?
NUMBER OF ROOMS	COLLECTED FIREWOOD. . .1 PURCHASED FIREWOOD. . .2 GRASS. . . . .3 PARAFFIN . . .4 ELECTRICITY. .5 GAS. . . . . .6 BATTERY/DRY CELL (TORCH).7 CANDLES. . . .8 OTHER. 9	COLLECTED FIREWOOD. . 1 (»G16) PURCHASED FIREWOOD. . 2 (»G15) PARAFFIN . . 3 ELECTRICITY. 4 GAS. . . . . 5 CHARCOAL . . 6 CROP RESIDUE 7 SAW DUST . . 8 ANIMAL WASTE 9 OTHER. . . .10	YES..1 NO...2 (»G20)	YES..1 NO...2 (»G19)	OWN WOODLOT .1 COMMUNITY WOODLOT .2 FOREST RESERVE .3 UNFARMED AREAS OF COMMUN-ITY . . .4 OTHER. . .5	MINUTE. 1 HOUR. . 2 TIME AMOUNT UNIT	ALL . . . 1 ALMOST ALL. . . 2 MORE THAN HALF . . 3 HALF. . . 4 LESS THAN HALF . . 5 A LITTLE. 6 NONE. . . 7	MK	YES..1 NO...2 (»G24)	ESCOM. . . .1 GENERATOR. .2 SOLAR PANEL.3 OTHER. . . .4

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G22	G23	G24	G25	G26	G27	G28	G29	G30	G31
What was the total cost for electricity in the household over the last period? IF ESCOM, LAST BILL RECEIVED.	To what length of time does this cost for electricity refer? (THEN »G25)	Although you do not have electricity here, is there electricity within 100 meters of this dwelling, whether from ESCOM, a generator, a solar panel, or some other source?	Is there a landline telephone in working condition in the dwelling unit?	What was the total cost for landline telephone service in the house-hold over the last period? LAST BILL AMOUNT	To what length of time does this landline telephone cost refer?	Does someone in the household own a cellular telephone (cell phone) in working condition?	What was the total cost for cell phone service for all household members last month?	What was your main source of drinking water over the past month?	How long does it take you to walk (ONE WAY) to the water source from your dwelling?
	DAY . . 3 WEEK. . 4 MONTH . 5 YEAR. . 6				DAY . . 3 WEEK. . 4 MONTH . 5 YEAR. . 6			PIPED INTO DWELLING. (»G33) .1 PIPED OUTSIDE DWELLING, PERSONAL. (»G33) . . . . . .2 COMMUNAL STANDPIPE . . . . .3 PERSONAL HANDPUMP. (»G33) . .4 COMMUNAL HANDPUMP. . . . . .5 PROTECTED SPRING . . . . . .6 PERSONAL OPEN, UNPROTECTED WELL. (»G33) . . . . .7 COMMUNAL OPEN, UNPROTECTED WELL. . . . . .8 RIVER/SPRING . . . . .9 LAKE/RESERVOIR . . . . . . 10 OTHER. 11	MINUTE. 1 HOUR. . 2
MK	TIME AMOUNT / TIME UNIT	YES..1 NO...2	YES..1 NO...2 (»G28)	MK	TIME AMOUNT / TIME UNIT	YES..1 NO...2 (»G30)	MK		TIME AMOUNT / TIME UNIT

G32	G33	G34	G35	G36	G37	G38	G39	G40	G41
Typically when you get to the [WATER SOURCE], how much time do you have to wait in a queue to collect the water?	Do you use this source for your drinking water all year round, only in the dry season, or only in the rainy season?	In the other season, what is your main source of drinking water? USE CODES FOR G30	What was the total cost of drinking water for your house-hold last month?	What kind of toilet facility does your household use? FLUSH TOILET . 1 VIP LATRINE. 2 TRADIT. LATRINE W/ROOF . 3 TRADIT. LATRINE W/O ROOF 4 NONE (»G38) . 5 OTHER . . 6	Is this toilet facility for the use of: READ HH Mem-bers only. .1 Other house-holds also. .2	What kind of rubbish disposal facilities does your household use? COLLECTED FROM RUBBISH BIN. . .1 RUBBISH PIT . . . .2 BURNING . . . . .3 PUBLIC RUBBISH HEAP . . . . . .4 OTHER . . . . . .5 NONE. 6	Do any members of your household sleep under a bed net to protect against mosquitoes at some time during the year? YES..1 NO...2 (»NEXT MODULE)	Has/have the bed net(s) ever been dipped in insecticide against mosqui-toes in the past six months? YES. . . . 1 NO . . . . 2 ALL NETS TREATED & LESS THAN 6 MTHS. OLD . . . 3	(ASK ONLY IF HOUSEHOLD HAS CHILDREN AGED FIVE AND UNDER) Do the children under 5 in the household sleep under a bed net at those times of the year when there are mosquitoes present? YES, FOR ALL CHILDREN UNDER FIVE . . . . 1 YES, FOR SOME CHILDREN UNDER FIVE . . . . 2 NO, NONE OF THE CHILDREN UNDER FIVE . . . . 3 NO CHILDREN UNDER 5 . . . 9
	MINUTE.1 HOUR. .2 ALL YEAR . . . . 1 (»G35) ONLY DRY SEASON. 2 ONLY RAINY SEASON 3		ENTER 'ZERO' IF NONE.						
TIME AMOUNT / TIME UNIT			MK						

MODULE H: CONSUMPTION OF SELECTED FOOD OVER PAST THREE DAYS

Over the past three days, did you or others in your household consume any [. . .] which you did not purchase, but produced yourself, received as a gift or as wages, or received it in some other manner without purchase?	H01 YES..1 NO...2 (»NEXT ITEM)	H02 ITEM CODE	H03 How much did you consume? QUANTITY	UNIT (CODES AT RIGHT)	H04 What is the estimated value of this food? MK	H05 What was the source of the food? OWN PRODUCTION .1 BARTER . . . . .2 WAGE-IN-KIND . .3 GIFT . . . . . .4 OTHER. 5
Ufa (maize flour) mgaiwa		11				
Ufa (maize flour) refined		12				
Cassava flour		13				
Groundnut		14				
Nkhwani		15				
Poultry		16				

UNIT
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KILOGRAMME . . . .1
50 KG. BAG . . . .2
90 KG. BAG . . . .3
PAIL (SMALL) . . .4
PAIL (LARGE) . . .5
No. 10 PLATE . . .6
No. 12 PLATE . . .7
BUNCH. . . . . . .8
PIECE. . . . . . .9
HEAP . . . . . . 10
BALE . . . . . . 11
BASKET (DENGU)
    (SHELLED). . . 12
BASKET (DENGU)
    (UNSHELLED) . . 13
OX-CART
    (UNSHELLED) . . 14
LITRE. . . . . . 15
CUP. . . . . . . 16
TIN. . . . . . . 17
GRAM . . . . . . 18
MILLILITRE . . . 19
OTHER (SPECIFY). 20
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MODULE I: CONSUMPTION OF FOOD OVER PAST ONE WEEK

Over the past one week (7 days), did you or others in your household consume any [. . .]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND THAT EATEN SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS.	I01 YES..1 NO...2 (»NEXT ITEM)	I02 ITEM CODE	I03 How much in total did your household consume in the past week? QUANTITY	UNIT (CODES AT RIGHT)	I04 How much came from purchases? QUANTITY	UNIT (CODES AT RIGHT)	I05 How much did you spend? MK	I06 How much came from own-production? QUANTITY	UNIT (CODES AT RIGHT)	I07 How much came from gifts and other sources? QUANTITY	UNIT (CODES AT RIGHT)
Cereals, grains, cereal products											
Maize *ufa mgaiwa* (normal flour)		101									
Maize *ufa* refined (fine flour)		102									
Maize *ufa madeya* (bran flour)		103									
Maize grain (not as *ufa*)		104									
Green maize		105									
Rice		106									
Finger millet (*mawere*)		107									
Sorghum		108									
Pearl millet (*mchewere*)		109									
Wheat flour		110									
Bread		111									
Buns, scones		112									
Biscuits		113									
Spaghetti, macaroni, pasta		114									
Breakfast cereal		115									
Infant feeding cereals		116									
Other (specify)		117									
Roots and tubers, plantain											
Cassava tubers		201									
Cassava flour		202									
White sweet potato		203									
Orange sweet potato		204									
Irish potato		205									
Potato crisps		206									

UNIT
KILOGRAMME 1
50 KG. BAG 2
90 KG. BAG 3
PAIL (SMALL) . . .4
PAIL (LARGE) . . .5
No. 10 PLATE . . .6
No. 12 PLATE . . .7
BUNCH. 8
PIECE. 9
HEAP 10
BALE 11
BASKET (*DENGU*)
   (SHELLED). . . 12
BASKET (*DENGU*)
   (UNSHELLED) . . 13
OX-CART
   (UNSHELLED) . . 14
LITRE. 15
CUP. 16
TIN. 17
GRAM 18
MILLILITRE . . . 19
OTHER (SPECIFY). 20

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Over the past one week (7 days), did you or others in your household consume any [. . .]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND THAT EATEN SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS.	I01 YES..1 NO...2 (»NEXT ITEM)	I02 ITEM CODE	I03 How much in total did your household consume in the past week?		I04 How much came from purchases?		I05 How much did you spend? MK	I06 How much came from own-production?		I07 How much came from gifts and other sources?	
			QUANTITY	UNIT (CODES AT RIGHT)	QUANTITY	UNIT (CODES AT RIGHT)		QUANTITY	UNIT (CODES AT RIGHT)	QUANTITY	UNIT (CODES AT RIGHT)
Plantain, cooking banana		207									
Cocoyam (masimbi)		208									
Other (specify)		209									
Pulses											
Bean, white		301									
Bean, brown		302									
Pigeonpea (nandolo)		303									
Groundnut		304									
Groundnut flour		305									
Soyabean flour		306									
Ground bean (nzama)		307									
Cowpea (khobwe)		308									
Other (specify)		309									
Vegetables											
Onion		401									
Cabbage		402									
Tanaposi/Rape		403									
Nkhwani		404									
Chinese cabbage		405									
Other cultivated green leafy vegetables		406									
Gathered wild green leaves		407									
Tomato		408									
Cucumber		409									
Pumpkin		410									
Okra / Therere		411									

UNIT
KILOGRAMME 1
50 KG. BAG 2
90 KG. BAG 3
PAIL (SMALL) 4
PAIL (LARGE) 5
No. 10 PLATE 6
No. 12 PLATE 7
BUNCH. 8
PIECE. 9
HEAP 10
BALE 11
BASKET (DENGU)
 (SHELLED) . . . 12
BASKET (DENGU)
 (UNSHELLED) . . 13
OX-CART
 (UNSHELLED) . . 14
LITRE. 15
CUP. 16
TIN. 17
GRAM 18
MILLILITRE . . . 19
OTHER (SPECIFY). 20

322

Over the past one week (7 days), did you or others in your household consume any [. . .]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND THAT EATEN SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS.	I01 YES..1 NO...2 (»NEXT ITEM)	I02 ITEM CODE	I03 How much in total did your household consume in the past week?		I04 How much came from purchases?		I05 How much did you spend? MK	I06 How much came from own-production?		I07 How much came from gifts and other sources?	
			QUANTITY	UNIT (CODES AT RIGHT)	QUANTITY	UNIT (CODES AT RIGHT)		QUANTITY	UNIT (CODES AT RIGHT)	QUANTITY	UNIT (CODES AT RIGHT)
Tinned vegetables (specify: _____)		412									
Other vegetables (specify: _____)		413									
Meat, Fish, and Animal products											
Eggs		501									
Dried fish		502									
Fresh fish		503									
Beef		504									
Goat		505									
Pork		506									
Chicken		507									
Other poultry - guinea fowl, doves, etc.		508									
Small animal – rabbit, mice, etc.		509									
Termites, other insects		510									
Tinned meat or fish		511									
Other (specify)		512									
Fruits											
Mango		601									
Banana		602									
Citrus – naartje, orange, etc.		603									
Pineapple		604									
Papaya		605									
Guava		606									
Avocado		607									
Wild fruit (*masau, mlambe, etc.*)		608									
Apple		609									

UNIT

KILOGRAMME 1
50 KG. BAG 2
90 KG. BAG 3
PAIL (SMALL) . . .4
PAIL (LARGE) . . .5
No. 10 PLATE . . .6
No. 12 PLATE . . .7
BUNCH. 8
PIECE. 9
HEAP 10
BALE 11
BASKET (*DENGU*)
  (SHELLED). . . 12
BASKET (*DENGU*)
  (UNSHELLED) . . 13
OX-CART
  (UNSHELLED) . . 14
LITRE. 15
CUP. 16
TIN. 17
GRAM 18
MILLILITRE . . . 19
OTHER (SPECIFY). 20

Over the past one week (7 days), did you or others in your household consume any [. . .]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND THAT EATEN SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS.	I01 YES..1 NO...2 (»NEXT ITEM)	I02 ITEM CODE	I03 How much in total did your household consume in the past week?		I04 How much came from purchases?		I05 How much did you spend? MK	I06 How much came from own-production?		I07 How much came from gifts and other sources?	
			QUANTITY	UNIT (CODES AT RIGHT)	QUANTITY	UNIT (CODES AT RIGHT)		QUANTITY	UNIT (CODES AT RIGHT)	QUANTITY	UNIT (CODES AT RIGHT)
Other fruits (specify)		610									
Cooked Foods from Vendors											
Maize - boiled or roasted (vendor)		820						/////	/////		
Chips (vendor)		821						/////	/////		
Cassava - boiled (vendor)		822						/////	/////		
Eggs - boiled (vendor)		823						/////	/////		
Chicken (vendor)		824						/////	/////		
Meat (vendor)		825						/////	/////		
Fish (vendor)		826						/////	/////		
Mandazi , doughnut (vendor)		827						/////	/////		
Samosa (vendor)		828						/////	/////		
Meal eaten at restaurant		829						/////	/////		
Other (specify)		830						/////	/////		
Milk and Milk Products											
Fresh milk		701									
Powdered milk		702									
Margarine		703									
Butter		704									
Chambiko - soured milk		705									
Yoghurt		706									
Cheese		707									
Infant feeding formula (for bottle)		708									
Other (specify)		709									
Sugar, Fats, and Oil											
Sugar		801									
Sugar Cane		802									

UNIT
KILOGRAMME 1
50 KG. BAG 2
90 KG. BAG 3
PAIL (SMALL) . . .4
PAIL (LARGE) . . .5
No. 10 PLATE . . .6
No. 12 PLATE . . .7
BUNCH. 8
PIECE. 9
HEAP 10
BALE 11
BASKET (*DENGU*)
  (SHELLED). . . 12
BASKET (*DENGU*)
  (UNSHELLED) . . 13
OX-CART
  (UNSHELLED) . . 14
LITRE. 15
CUP. 16
TIN. 17
GRAM 18
MILLILITRE . . . 19
OTHER (SPECIFY). 20

Over the past one week (7 days), did you or others in your household consume any [. . .]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND THAT EATEN SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS.	I01 YES..1 NO...2 (»NEXT ITEM)	I02 ITEM CODE	I03 How much in total did your household consume in the past week? QUANTITY	UNIT (CODES AT RIGHT)	I04 How much came from purchases? QUANTITY	UNIT (CODES AT RIGHT)	I05 How much did you spend? MK	I06 How much came from own-production? QUANTITY	UNIT (CODES AT RIGHT)	I07 How much came from gifts and other sources? QUANTITY	UNIT (CODES AT RIGHT)
Cooking oil		803									
Other (specify)		804									
Beverages											
Tea		901									
Coffee		902									
Squash (Sobo drink concentrate)		903									
Fruit juice		904									
Freezes (flavoured ice)		905									
Soft drinks (Coca-cola, Fanta, Sprite, etc.)		906									
Chibuku/Napolo (commercial traditional-style beer)		907									
Bottled / canned beer (Carlsberg, etc.)		908									
Local sweet beer (*thobwa*)		909									
Traditional beer (*masase*)		910									
Wine or commercial liquor		911									
Locally brewed liquor (*kachasu*)		912									
Other (specify)		913									
Spices & Miscellaneous											
Salt		810									
Spices		811									
Yeast, baking powder, bicarbonate of soda		812									
Tomato sauce (bottle)		813									
Hot sauce (Nali, etc.)		814									
Jam, jelly, honey		815									
Sweets, candy, chocolates		816									
Other (specify)		817									

UNIT
KILOGRAMME 1
50 KG. BAG 2
90 KG. BAG 3
PAIL (SMALL) . . .4
PAIL (LARGE) . . .5
No. 10 PLATE . . .6
No. 12 PLATE . . .7
BUNCH. 8
PIECE. 9
HEAP 10
BALE 11
BASKET (*DENGU*)
    (SHELLED) . . . 12
BASKET (*DENGU*)
    (UNSHELLED) . . 13
OX-CART
    (UNSHELLED) . . 14
LITRE. 15
CUP. 16
TIN. 17
GRAM 18
MILLILITRE . . . 19
OTHER (SPECIFY). 20

MODULE J: NON-FOOD EXPENDITURES – Past one week & one month

PROMPT FOR EACH ITEM ON THE LIST.

ONE WEEK RECALL

Over the past <u>one week (7 days)</u>, did you purchase any [...]?	J01 YES..1 NO...2 (»NEXT ITEM)	J02 ITEM CODE	J03 How much did you pay in total? MK
Charcoal		101	
Paraffin or kerosene		102	
Cigarettes or other tobacco		103	
Matches		104	
Newspapers or magazines		105	
Public transport – bus fare, taxi fare		106	

ONE MONTH RECALL

Over the past <u>one month</u>, did you purchase or pay for any [...]?	J01 YES..1 NO...2 (>>NEXT ITEM)	J02 ITEM CODE	J03 How much did you pay in total? MK
Milling fees, grain		201	
Bar soap (body soap or clothes soap)		202	
Clothes soap (powder)		203	
Toothpaste, toothbrush		204	
Toilet paper		205	
Glycerine, Vaseline, skin creams		206	
Other personal products (shampoo, razor blades, cosmetics, hair products, etc.)		207	
Household cleaning products (dish soap, toilet cleansers, etc.)		208	
Light bulbs		209	
Postage stamps or other postal fees		210	
Donation - to church, charity, beggar, etc.		211	
Petrol or diesel		212	
Motor vehicle service, repair, or parts		213	
Bicycle service, repair, or parts		214	
Wages paid to servants		215	
Mortgage - regular payment to purchase house		216	
Repairs & maintenance to dwelling		217	
Repairs to household and personal items (radios, watches, etc.)		218	

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MODULE K: NON-FOOD EXPENDITURES – Past three months

PROMPT FOR EACH ITEM ON THE LIST.

	K01 Over the past three months, did you purchase or pay for any [...]? YES..1 NO...2 (»NEXT ITEM)	K02 ITEM CODE	K03 How much did you pay in total? MK
Infant clothing		301	
Baby nappies/diapers		302	
Boy's trousers		303	
Boy's shirts		304	
Boy's jackets		305	
Boy's undergarments		306	
Boy's other clothing		307	
Men's trousers		308	
Men's shirts		309	
Men's jackets		310	
Men's undergarments		311	
Men's other clothing		312	
Girl's blouse/shirt		313	
Girl's dress/skirt		314	
Girl's undergarments		315	
Girl's other clothing		316	
Lady's blouse/shirt		317	
Chitenje cloth		318	
Lady's dress/skirt		319	
Lady's undergarments		320	
Lady's other clothing		321	
Boy's shoes		322	
Men's shoes		323	

	K01 Over the past three months, did you purchase or pay for any [...]? YES..1 NO...2 (»NEXT ITEM)	K02 ITEM CODE	K03 How much did you pay in total? MK
Girl's shoes		324	
Lady's shoes		325	
Cloth, thread, other sewing material		326	
Laundry, dry cleaning, tailoring fees		327	
Bowls, glassware, plates, silverware, etc.		328	
Cooking utensils (cookpots, stirring spoons and wisks, etc.)		329	
Cleaning utensils (brooms, brushes, etc.)		330	
Torch / flashlight		331	
Umbrella		332	
Paraffin lamp (hurricane or pressure)		333	
Stationery items (not for school)		334	
Books (not for school)		335	
Music or video cassette or CD		336	
Tickets for sports / entertainment events		337	
House decorations		338	
Night's lodging in rest house or hotel		339	

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MODULE L: NON-FOOD EXPENDITURES – Past twelve months

PROMPT FOR EACH ITEM ON THE LIST.

Over the past one year (twelve months), did you purchase or pay for any [...]?	L01 YES..1 NO...2 (»NEXT ITEM)	L02 ITEM CODE	L03 How much did you pay in total? MK
Carpet, rugs, drapes, curtains		401	
Linen - towels, sheets, blankets		402	
Mat - sleeping or for drying maize flour		403	
Mosquito net		404	
Mattress		405	
Sports & hobby equipment, musical instruments, toys		406	
Film, film processing, camera		407	
Building items - cement, bricks, timber, iron sheets, tools, etc.		408	
Council rates		409	
Insurance - health (MASM, etc.), auto, home, life		410	
Losses to theft (value of items or cash lost)		411	
Fines or legal fees		412	
Lobola (bridewealth) costs		413	
Marriage ceremony costs		414	
Funeral costs		415	

Non-food items that may not have been purchased.

Over the past one year did you gather, purchase, or pay for any [...]?	L01 YES..1 NO...2 (»NEXT ITEM)	L02 ITEM CODE	L03 What was the estimated total value of [...] consumed? MK	L04 What was the cost of that which you purchased? MK
Woodpoles, bamboo		416		
Grass for thatching roof or other use		417		

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MODULE M: DURABLE GOODS

[ASK OF HOUSEHOLD HEAD.]

ITEM	M01 Does your house-hold own a [ITEM]? YES..1 NO...2 (»M06)	M02 D U R A B L E G O O D ITEM CODE	M03 How many [ITEM]s do you own? NUMBER	M04 What is the age of this [ITEM]? IF MORE THAN ONE ITEM, AV-ERAGE AGE. YEARS	M05 If you wanted to sell one of this [ITEM] today, how much would you receive? IF MORE THAN ONE, AVERAGE VALUE. (THEN »NEXT ITEM) MK	M06 Did you own any in the past five years? YES..1 NO...2 (»NEXT ITEM)	M07 When did you sell it (them)? IF STOLEN, LOST, OR GIVEN AWAY, USE CODE 55. CALENDAR YEAR	ITEM	M01 Does your house-hold own a [ITEM]? YES..1 NO...2 (»M06)	M02 D U R A B L E G O O D ITEM CODE	M03 How many [ITEM]s do you own? NUMBER	M06 Did you own any in the past five years? YES..1 NO...2 (»NEXT ITEM)	M07 When did you sell it (them)? IF STOLEN, LOST, OR GIVEN AWAY, USE CODE 55. CALENDAR YEAR
Mortar/pestle (*mtondo*)		501						Beer brewing drum		520			
Bed		502						Boat or canoe		521			
Table		503						Fishing net		522			
Chair		504						Upholstered chair, sofa set		523			
Fan		505						Coffee table (for sitting room)		524			
Air conditioner		506						Cupboard, drawers, bureau		525			
Radio ('wireless')		507						Lantern (paraffin)		526			
Tape or CD player; HiFi		508						Desk		527			
Television & VCR		509						Clock		528			
Sewing machine		510						Iron (for pressing clothes)		529			
Kerosene/paraffin stove		511						Ox-cart		530			
Electric or gas stove; hot plate		512						Wheelbarrow		531			
Refrigerator		513						Hand sprayer		532			
Washing machine		514						Panga		533			
Bicycle		515						Hoe		534			
Motorcycle/scooter		516						Axe		535			
Car		517						Sickle		536			
Mini-bus		518											
Lorry		519											

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MODULE N: AGRICULTURE - General

[ASK OF THOSE CONCERNED WITH FARMING IN THE HOUSEHOLD.] THE TIME REFERENCE IS THE LAST COMPLETED CROPPING SEASON.

N01	N02	N03	N04		N05	N06	N07		N08	N09	N10	N11	N12	N13	N14
Do you engage in any agricultural activities or do you own agricultural land of any sort?	WHICH IS THE LAST COM-PLETED CROP-PING SEASON? 2002/03 or 2003/04?	In [LAST COM-PLETED CROPPING SEASON], did your household rent out any of your land for others to cultivate?	How much land in area did you rent out to others?		What was the value of the rental payment received? IF RENT PAID IN KIND, ESTIMATE VALUE.	In [LAST COM-PLETED CROPPING SEASON], did your household leave any land unculti-vated?	How much land in area did you leave uncultivated?		Relative to the previous cropping season, was the amount of land you used for farming or owned and let others use in [LAST COMPLETED CROPPING SEASON] ... READ	Was your household engaged in tenant farming on a tobacco estate in [LAST COM-PLETED CROPPING SEASON]?	How many visits from an agricul-tural Field Assistant (FA) did you receive in the [LAST COMPLETED CROPPING SEASON]?	Did you receive advice from the FA on general crop product-ion?	What was the quality of the advice?	Did you receive advice from the FA on new seed vari-eties?	What was the quality of the advice?
			ACRE. . .1 HECTARE .2 SQUARE METERS .3 OTHER (SPEC.).4				ACRE. . .1 HECTARE .2 SQUARE METERS .3 OTHER (SPEC.).4		Much less . .1 Less. . . . .2 Same amount .3 More. . . . .4 Much more . .5				USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2
YES..1 NO...2 (»NEXT MODULE)	2002/03 .1 2004/04 .2	YES..1 NO...2 (»N06)	AREA AMOUNT	AREA UNIT	MK	YES..1 NO...2 (»N08)	AREA AMOUNT	AREA UNIT		YES..1 NO...2	(IF ZERO, »NEXT MODULE)	YES..1 NO...2 (»N13)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»N15)	AVERAGE.3 USEFUL .4

N15	N16	N17	N18	N19	N20	N21	N22	N23	N24	N25	N26	N27	N28	N29	N30
Did you receive advice from the FA on fertilizer use?	What was the quality of the advice?	Did you receive advice from the FA on pest control?	What was the quality of the advice?	Did you receive advice from the FA on irrigation?	What was the quality of the advice?	Did you receive advice from the FA on general animal care?	What was the quality of the advice?	Did you receive advice from the FA on animal disease or animal vaccina-tions?	What was the quality of the advice?	Did you receive advice from the FA on market-ing/ crop sales?	What was the quality of the advice?	Did you receive advice from the FA on access to credit?	What was the quality of the advice?	Did you receive advice from the FA on growing & selling tobacco?	What was the quality of the advice?
	USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2		USELESS.1 NOT VERY USEFUL.2
YES..1 NO...2 (»N17)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»N19)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»N21)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»N23)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»N25)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»N27)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»N29)	AVERAGE.3 USEFUL .4	YES..1 NO...2 (»NEXT MODULE)	AVERAGE.3 USEFUL .4

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MODULE O: AGRICULTURE - Rainfed cultivation

[ASK OF ALL THOSE CONCERNED WITH FARMING IN THE HOUSEHOLD.] THE TIME REFERENCE IS THE LAST COMPLETED CROPPING SEASON.
LIST IN O03 ALL PLOTS BEFORE COLLECTING DETAILS ON EACH. A PLOT IS DEFINED AS AN AREA IN WHICH A UNIFORM, CONSISTENT CROP MANAGEMENT SYSTEM WAS USED, EVEN IF INTERCROPPED.

O01: Did any member of the household engage in rainfed farming in [LAST COMPLETED CROPPING SEASON], whether self-employed or as a tenant?   YES. 1   NO . 2 (»MODULE Q)

O02 PLOT ID	O03 LIST OF PLOTS CULTIVATED BY HOUSEHOLD DURING RAINS. LIST ALL BEFORE COLLECTING INFORMATION ON EACH. Please list for me each plot of land that a HH member farmed during [LAST COMPLETED CROPPING SEASON]? WRITE A NAME TO IDENTIFY PLOT	O04 Who in the household makes the decisions on input use and the timing of cropping activities on this plot? IF PRESENT, ASK FOLLOWING TO THIS PERSON. ID CODE	O05 What is the area of the plot? ACRE. . . .1 HECTARE . .2 SQ. METERS.3 OTHER (SPECIFY).4 AREA AMOUNT	O05 AREA UNIT	O06 What is the general texture of the soil on this plot: READ ANSWERS sandy . . 1 between sand & clay . . 2 clay. . . 3	O07 What is the slope of this plot: READ ANSWERS flat. . .1 slight slope. .2 moderate slope .3 steep, hilly. .4	O08 What crops were grown on this plot in [LAST CROPPING SEASON]? LIST MOST IMPORTANT FIRST. LOCAL MAIZE . . 1 COMPOSITE MAIZE 2 HYBRID MAIZE. . 3 CASSAVA . . . . 4 SWEET POTATO. . 5 IRISH POTATO. . 6 GROUNDNUT . . . 7 GROUND BEAN (NZAMA). . . . 8 RICE. . . . . . 9 FINGER MILLET (MAWERE) . . .10 SORGHUM . . . .11 PEARL MILLET (MCHEWERE) . .12 BEAN. . . . . .13 SOYABEAN. . . .14 PIGEONPEA . . .15 BURLEY TOBACCO.16 TOBACCO-OTHER .17 COTTON. . . . .18 SUGAR CANE. . .19 CABBAGE . . . .20 TANAPOSI. . . .21 NKHWANI . . . .22 THERERE/OKRA. .23 TOMATO. . . . .24 ONION . . . . .25 PEAS. . . . . .26 OTHER (SPEC.) .27 1st 2nd 3rd 4th 5th	O09 How did your household acquire this plot? GRANTED BY LOCAL LEADERS. . . . 1 INHERITED . . . 2 THROUGH FAMILY OF SPOUSE. . . 3 PURCHASED WITH TITLE. . . . . 4 PURCHASED WITH NO TITLE . . . 5 LEASEHOLD. . . .6 (»O12) RENT SHORT-TERM.7 (»O12) FARMING AS A TENANT. . . . .8 (»O13) OTHER (SPEC.). .9	O10 Do people buy and sell farmland in this area? YES..1 NO...2 (»O13)	O11 If you were to sell this plot today, how much could you sell it for? MK (»O13)	O12 How much did you pay in total for your lease or rent on this plot in [LAST COMPLETED CROPPING SEASON]? ESTIMATE VALUE OF ANY IN-KIND PAYMENTS. MK
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

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O02	O13	O14								O15	O16	O17	O18	O19	O20	O21	O22
P L O T I D	Did you apply any fertilizer to this plot in [LAST CROP-PING SEA-SON]?	Tell me the amount of each type of fertilizer applied to this plot in [LAST COMPLETED CROPPING SEASON]? TYPE: 23:21:0+4S .1, DAP. . . .2, CAN. . . .3, UREA . . . .4, COMPOUND D .5, OTHER (SPECIFY) .6 UNIT: KILOGRAM. .1, 50 KG BAG .2, OTHER (SPECIFY).3 TRADER . . . . .1, RELATIVE . . . . .2, NEIGHBOR . . . . .3, LOCAL MARKET . . .4, ADMARC . . . . . .5, COOPERATIVE OR ASSOCIATION . . .6, PRIVATE COMPANY. .7, STARTER PACK/TIP .8, NGO. . . . . . .9, OTHER (SPECIFY). 10							How much did you pay for all the fertilizer used on this plot in [LAST COMPLETED CROPPING SEASON]? ESTIMATE VALUE OF ANY IN-KIND PAYMENTS.	Did you apply any manure to this plot in [LAST COMPLETED CROPPING SEASON]? ANIMAL MANURE, COMPOST, GREEN MANURE YES..1 NO...2	Did you use any purchased seeds or seedlings on this plot in [LAST COMPLETED CROPPING SEASON]? YES..1 NO...2 (»O20)	Where did you acquire the seeds or seedlings? LIST UP TO TWO. TRADER. . . .1, RELATIVE. .2, NEIGHBOR. .3, LOCAL MARKET . .4, ADMARC. . .5, COOP/ASSOC.6, PRIVATE COMPANY. .7, NGO . . . .9, OTHER (SPEC.). 10	How much did you pay for the purchased seeds or seedlings used on this plot? ESTIMATE VALUE OF ANY IN-KIND PAYMENTS.	Did you hire any ganyu labour to work on this plot in [LAST COMPLET-ED CROP-PING SEASON]? YES..1 NO...2 (»NEXT PLOT)	For this plot, how many days of ganyu did you hire? Include all tasks - clearing, ridging, planting, weeding, harvest. PERSON-DAYS OF LABOUR	How much did you pay for the total amount of ganyu labour used on this plot in [LAST COMPLETED CROPPING SEASON]? ESTIMATE VALUE OF ANY IN-KIND PAYMENTS.
	YES..1 NO...2 (»O16)	FIRST FERTILIZER				SECOND FERTILIZER											
		TYPE	AMOUNT	UNIT CODE	SOURCE	TYPE	AMOUNT	UNIT CODE	SOURCE	MK				MK			MK
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

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MODULE P: AGRICULTURE - Rainfed crop sales

[ASK OF THOSE CONCERNED WITH FARMING IN THE HOUSEHOLD.] THE TIME REFERENCE IS THE LAST COMPLETED CROPPING SEASON.
COMPLETE P01 TO IDENTIFY ALL CROPS GROWN BEFORE COLLECTING DETAILS ON EACH.

P01	P02	P03		P04		P05	P06		P07	P08	P09		P10		P11	
LOOK AT THE CROPS LISTED IN QUESTION O08 OF PREVIOUS SECTION. FOR EVERY CROP MENTIONED, MARK THE YES/NO COLUMN BELOW AS "YES". TO PROBE FOR CROPS NOT MENTIONED IN O08 ASK: Did you harvest any [....] during [LAST COMPLETED CROPPING SEASON]? YES..1 NO...2 (»NEXT CROP)	C R O P C O D E	How much [...] did you harvest during [LAST COMPLETED CROPPING SEASON] from all of your plots in which [...] was planted?		How much of the [...] you harvested during [LAST COMPLETED CROPPING SEASON] was sold? IF NONE, ENTER ZERO. (»P09)		What was the total value you earned from the [...] you sold?	To whom did you sell this [...]? NOTE UP TO 2 BUYERS. TRADER. . .1 RELATIVE. .2 NEIGHBOR. .3 LOCAL MARKET . .4 ADMARC. . .5 COOPERATIVE /ASSOC.. .6 PRIVATE COMPANY. .7 AUCTION FLOOR. . .8 OTHER (SPEC.). .9		Why did you choose to sell to the first buyer? ALWAYS SELL TO THIS TRADER. . 1 CLOSEST BUYER . . 2 BEST PRICE 3 CONTRACTED TO SELL TO BUYER. 4 OTHER (SPEC.). .5	What portion of your sales of this crop were to the first buyer? LESS THAN 25% .1 25-50%. . .2 50-75%. . .3 MORE THAN 75% .4	After it was harvested, how much [...] was given to pay labourers or make other payments? IF NONE, ENTER ZERO.		How much of the [...] harvested has already been consumed by members of your household? IF NONE, ENTER ZERO.		How much of the [...] harvested during [LAST COMPLETED CROPPING SEASON] is still being stored by your household? IF NONE, ENTER ZERO.	
CROP NAME		QUANTITY	UNIT CODES BELOW	QUANTITY	UNIT CODES BELOW	MK	1st	2nd			QTY	UNIT CODES BELOW	QTY	UNIT CODES BELOW	QTY	UNIT CODES BELOW
LOCAL MAIZE	1															
COMPOSITE MAIZE	2															
HYBRID MAIZE	3															
CASSAVA	4															
SWEET POTATO	5															
IRISH POTATO	6															
GROUNDNUT	7															
GROUND BEAN (*nzama*)	8															
RICE	9															

SEE NEXT PAGE ALSO

UNIT
KILOGRAMME. . 1   PAIL (SMALL). 4   BUNCH . 8   BASKET (*DENGU*)   OX-CART
50 KG. BAG. . 2   PAIL (LARGE). 5   PIECE . 9   (SHELLED) . .12   (UNSHELLED).14
90 KG. BAG. . 3   No. 10 PLATE. 6   BALE. .11   BASKET (*DENGU*)   OTHER
                   No. 12 PLATE. 7   (UNSHELLED) .13   (SPECIFY). .20

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	P01	P02	P03		P04		P05	P06		P07	P08	P09		P10		P11	
	LOOK AT THE CROPS LISTED IN QUESTION O08 OF PREVIOUS SECTION. FOR EVERY CROP MENTIONED, MARK THE YES/NO COLUMN BELOW AS "YES". TO PROBE FOR CROPS NOT MENTIONED IN O08 ASK: Did you harvest any [....] during [LAST COMPLETED CROPPING SEASON]? YES..1 NO...2 (»NEXT CROP NAME CROP)	C R O P C O D E	How much [...] did you harvest during [LAST COMPLETED CROPPING SEASON] from all of your plots in which [...] was planted? UNIT CODES QUANTITY BELOW		How much of the [...] you harvested during [LAST COMPLETED CROPPING SEASON] was sold? IF NONE, ENTER ZERO. (»P09) UNIT CODES QUANTITY BELOW		What was the total value you earned from the [...] you sold? MK	To whom did you sell this [...]? NOTE UP TO 2 BUYERS. TRADER. . .1 RELATIVE. .2 NEIGHBOR. .3 LOCAL MARKET . .4 ADMARC. . .5 COOPERATIVE /ASSOC.. .6 PRIVATE COMPANY. .7 AUCTION FLOOR. . .8 OTHER (SPEC.). .9 1st 2nd		Why did you choose to sell to the first buyer? ALWAYS SELL TO THIS TRADER. . 1 CLOSEST BUYER . . 2 BEST PRICE 3 CONTRACTED TO SELL TO BUYER. 4 OTHER (SPEC.). .5	What portion of your sales of this crop were to the first buyer? LESS THAN 25% .1 25-50%. . .2 50-75%. . .3 MORE THAN 75% .4	After it was harvested, how much [...] was given to pay labourers or make other payments? IF NONE, ENTER ZERO. UNIT CODES QTY BELOW		How much of the [...] harvested has already been consumed by members of your household? IF NONE, ENTER ZERO. UNIT CODES QTY BELOW		How much of the [...] harvested during [LAST COMPLETED CROPPING SEASON] is still being stored by your household? IF NONE, ENTER ZERO. UNIT CODES QTY BELOW	
FINGER MILLET (mawere)		10																
SORGHUM		11																
PEARL MILLET (mchewere)		12																
BEAN		13																
SOYABEAN		14																
PIGEONPEA (nandolo)		15																
COTTON		18														N/A	N/A	
SUGAR CANE		19																
OTHER _____		27																
OTHER _____		28																

UNIT
KILOGRAMME. . 1   PAIL (SMALL). 4   BUNCH . 8   BASKET (DENGU)   OX-CART
50 KG. BAG. . 2   PAIL (LARGE). 5   PIECE . 9   (SHELLED) . .12   (UNSHELLED).14
90 KG. BAG. . 3   No. 10 PLATE. 6   BALE. .11   BASKET (DENGU)   OTHER
                    No. 12 PLATE. 7   (UNSHELLED) .13   (SPECIFY). .20

MODULE Q: AGRICULTURE - Tobacco

[ASK OF THOSE CONCERNED WITH FARMING IN THE HOUSEHOLD.]

Q01	Q02	Q03	Q04	Q05	Q06									Q07				Q08
Have you or anyone in your household grown any kind of tobacco in the <u>past 5 cropping seasons</u>?	Have you been a member of a <u>tobacco club</u> in the past 5 years?	Which year did you join a tobacco club for the first time?	How many years in total have you been a tobacco club member since you first joined?	Are you now a member of a tobacco club?	Which of the following are/were <u>benefits</u> you enjoyed from membership in a tobacco club?									Is or was your tobacco club affiliated with. . .?				In which cropping seasons of the past 5 seasons have you grown tobacco?
									YES. .1 NO . .2							YES. .1 NO . .2		GREW TOBACCO .1 DID NOT GROW TOBACCO . . .2
						Timely input pro-vision	Lower prices for inputs	Better tobac-co prices	Exten-sion advice	Quota, access to auction floor	Trans-port of bales to market			(a)	(b)	(c)	(d)	
YES..1 NO...2 (»NEXT MODULE)	YES..1 NO...2 (»Q08)	CALENDAR YEAR	YEARS	YES..1 NO...2	Credit							Other (spec.)		NASFAM	TAMA	MRFC	Other (specify)	1999 2000 2001 2002 2003 -00 -01 -02 -03 -04

Q09	Q10	Q11	Q12	Q13	Q14		Q15		Q16	Q17	Q18	Q19	Q20
DID HOUSE-HOLD GROW TOBACCO IN THE [LAST COM-PLETED CROPPING SEASON]?	Why did you <u>not</u> grow tobacco in [LAST COMPLETED CROPPING SEASON]? (UP TO 2 RESPONSES)	Did you grow <u>burley</u> tobacco in [LAST COM-PLETED CROPPING SEASON]?	Did you grow any other kinds of tobacco in [LAST COM-PLETED CROPPING SEASON]?	What kinds? CAN LIST UP TO 2.	DID HOUSE-HOLD GROW BURLEY TOBACCO IN LAST COM-PLETED CROPPING SEASON?	ALL REMAIN-ING QUEST-IONS IN MODULE CON-CERN **BURLEY TOBACCO GROWN IN LAST COM-PLETED CROP-PING SEASON** ONLY.	How much land did you plant to burley tobacco?		Did you apply <u>fertilizer</u> to your burley tobacco?	Were you able to apply the recom-mend-ed amount to your tobac-co?	How much burley tobacco did you <u>harvest</u>?	How did you <u>grade</u> the burley tobacco leaves?	How did you <u>bale</u> the burley tobacco?
	NOT ENOUGH LAND .1 NOT ENOUGH LABOUR . . . . .2 NO CREDIT AVAIL..3 NO INPUTS AVAIL..4 INADEQUATE TRANSPORT . . . 5 PRICES TOO POOR .6 TRIED ANOTHER CASH CROP INSTEAD. . . . .7 OTHER (SPEC.) . .8			FLUE-CURED . 1 FIRE-CURED, *CHIKOPA* . . 2 ORIENTAL . . 3 NDDF . . . . 4 OTHER (SPEC.) . . 5			ACRE. . . .1 HECTARE . .2 SQ. METERS.3 OTHER (SPECIFY).4				UNIT KILOGRAMME .1 50 KG. BAG .2 90 KG. BAG .3 BUNCH. . . .8 BALE . . . 11 OTHER (SPECIFY) 20	DID NOT GRADE. . . .1 GRADED MYSELF. . . .2 HIRED LOCAL GRADERS.3 SENT TO COMMERCIAL GRADER. . . . . . .4 OTHER (SPECIFY). . .5	DID NOT BALE . . . 1 OWN A BALER. . . 2 RENTED A BALER. . . 3 USED CLUB'S BALER. . . 4 OTHER (SPEC) . . 5
YES..1 (»Q11) NO...2	(»NEXT MODULE)	YES..1 NO...2	YES..1 NO...2 (»Q14)		YES..1 NO...2 (»NEXT MODULE)		AREA AMOUNT	AREA UNIT	YES..1 NO...2 (»Q18)	YES..1 NO...2	UNIT CODES		

Q21	Q22	Q23	Q24	Q25

How much did you <u>earn</u> in total from the sales of your burley tobacco? (NET: SALES LESS COSTS)
 	
MK
	How much burley tobacco from [LAST COMPLETED CROPPING SEASON] did you <u>not</u> sell, but remains in storage?
	
	<u>UNIT</u>
	KILOGRAMME .1
	50 KG. BAG .2
	90 KG. BAG .3
	BUNCH. . . .8
	BALE . . . 11
	UNIT
	CODES
		Did you use <u>credit</u> to purchase inputs or for other burley tobacco-related activities?
		
		YES..1
		NO...2
		(»Q26)
			Were you able to repay the credit from your tobacco sales?
			
			YES..1
			(»Q26)
			NO...2
				What did you do?
				
				SOLD OTHER
				  CROPS 1
				USED SAVINGS .2
				SOLD ASSETS. .3
				BORROWED FROM
				  RELATIVE. . .4
				BORROWED FROM
				  NEIGHBOUR . .5
				BORROWED FROM
				  KATAPILA. . .6
				ARRANGED NEW
				  PAYMENT
				  PLAN. 7
				DEFAULTED. . .8
				OTHER (SPEC.).9

THE FOLLOWING QUESTIONS REFER TO EACH OF THE BURLEY TOBACCO SALES CHANNELS LISTED IN THE FIRST COLUMN.

	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34	Q35
	Buyer code	Did you sell any burley tobacco to [. . .]? YES..1 NO...2 (»NEXT BUYER)	What <u>quantity</u> of tobacco did you sell to [. . .] <u>UNIT</u> KILOGRAMME .1 50 KG. BAG .2 90 KG. BAG .3 BUNCH. . . .8 BALE . . . 11 CODES	What was the <u>total</u> <u>value</u> of your burley tobacco sales to [. . .]? MK	In what <u>month</u> did you sell the most burley tobacco to [. . .]? JAN .1 JUL .7 FEB .2 AUG .8 MAR .3 SEP .9 APR .4 OCT 10 MAY .5 NOV 11 JUN .6 DEC 12	At what <u>location</u> did you sell the tobacco? HOME. . .1 URBAN (»NEXT CENTRE.4 BUYER) OTHER LOCAL (SPEC).5 MARKET .2 DISTRICT CENTER .3	What is the <u>distance</u> to the location of sale from where tobacco was kept? METER.1 KM . .2 NUMBER MILE .3	How did you <u>transport</u> the tobacco there? BY HEAD. . .1 BICYCLE. . .2 OX-CART. . .3 PICK-UP. . .4 MINI-BUS . .5 LORRY. . . .6 OTHER (SP.).7	What was total transport cost for all tobacco sold to [. . .]? MK	ASK ONLY IF SOLD AT AUCTION FLOORS <u>AND</u> ALSO SOLD ELSEWHERE. Why did you not sell all of your tobacco at the auction floors? PRINCIPAL REASON. CODES BELOW
Auction floors	1									
ADMARC	2									NEEDED CASH IMMEDIATELY . . . .1 NO TRANSPORT 2
Tobacco club	3									HAVE BEEN CHEATED AT FLOORS IN PAST .3 NO LICENSE 4

Neighboring estate	4									DON'T WANT LOAN
										  DEDUCTIONS FROM
										  SALES 5

Intermediate buyer, trader	5									OTHER (SPECIFY). . .6
Other (specify)	6									

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MODULE R: AGRICULTURE - Dry-season (*Dimba*) cultivation

[ASK OF THOSE CONCERNED WITH FARMING IN THE HOUSEHOLD.] THE TIME REFERENCE IS THE LAST COMPLETED DRY SEASON.
LIST IN R04 ALL PLOTS BEFORE COLLECTING DETAILS ON EACH.

R01. WHICH IS THE LAST COMPLETED DRY SEASON? ☐   2003 . 1
                                                                             2004 . 2

R02. Did anyone in your household cultivate a *dimba* garden in [LAST COMPLETED DRY SEASON]? ☐   YES. 1
                                                                                                                             NO . 2 (»MODULE T)

R03	R04	R05	R06		R07					R08	R09	R10	R11	R12	R13
P L O T I D	LISTING OF *DIMBA* PLOTS CULTIVATED BY HOUSEHOLD DURING DRY SEASON. Please list for me each *dimba* plot members of your household have rights to and which a HH member farmed during [LAST COMPLETED DRY SEASON]? WRITE A NAME TO IDENTIFY PLOT	Who in the household is most familiar with this plot? IF PRESENT, ASK THE FOLLOWING QUESTIONS TO THIS INDIVIDUAL. ID CODE	What is the area of the plot? ACRE. . . .1 HECTARE . .2 SQ. METERS.3 OTHER (SPECIFY).4 AREA AMOUNT	AREA UNIT	What crops were grown on this plot in [LAST COMPLETED DRY SEASON]? LOCAL MAIZE . . 1 COMPOSITE MAIZE 2 HYBRID MAIZE. . 3 SWEET POTATO. . 5 IRISH POTATO. . 6 RICE. . . . . 9 BEAN. . . . .13 SUGAR CANE. . .19 CABBAGE . . . .20 TANAPOSI. . . .21 NKHWANI . . . .22 THERERE/OKRA. .23 TOMATO. . . . .24 ONION . . . . .25 PEAS. . . . . .26 OTHER (SPEC.) .27 1st	2nd	3rd	4th	5th	How did your household acquire this plot? GRANTED BY LOCAL LEADERS. . . . 1 INHERITED . . . 2 THROUGH FAMILY OF SPOUSE. . . 3 PURCHASED WITH TITLE. . . . . 4 PURCHASED WITH NO TITLE . . . 5 LEASEHOLD. . . .6 (»R11) RENT SHORT-TERM.7 (»R11) FARMING AS A TENANT. . . . .8 (»R12) OTHER (SPEC.). .9	Is it relatively common for people to buy and sell farmland in this area? YES..1 NO...2 (»R12)	If you were to sell this plot today, how much could you sell it for? MK (»R12)	How much did you pay in total for your lease or rent on this plot in [LAST COMPLETED DRY SEASON]? MK	What sort of irrigation did you use on this plot? WATERING CAN . . . .1 HOSEPIPE .2 SPRINKLER.3 FLOOD. . .4 OTHER (SPEC.) .5 IRRIGATION NOT NEEDED. .9 (»R14)	Where do you get the water for irrigation on this plot? DIVERT STREAM. .1 BUCKET FROM WELL.2 HANDPUMP FROM WELL.3 TREADLE PUMP . . .4 MOTORPUMP .5 GRAVITY-FED PIPELINE .6 OTHER (SPECIFY).7
21															
22															
23															
24															
25															
26															

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R03	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23

P L O T I D	Did you apply any <u>fertilizer</u> to this plot in [LAST CROP-PING SEASON]?
	
	YES..1
	NO...2
	(»R17)
		Where did you acquire the fertilizer? LIST UP TO 2.
		
		TRADER . . .1
		RELATIVE . .2
		NEIGHBOR . .3
		LOCAL
		  MARKET. . .4
		ADMARC . . .5
		COOPERATIVE
		  /ASSOC. . .6
		PRIVATE
		  COMPANY . .7
		STARTER
		  PACK/TIP. .8
		NGO. 9
		OTHER
		(SPEC.) . 10
			How much did you pay for all the fertilizer used on this plot?
			
			ESTIMATE VALUE OF ANY IN-KIND PAYMENTS.
			
			MK
				Did you apply any <u>manure</u> to this plot in [LAST CROPPING SEASON]?
				
				ANIMAL MANURE, COMPOST, GREEN MANURE
				
				YES..1
				NO...2
					Did you use any <i>purchased seeds or seedlings</i> on this plot in [LAST CROPPING SEASON]?
					
					YES..1
					NO...2
					(»R21)
						Where did you acquire the seeds or seedlings? LIST UP TO 2.
						
						TRADER . . .1
						RELATIVE . .2
						NEIGHBOR . .3
						LOCAL
						  MARKET. . .4
						ADMARC . . .5
						COOPERATIVE
						  /ASSOC. . .6
						PRIVATE
						  COMPANY . .7
						NGO. 9
						OTHER
						(SPEC.) . 10
							How much did you pay for the purchased seeds or seedlings used on this plot?
							
							ESTIMATE VALUE OF ANY IN-KIND PAYMENTS.
							
							MK
								Did you <u>hire any <i>ganyu</i></u> or other labour to work on this plot in [LAST COMPLETED DRY SEASON]?
								
								YES..1
								NO...2
								(»NEXT PLOT)
									For this plot, how many days of <i>ganyu</i> or other labour did you hire? Include all tasks - preparing, planting, irrigating, weeding, harvest.
									
									PERSON-DAYS OF LABOUR
										How much did you pay for the total amount of labour used on this plot?
										
										ESTIMATE VALUE OF ANY IN-KIND PAYMENTS.
										
										MK

21										
22										
23										
24										
25										
26										

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MODULE S: AGRICULTURE - Dry-season (*Dimba*) crop sales

[ASK OF THOSE CONCERNED WITH FARMING IN THE HOUSEHOLD.] THE TIME REFERENCE IS THE LAST COMPLETED DRY SEASON.
COMPLETE S01 TO IDENTIFY ALL CROPS GROWN BEFORE COLLECTING DETAILS ON EACH.

S01	S02	S03		S04		S05	S06		S07		S08		S09		UNIT
LOOK AT THE CROPS LISTED IN QUESTION R07 OF PREVIOUS MODULE. FOR EVERY CROP MENTIONED, MARK THE YES/NO COLUMN BELOW AS "YES". TO PROBE FOR CROPS NOT MENTIONED IN R07 ASK: Did you harvest any [...] during [LAST COMPLETED DRY SEASON]?	C R O P C O D E	How much of [...] did you harvest during [LAST COMPLETED DRY SEASON] from all of your plots in which [...] was planted?		How much of the [...] you harvested during [LAST COMPLETED DRY SEASON] was sold? IF NONE, ENTER ZERO. (»S07)		What was the total value you earned from the [...] you sold?	To whom did you sell this [...]? UP TO 2 BUYERS. TRADER . . .1 RELATIVE . .2 NEIGHBOR . .3 LOCAL MARKET. . .4 ADMARC.. . .5 COOPERATIVE /ASSOC. . .6 PRIVATE COMPANY . .7 OTHER (SPEC.) . .9		How much of the [...] harvested during [LAST COMPLETED DRY SEASON] was given to pay labourers or make other payments?		How much of the [...] harvested during [LAST COMPLETED DRY SEASON] has already been consumed by your household?		How much of the [...] harvested during [LAST COMPLETED DRY SEASON] is still being stored by your household?		KILOGRAMME. . 1 50 KG. BAG. . 2 90 KG. BAG. . 3 PAIL (SMALL). 4 PAIL (LARGE). 5 No. 10 PLATE. 6 No. 12 PLATE. 7 BUNCH . . . . 8 PIECE . . . . 9 BALE. . . . .11 BASKET (*DENGU*) (SHELLED). .12 BASKET (*DENGU*) (UNSHELLED) .13 OX-CART (UNSHELLED).14 OTHER (SPECIFY). .20
CROP NAME	YES..1 NO...2 (»NEXT)	AMOUNT	UNIT CODES RIGHT	AMOUNT	UNIT CODES RIGHT	MK	1st	2nd	AMT	UNIT CODES RIGHT	AMT	UNIT CODES RIGHT	AMT	UNIT CODES RIGHT	
LOCAL MAIZE	1														
COMPOSITE MAIZE	2														
HYBRID MAIZE	3														
SWEET POTATO	5														
IRISH POTATO	6														
RICE	9														
BEAN	13														
CABBAGE	20														
TANAPOSI	21														
NKHWANI	22														
THERERE / OKRA	23														
TOMATO	24														
ONION	25														
PEAS	26														
OTHER (specify)	27														

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MODULE T: AGRICULTURE - Tree crop production & sales

[ASK OF THOSE CONCERNED WITH FARMING IN THE HOUSEHOLD.] THE TIME REFERENCE IS THE <u>LAST COMPLETED HARVEST SEASON</u> FOR THE TREE CROP.

T01. Did anyone in your household harvest any tree crops in the [LAST COMPLETED HARVEST SEASON FOR THE TREE CROP]?

YES. 1
NO . 2
(»NEXT MODULE)

	T02 Did you harvest any [...] during [LAST COMPLETED HARVEST SEASON FOR THE TREE CROP]?	T03 C R O P C O D E	T04 Are the trees in a planta-tion or scat-tered in a field?	T05 What is the <u>area</u> of the plantation?		T06 How many [....] trees do you own that are produc-ing a crop?	T07 How much [...] did you harvest during [LAST COMPLETED HARVEST SEASON FOR THE TREE CROP] from all of your trees?		T08 How much of the [...] you harvested during [LAST COMPLETED HARVEST SEASON FOR THE TREE CROP] was sold? IF NONE, ENTER ZERO. (»T11)		T09 What was the <u>total value</u> you earned from the [...] you sold?	T10 To whom did you sell this [...]? UP TO 2 BUYERS. TRADER . . .1 RELATIVE . .2 NEIGHBOR . .3 LOCAL MARKET. . .4 ADMARC . . .5 COOPERATIVE /ASSOC. . .6 PRIVATE COMPANY . .7 OTHER (SPEC.) . .9		T11 How much of the [...] you harvested during [LAST COMPLETED HARVEST SEASON FOR THE TREE CROP] was lost to rotting after harvest? IF NONE, ENTER ZERO. (»NEXT TREE CROP)	
	YES..1 NO...2 (»NEXT		PLANTA-TION .1 SCATTE- RED. .2	ACRE. . . .1 HECTARE . .2 SQ. METERS.3 OTHER (SPECIFY).4 AREA	AREA			UNIT CODES		UNIT CODES					UNIT CODES
CROP NAME	CROP)		(»T06)	AMOUNT	UNIT	NUMBER	AMOUNT	RIGHT	AMOUNT	RIGHT	MK	1st	2nd	AMOUNT	RIGHT
MANGO		31													
BANANA		32													
NAARTJE (TANGERINE)		33													
GUAVA		34													
PAPAYA		35													
AVOCADO		36													
TEA		37													
COFFEE		38													
OTHER (specify)		39													

UNIT
KILOGRAMME. . 1
50 KG. BAG. . 2
90 KG. BAG. . 3
PAIL (SMALL). 4
PAIL (LARGE). 5
No. 10 PLATE. 6
No. 12 PLATE. 7
BUNCH 8
PIECE 9
BALE. 11
BASKET (*DENGU*) (SHELLED). .12
BASKET (*DENGU*) (UNSHELLED) .13
OX-CART (UNSHELLED) .14
OTHER (SPECIFY). .20

MODULE U: AGRICULTURE - Livestock & livestock sales

[ASK OF THOSE CONCERNED WITH ANIMAL HUSBANDRY IN THE HOUSEHOLD.] THE TIME REFERENCE IS THE LAST TWELVE MONTHS.

U01: Has any member of your household raised or owned livestock or poultry during the past 12 months?   YES. 1 NO . 2 (»NEXT MODULE)

U02 During the last twelve months, has any member of your household raised any [...]?	U03 ANIMAL CODE	U04 How many [...] does your household own at present?	U05 If you sold one of those [...] today, how much money could you get for it? (AVG. PRICE)	U06 How many of your [...] did you sell during the last 12 months? IF ZERO, »U08	U07 How much did your household receive for the sale of all these [...] during the last 12 months? INCLUDE VALUE OF IN KIND PAYMENTS	U08 How many of your [...] did you eat during the last 12 months?	U09 How many of your [...] died during the last 12 months?	U10 How many of your [...] were lost or were stolen during the last 12 months?	U11 How many of your [...] were given away during the last 12 months?	U12 How many [...] did your household purchase during the last 12 months? IF ZERO, »U14	U13 How much did you pay in total for these [...] during the last 12 months? INCLUDE VALUE OF IN KIND PAYMENTS	U14 How many [...] were born during the last 12 months?	U15 How many [...] were received as gifts by your household during the last 12 months?
YES..1 NO...2 (»NEXT ANIMAL) ANIMAL		NUMBER OF ANIMALS	MK	No. OF ANIMALS	MK	No. OF ANIMALS	No. OF ANIMALS	No. OF ANIMALS	No. OF ANIMALS	No. OF ANIMALS	MK	No. OF ANIMALS	No. OF ANIMALS
CATTLE	51												
OXEN (trained to pull cart or plow)	52												
GOATS	53												
SHEEP	54												
PIGS	55												
CHICKENS	56												
OTHER POULTRY	57												
OTHER (specify)	58												

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ANIMAL		U16 How much did you spend in total on the upkeep of these [...] over the past 12 months, e.g., feed, herdboys, vaccinations & medicine, building a *kola*? MK	U17 Did your household sell any fresh byproducts from your [...] during the last 12 months? YES..1 NO...2 (»NEXT ANIMAL)	U18 What was that fresh byproduct? EGGS . . . . .1 MILK . . . . .2 SKIN . . . . .3 MEAT . . . . .4 MANURE . . . .5 OTHER (SPECIFY__). .6 1ST	2ND	U19 How much did you obtain in total from the sales of these [...] byproducts during the last 12 months? INCLUDE VALUE OF IN-KIND PAYMENTS MK
CATTLE	51					
OXEN (trained to pull cart or plow)	52					
GOATS	53					
SHEEP	54					
PIGS	55					
CHICKENS	56					
OTHER POULTRY	57					
OTHER (specify)	58					

MODULE V: HOUSEHOLD ENTERPRISES

[ASK OF HOUSEHOLD HEAD. THEN ASK OF ENTERPRISE MANAGER.]

V01. Over the past month, has anyone in your household operated any non-agricultural income-generating enterprise which produces goods or services or has anyone in your household owned a shop or operated a trading business?
   (Enterprises might include, for example, fishing, making mats, bricks, or charcoal; mason; firewood selling; metalwork; tailoring; repair work; food processing, fish marketing, petty trading, etc.)

YES. 1
NO . 2
(»NEXT MODULE)

LIST IN V03 ALL ENTERPRISES BEFORE COLLECTING DETAILS ON EACH.

V02 ENTERPRISE NO	V03 What income-generating enterprises did individuals in your household operate over the past month? COLLECT INFORMATION ON ALL ENTERPRISES HERE BEFORE GOING ON TO COLLECT DETAILS ON EACH. WRITTEN DESCRIPTION	(Supervisor to put in code after interview) INDUSTRY CODE	V04 Who in the household owns this enterprise? CAN LIST UP TO TWO OWNERS. OWNER 1 ID CODE	OWNER 2 ID CODE	V05 How many individuals outside of the household are co-owners of the enterprise? IF NONE, WRITE 0. NUMBER	V06 Who in the household manages this enterprise or is most familiar with it? IF CO-MANAGERS, LIST BOTH. IF PRESENT, ASK FOLLOWING QUESTIONS TO MANAGER(S). MAN. 1 ID CODE	MAN. 2 ID CODE	V07 How many months during the past year did you operate this enterprise? NUMBER OF MONTHS	V08 Where do you operate the enterprise? HOME, INSIDE RESIDENCE. . 1 HOME OUTSIDE RESIDENCE. . 2 INDUSTRIAL SITE . . . . 3 TRADITIONAL MARKET . . . 4 COMMERCIAL AREA SHOP . 5 ROADSIDE. . . 6 OTHER FIXED PLACE. . . . 7 MOBILE. . . . 8	V09 How many years and months has this enterprise been in existence? YEARS	MONTHS	V10 Is this enterprise officially registered with the govern-ment? YES . . .1 NO. . . .2 DOES NOT KNOW . .3
1												
2												
3												
4												
5												
6												
7												
8												

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V02	V11	V12	V13	V14	V15	V16	V17						V18	V19
ENTERPRISE NO	How many household members are engaged in this enterprise? HH MEMBER ENGAGED	How many employees are there who are not household members? (»IF ZERO, THEN »V14) NON HH MEMBER EMPLOYEES	When the enterprise is running, how many hours per week does each employee who is not a household member work on average? HOURS PER WEEK	What was the main source of start-up capital for this enterprise? CAN LIST UP TO THREE. LOAN FROM FAMILY/FRIENDS . . 1 GIFT FROM FAMILY/FRIENDS . . 2 SALE OF ASSETS OWNED . . . . 3 PROCEEDS FROM ANOTHER BUSINESS . . . . 4 OWN SAVINGS FROM GANYU . . . 5 OWN SAVINGS FROM AGRICULTURE 6 OWN SAVINGS, NON-AGRICULTURE NON-GANYU. . . . . 7 AGRICULTURAL INPUT CREDIT. . 8 NON-AGRICULTURAL CREDIT, BANK OR OTHER INSTITUTION . 9 LOAN FROM MONEY LENDER . . .10 INHERITED. . . . . .11 OTHER (SPECIFY). . . . . .12 NONE 13	To whom do you sell your products or services? LIST UP TO 2 BUYERS. FINAL CONSUMERS .1 TRADERS . . . . .2 OTHER SMALL BUSINESSES . . .3 LARGE ESTABLISHED BUSINESSES . . .4 INSTITUTIONS. . .5 EXPORT. . . . . .6 MANUFACTURERS . .7 OTHER (SPECIFY) .8	What were the total sales for the enterprise last month? MK	What were the business costs last month in the following categories? Salaries, wages, insurance MK	Purchase of goods for sale (inventory) MK	Transport MK	Raw materials MK	Other MK	Over the past month, did you earn a profit, make a loss, or just break even? EARNED A PROFIT .1 LOSS. . .2 BROKE EVEN . .3 (»NEXT ENTERPRISE)	What was the amount you earned or lost from this enterprise over the past month? IF A LOSS (COSTS GREATER THAN SALES), PUT FIGURE IN PARENTHESES. MK
1													
2													
3													
4													
5													
6													
7													
8													

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MODULE W: OTHER INCOME

[ASK OF HOUSEHOLD HEAD.]

W01	W02	W03	W04	W05	W06	W07	W08	W09	W10
Over the past 12 months, did any members of your household receive any regular income from savings interest or other investment income?	How much does your household in total usually receive in savings interest or other investment income?	Over what period of time are you reporting this savings interest or other investment income?	Over the past 12 months, did any members of your household receive any regular income from a pension?	How much does your house-hold in total usually receive in pension income?	Over what period of time are you reporting this pension income?	Over the past 12 months, did any members of your household receive any regular income from rental of property (not agricultural land)?	What sort of property?	How much does your household in total usually receive in rental income?	Over what period of time are you reporting this rental income?
		TIME UNIT					HOUSE . . .1 COMMERCIAL BUILDING .2 OTHER		TIME UNIT
YES..1 NO...2 (»W04)	MK	NUMBER OF TIME UNIT · WEEK .4 MONTH.5 YEAR .6	YES..1 NO...2 (»W07)	MK	NUMBER OF TIME UNIT · WEEK .4 MONTH.5 YEAR .6	YES..1 NO...2 (»W11)	PROPERTY (SPECIFY).3	MK	NUMBER OF TIME UNIT · WEEK .4 MONTH.5 YEAR .6

W11	W12	W13	W14
Over the past 12 months, did any members of your household receive any regular income of any other type?	What sort of income? (SPECIFY)	How much does your household in total usually receive from this other income?	Over what period of time are you reporting this other income?
			TIME UNIT
YES..1 NO...2 (»NEXT MODULE)		MK	NUMBER OF TIME UNIT · WEEK .4 MONTH.5 YEAR .6

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MODULE X: GIFTS RECEIVED AND GIVEN BY HOUSEHOLD

[ASK OF HOUSEHOLD HEAD.]

X01	X02	X03	X04	X05	X06	X07	X08
Over the past 12 months, did you or anyone in your household <u>receive</u> any gifts (in cash or in-kind) from any individuals (friends/family) outside your household? YES..1 NO...2 (»X05)	What was the total value of all <u>cash</u> received as a gift from individuals in the last 12 months? MK	What was the total value of all <u>food</u> received as a gift from individuals in the last 12 months? MK	What was the total value of <u>all</u> <u>other in-kind</u> <u>gifts</u> received from individuals in the last 12 months? MK	Over the past 12 months, did you or anyone in your household <u>give</u> any gifts (in cash or in-kind) from any individuals (friends/family) outside your household? YES..1 NO...2 (»NEXT MODULE)	What was the total value of all <u>cash</u> given as a gift to individuals in the last 12 months? MK	What was the total value of all <u>food</u> given as a gift to individuals in the last 12 months? MK	What was the total value of <u>all</u> <u>other in-kind</u> <u>gifts</u> to individuals in the last 12 months? MK

MODULE Y: SOCIAL SAFETY NETS

[ASK OF HOUSEHOLD HEAD.]

	Y01	Y02	Y03			Y04		Y05
Has anyone in your household benefited <u>in the past three years</u> from the following programme? YES..1 NO...2 (»NEXT ITEM)	PROG-RAMME CODE	In which of the past three years did your household benefit from this programme? BENEFITTED. . . .1 DID NOT BENEFIT .2 2001 | 2002 | 2003			(ASK ONLY IF BENEFITTED IN 2003.) How much did your house-hold receive in benefits from this programme? NUMBER	MK. . .1 KG. . .2 PACKET.3 OTHER .4 UNIT	FOR NON-CASH BENEFITS IN Y04: What was the estimated value of this benefit?
Free food/maize distribution.	11							
Food-for-work programme or cash-for-work programme - e.g. MASAF Public Works Programme (PWP)	12							
Inputs-for work programme	13							
Free distribution of Likuni Phala to children and mothers (Targeted Nutrition Programme - TNP)	14							
Supplementary feeding for malnourished children at a nutritional rehabilitation unit.	15							
Starter Pack (TIP) distribution of agricultural inputs (seed/fertilizer) for the <u>rainy</u> season.	16						MK	
Starter Pack (TIP) distribution of agricultural inputs (seed/fertilizer) for the <u>dimba</u> season.	17						MK	
Other (not Starter Pack) free agricultural inputs distributions	18							
Scholarships or bursaries for secondary education. (e.g., GABLE support for girls)	19						MK	
Scholarships or bursaries for tertiary education (GABLE, university scholarship, upgrading teachers).	20						MK	
Tertiary Loan Scheme (Government loan for university and other tertiary education).	21						MK	
Direct cash transfers (from Government).	22						MK	
Other education bursaries (specify).	23						MK	

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MODULE Z: CREDIT

[ASK OF HOUSEHOLD HEAD AND PERSONS RESPONSIBLE FOR LOANS LISTED.]

Z01 Over the past <u>12 months</u>, did you or anyone else in this household borrow on credit from someone outside the household or from an institution <u>for business or farming purposes, receiving either cash or inputs</u>?

YES. 1
NO . 2 (»Z12)

ASK OF HOUSEHOLD HEAD

Z02	Z03	Z04	Z05	Z06	Z07	Z08	Z09	Z10	Z11	Z12	Z13	Z14
L O A N N O	What are the names of the persons or institutions from whom you or anyone else in your household borrowed on credit money for business or farming over the past 12 months? LIST ALL NAMES BEFORE GOING TO THE NEXT QUESTION.	CODE SOURCE OF LOAN USE CODES AT LOWER RIGHT.	Which house-hold member was respons-ible for the loan?	What was main <u>reason</u> for obtaining loan? Was it: [READ] PURCHASE LAND. .1 PURCHASE AGRI- CULTURAL INPUTS FOR FOOD CROP .2 PURCHASE INPUTS FOR TOBACCO . .3 PURCHASE INPUTS FOR OTHER CASH CROPS . . . . .4 BUSINESS START- UP CAPITAL. . .5 PURCHASE NON- FARM INPUTS . .6 OTHER (SPECIFY).7	<u>How much</u> was borrowed?	<u>When</u> did you get the loan within the past 12 months? JAN. .1 FEB. .2 MAR. .3 APR. .4 MAY. .5 JUN. .6 JUL. .7 AUG. .8 SEP. .9 OCT. 10 NOV. 11 DEC. 12 CALENDAR	Is the loan re-paid? YES..1 (»Z11) NO...2	Approximately when do you expect to pay back the money? JAN. .1 FEB. .2 MAR. .3 APR. .4 MAY. .5 JUN. .6 JUL. .7 AUG. .8 SEP. .9 OCT. 10 NOV. 11 DEC. 12 CALENDAR	How much did you pay (do you expect to have paid) in total when you (will have) paid off this loan (interest + principal)? (GO TO NEXT LOAN. WHEN ALL LOANS DONE, »NEXT MODULE)	During the last 12 months, did you try to borrow from someone outside the household or from an insti-tution and <u>were turned down</u>? YES. . . . .1 NO . .2 (»Z14) STILL AWAITING WORD ON LOAN .3 (»NEXT MODULE)	Who turned you down? LIST UP TO 2. USE CODES BELOW. (»NEXT MODULE)	Why did you <u>not attempt to borrow</u> in the last 12 months? [WRITE UP TO TWO ANSWERS IN ORDER OF IMPORTANCE.] NO NEED . . . . .1 BELIEVED WOULD BE REFUSED. . . . . . . .2 TOO EXPENSIVE . . . . .3 TOO MUCH TROUBLE FOR WHAT IT IS WORTH .4 INADEQUATE COLLATERAL .5 DO NOT LIKE TO BE IN DEBT. . . . . . . .6 DO NOT KNOW ANY LENDER.7 OTHER (SPECIFY) 8
			ID CODE		MK	MONTH / YEAR		MONTH / YEAR	MK		1ST / 2ND	1ST / 2ND
1												
2												
3												
4												
5												
6												
7												
8												

CODES FOR Z4 & Z13
RELATIVE 1
NEIGHBOUR. 2
GROCERY/LOCAL
 MERCHANT 3
MONEY LENDER
 (KATAPILA). 4
EMPLOYER 5
RELIGIOUS
 INSTITUTION 6
MRFC 7
SACCO. 8
BANK (COMMERCIAL). .9
NGO. 10
OTHER (SPECIFY). . 11

MODULE AA: SUBJECTIVE ASSESSMENT OF WELL-BEING

[ASK OF THE HEAD OF HOUSEHOLD.] INTRODUCE BY STATING: "I would like to ask you several questions on your opinion of your household's standard of living."

AA01	AA02	AA03	AA04	AA05	AA06	AA07	AA08	AA09	AA10	AA11	AA12
Concerning your household's food consumption over the past one month, which of the following is true?	Concerning your housing, which of the following is true?	Concerning your household's clothing, which of the following is true?	Concerning the standard of health care you receive for household members, which of the following is true?	Imagine six steps, where on the bottom, the first step, stand the poorest people, and on the highest step, the sixth, stand the rich. SHOW THE PICTURE OF THE STEPS BELOW.			Which of the following is true? Your current income . . . [READ]:	In terms of your household economic well-being, are you better off, the same as, or worse off than this same time a year ago?	In terms of your household economic well-being, in a year from now do you expect to be better off, the same as, or worse off than now?	What income level do you personally consider to be absolutely minimal - below which you could not make ends meet?	Over what period of time are you considering this minimum income level?
It was less than adequate for household needs. 1 It was just adequate for household needs.. . . 2 It was more than adequate for household needs. 3 (NOTE THAT 'ADEQUATE' MEANS NO MORE OR NO LESS THAN WHAT THE RESPONDENT CONSIDERS TO BE THE MINIMUM CONSUMPTION NEEDS OF THE HOUSEHOLD.)			On which step are you today?	On which step are most of your neighbors today?	On which step are most of your friends today?	allows you to build your savings. . . .1 allows you to save just a little . . .2 only just meets your expenses . . .3 is not sufficient, so you need to use your savings to meet expenses . . .4 is really not sufficient, so you need to borrow to meet expenses . . .5	MUCH BETTER.1 BETTER . . .2 NO CHANGE. .3 WORSE OFF. .4 MUCH WORSE .5	MUCH BETTER.1 BETTER . . .2 NO CHANGE. .3 WORSE OFF. .4 MUCH WORSE .5	NUMBER OF TIME UNITS MK	TIME UNIT DAY. .3 WEEK .4 MONTH.5

AA13	AA14	AA15	AA16	AA17
Overall, how satisfied (content, happy) are you with your life? Are you . . .	How many changes of clothes do you (HH HEAD) own?	What do you (HH HEAD) sleep on?	What do you (HH HEAD) sleep under in the cold season (July)?	What do you (HH HEAD) sleep under in the hot season (October)?
very unsatisfied . . 1 unsatisfied 2 neither unsatisfied or satisfied . . . 3 satisfied . 4 very satisfied. 5	(NUMBER OF TROUSERS FOR MEN; SKIRTS/ DRESSES FOR WOMEN) NUMBER	BED & MATTRESS . . 1 BED & MAT (GRASS). 2 BED ALONE. . . . . 3 MATTRESS ON FLOOR. 4 MAT (GRASS) ON FLOOR . . . . . . 5 CLOTH/SACK ON FLOOR . . . . . . 6 FLOOR (NOTHING ELSE) . . . . . . 7 OTHER (SPECIFY). . 8	BLANKET & SHEETS. . .1 BLANKET ONLY. . . . .2 SHEETS ONLY . . . . .3 CHITENJE CLOTH. . . .4 FERTILIZER or GRAIN SACK . . . . . . .5 CLOTHES . . . . . . .6 NOTHING . . . . . . .7 OTHER (SPECIFY) . . .8	

MODULE AB: RECENT SHOCKS TO HOUSEHOLD WELFARE

[ASK OF HOUSEHOLD HEAD.]

	AB01	AB02	AB03		AB04	AB05	AB06		AB07			
Over the past five years, was your household severely affected negatively by any of the following events? GO THROUGH ENTIRE LIST BEFORE PROCEEDING.	YES..1 NO...2 (»NEXT ITEM)	CODE	Rank the three most significant shocks you experienced - most severe (1), second most severe (2), third (3).		[THIS SHOCK] caused a reduction in income, in the assets you have, or both? INCOME LOSS .1 ASSET LOSS. .2 LOSS OF BOTH.3	[THIS SHOCK] affected: [READ] Own HH only.1 Some other HHs too . .2 Most HHs in community .3 All HHs in community .4	How long ago did [THIS SHOCK] occur? YEARS	MONTHS	What did you do in response to this shock to try to regain your former welfare level? [LIST UP TO 3 BY ORDER OF IMPORTANCE, CODES AT RIGHT.] 1ST	2ND	3RD	SPENT CASH SAVINGS . . . . .1 SENT CHILDREN TO LIVE WITH RELATIVES . . . . .2 SOLD ASSETS (TOOLS, FURNITURE, ETC.). . . . . .3 SOLD FARMLAND. 4
Lower crop yields due to drought or floods		101		THE QUEST-IONS TO THE RIGHT SHOULD ONLY BE ASKED CON-CERNING THE THREE MOST SEVERE SHOCKS, AS NOTED IN AB03. LEAVE ALL OTHER ROWS BLANK.								RENTED OUT FARMLAND. . . . .5 SOLD ANIMALS . . . . .6 SOLD MORE CROPS. . . . . . .7 WORKED LONGER HOURS, WORKED MORE . . . . .8 OTHER HH MEMBERS WHO WEREN'T WORKING WENT TO WORK . . . . .9 STARTED A NEW BUSINESS . . 10 REMOVED CHILDREN FROM SCHOOL TO WORK. . . . . . 11 WENT ELSEWHERE TO FIND WORK FOR MORE THAN A MONTH . . . . 12 BORROWED MONEY FROM RELATIVES . . . . 13 BORROWED MONEY FROM MONEY LENDER (KATAPILA) . . . . 14 BORROWED MONEY FROM INSTITUTION (BANK, MRFC, ETC.) . . . . 15 RECEIVED HELP FROM RELIGIOUS INSTITUTION . . 16 RECEIVED HELP FROM LOCAL NGO . . . . 17 RECEIVED HELP FROM INTERNATIONAL NGO . . . . 18 RECEIVED HELP FROM GOVERNMENT. . . . . 19 REDUCED FOOD CONSUMPTION . 20 CONSUMED LOWER COST, BUT LESS PREFERRED FOODS. . . 21 REDUCED NON-FOOD EXPENDITURES. . . . . . . 22 SPIRITUAL EFFORT - PRAYER, SACRIFICES, CONSULTED DIVINER . . . . 23 DID NOT DO ANYTHING. . . . 24 OTHER (SPECIFY). 25
Crop disease or crop pests		102										
Livestock died or were stolen		103										
Household business failure, non-agricultural		104										
Loss of salaried employment or non-payment of salary		105										
End of regular assistance, aid, or remittances from outside HH		106										
Large fall in sale prices for crops		107										
Large rise in price of food		108										
Illness or accident of household member		109										
Birth in the household		110										
Death of HH head		111										
Death of working member of household		112										
Death of other family member		113										
Break-up of the household		114										
Theft		115										
Dwelling damaged, destroyed		116										
Other 1 _____		117										
Other 2 _____		118										

MODULE AC: DEATHS IN HOUSEHOLD

[ASK OF HOUSEHOLD HEAD.]

AC01. Over the <u>past two years</u>, did any member of your household die, including any infants?

	YES. 1
	NO . 2 (»NEXT MODULE)

AC02	AC03	AC04	AC05	AC06	AC07	AC08	AC09	AC10	AC11	AC12	AC13	AC14
S E R I A L N O	NAME OF DECEASED	DECEASED'S RELATION-SHIP TO HEAD OF HOUSEHOLD	SEX	AGE AT DEATH IF UNDER 5 YEARS, INCLUDE MONTHS IF UNDER 12 (»AC08)	What kind of <u>work</u> did [NAME] do for most of his/her life? FARMING . . . . . 1 FISHING . . . . . 2 TRADER/MERCHANT . 3 TRANSPORT . . . . 4 TRADESMAN (MASON, CARPENTER, ETC). 5 CIVIL SERVANT . . . 6 TEACHER . . . . . 7 DOCTOR/NURSE/ETC. 8 OTHER PROFESSION. 9 CLERK/SECRETARY .10 FACTORY WORKER. .11 RESTAURANT, BAR .12 GENERAL LABOURER.13 HOME WORKER . . .14 STUDENT . . . . .15 OTHER 16	Did [NAME] die of old age, an illness, or of some other cause? OLD AGE .1 (»AC13) ILLNESS .2 (»AC10) OTHER CAUSE. .3	What was the [NON-ILLNESS] <u>cause</u> of [NAME]'s death? THEN (»AC13) TRAFFIC ACCIDENT . . . 1 OTHER ACCIDENT OR INJURY. . . 2 CHILDBIRTH OR COMPLICATIONS. 3 MURDER. . . . . 4 SUICIDE . . . . 5 WITCHCRAFT/ SORCERY. . . . 6 OTHER (SPEC.) . 7	What was the illness that caused [NAME]'s death? CAN NOTE UP TO TWO. CODES BELOW 1ST ILLNESS	2ND ILLNESS	For how long was [NAME] suffering from this illness before he/she died? DAY . 3 WEEK. 4 MONTH 5 YEAR. 6 TIME AMOUNT	UNIT	Was this cause of death diagnosed, or is this only your own percep-tion? MEDICAL DIAG-NOSIS . 1 NON-MED-ICAL DIAG-NOSIS . 2 OWN PER-CEPTION 3	After this person died, did you or members of your house-hold <u>lose</u> any land or other assets due to inher-itance traditions? YES..1 NO...2 (»NEXT DECEASED)	What was the value of the land or assets lost? MK
		CODES BELOW	MALE. .1 FEMALE.2	YEARS MONTHS								
31												
32												
33												
34												
35												
36												

RELATIONSHIP CODES

WIFE/HUSBAND. 2	GRANDFATHER/MOTHER. . 10
CHILD/ADOPTED CHILD . .3	FATHER/MOTHER-IN-LAW. 11
GRANDCHILD. 4	OTHER RELATIVE. . . . 12
NIECE/NEPHEW. 5	SERVANT OR SERVANT'S
FATHER/MOTHER 6	RELATIVE 13
SISTER/BROTHER. . . .7	TENANT OR TENANT'S
SON/DAUGHTER-IN-LAW . .8	RELATIVE 14
BROTHER/SISTER-IN-LAW .9	OTHER NON-RELATIVE. . 15

ILLNESS CODES

MALARIA 1	HIGH BLOOD	SEXUALLY
MEASLES 2	PRESSURE OR	TRANSMITTED
DIARRHEA. . . .3	CIRCULATORY	DISEASE . . . 15
PNEUMONIA . . .4	PROBLEM. . . 10	DIABETES
MENINGITIS. . .5	STROKE. . . . 11	COMPLICATION. 16
MALNUTRITION. .6	CANCER. . . . 12	DOES NOT KNOW. 17
TUBERCULOSIS. .7	KIDNEY	REFUSED TO
HIV/AIDS. . . .8	DISEASE. . . 13	ANSWER. . . . 18
HEART DISEASE .9	LIVER	OTHER (SPEC.). 19
	DISEASE. . . 14	

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MODULE AD: CHILD ANTHROPOMETRY
[ONLY FOR CHILDREN AGED SIX TO 60 MONTHS.]

AD01 ID CODE	AD02 PUT AN 'X' FOR ALL INDIVIDUALS WHO ARE AGED UNDER SIX MONTHS OR OLDER THAN EXACTLY FIVE YEARS OLD (60 MONTHS). DO NOT ADMINISTER THIS MODULE TO THESE INDIVIDUALS. IF NONE AGED SIX TO 60 MONTHS, »END.	AD03 MOTHER / GUARDIAN OF THE CHILD IN THE HOUSE-HOLD Roster ID	AD04 How old is [NAME]? RECONFIRM EXACT AGE - MUST INCLUDE BOTH YEARS AND MONTHS. YEARS	MONTHS	AD05 WAS [NAME] MEAS-URED? YES..1 (»AD07) NO...2	AD06 WHY NOT? NOT HOME DURING SURVEY PERIOD. .1 TOO ILL. .2 UNWILLING.3 OTHER. . .4 (THEN »AD11)	AD07 WEIGHT OF CHILD IN KG TO ONE DECIMAL PLACE. (IF LESS THAN 10 KG, PUT ZERO IN FIRST BLANK.)	AD08 HEIGHT / LENGTH OF CHILD CHILDREN AGED UNDER 24 MONTHS SHOULD BE MEASURED LYING DOWN. ALL OTHERS, STANDING. IN CM, TO ONE DECIMAL PLACE. (IF LESS THAN 100 CM, PUT ZERO IN FIRST BLANK.)	AD09 HEIGHT / LENGTH MEASURED WITH CHILD STANDING OR LYING DOWN? STANDING. .1 LYING DOWN.2	AD10 WAS THE MEASURE-MENT OF THE CHILD DONE IN A NORMAL MANNER, OR WAS MEASURE-MENT DIFFICULT? NORMAL. . .1 DIFFICULT .2	AD11 ASK OF MOTHER/ GUARDIAN: Does the child participate in a nutrition program-me? YES..1 NO...2	AD12 ASK OF MOTHER/ GUARDIAN: Does the child participate in an under five clinic? YES. .1 NO . .2 (IF CHILD NOT MEASURED »END)	AD13 DID CHILD APPEAR TO HAVE OEDEMA (SWELLING THAT IS NOT NORMAL)? YES..1 NO...2
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												