Repeat Burglary in the Private Danish Home

Extent, Time Course, and Implications for Prevention

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Financed by and prepared for Denmark's Ministry of Justice.

April 1, 2004

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Executive Summary

This paper examines the extent and time course of repeat residential burglary in Denmark, and considers their implications for crime prevention.

Repeat victimization refers to the "recurrence of crime in the same places and/or among the same people" (Pease, 1998, 1). International research has demonstrated that a significant proportion of burgled households have been victimized repeatedly. The more frequently a household has been burgled in the past, the more likely it is to be burgled again. Furthermore, prior research indicates that as much as 40%-50% of the burglaries that recur within a year do so within one month. These facts suggest promising avenues for crime prevention, since knowledge of where and when burglaries are likely to recur should help in identifying the places and times where crime prevention might be most effective.

The current study provides the first detailed examination of the extent and time course of repeat residential burglary in Denmark, and the first treatment of registered repeat burglary ever conducted anywhere on a national basis. Data are based on 55,920 burglaries against villas, apartments and farmhouses reported to Danish police between January 1, 2002 and August 31, 2003.

The report has four primary goals:

1. To provide calendar-year estimates of the annual rate of repeat burglary in Denmark that can be compared to estimates derived internationally.

2. To examine the Danish household risk of repeat burglary within one year of an initial burglary in order to determine the potential crime preventive effects of treating prior victims.

3. To measure the *time course* of repeat burglary in order to evaluate the possibility for increasing the cost-effectiveness of prevention by focusing on the initial period of heightened risk

4. To provide information pertinent to whether anti-repeat victimization programs, such as those now popular in the UK, make sense in the Danish context.

The primary findings of the study are as follows:

- Approximately 1.4% of Danish residences were burgled in 2002.

- Among those burgled, 7.9% were burgled again within 365 days of their first burglary. The prevalence of new burglaries within one year at these households (7.9%) was thus 5½ times greater than that for the average Danish household (1.4%).

- The prevalence of new burglaries during the coming year rose with the number of prior victimizations, from 7.9% for once burgled households, to 10.5% and 20.2% for twice and thrice burgled households, respectively. Thus, all else being equal, burglary

prevention programs aimed at previously victimized households should prevent more burglaries than those directed at a random sample of households.

- Just over 19% of all first-repeats and nearly 30% of those at apartments occurred during the first month subsequent to an initial burglary. This initial burst of quick repeats implies that a certain proportion of burglars are returning to collect goods left behind or assumed replaced. The potential for deterring and/or apprehending these burglars should therefore be greatest in the days and weeks immediately following an initial break-in.

- Despite this, the speed of recurrence in Denmark seems somewhat slower than elsewhere, indicating that returning burglars may account for a lower proportion of total repeats than they do in some other countries. Preventing repeats thus seems to require a combination of deterring and/or apprehending returning burglars, and reducing the vulnerability or attractiveness of previously burgled properties.

The report concludes with an evaluation of five anti-repeat victimization programs conducted in the UK and Australia.

Section 1: Introduction to the Current Study and Past Research [1]

This paper examines the extent and time course of repeat residential burglary[2] in Denmark, and considers their implications for crime prevention.

The fact that some places and people are victimized by crime more frequently than others is nothing new to criminologists or law enforcement. What is new, however, is the acknowledgement of just how common repeat victimization is, and how quickly repeats tend to follow prior crimes. During the last decade, a growing body of research from various countries has demonstrated that a significant proportion of the victims of both violent and property crime have been victimized repeatedly. This conclusion is based on the analysis of both official police data and victim surveys, the combination of which suggests that the findings are real, as opposed to methodologically driven.

Repeat victimization refers to the "recurrence of crime in the same places and/or among the same people" (Pease, 1998, 1). International research has focused heavily on residential burglary. The British Crime Survey (BCS) reveals that approximately 18% of the households burgled in England and Wales in 2002/3 were burgled more than once (Smith, 2003, 17), and that this unlucky minority suffered more than 33% of all burglaries reported in the survey. Studies show that the more frequently a household has been burgled in the past, the more likely it is to be burgled again. Even more interesting, research from around the world demonstrates that as much as 40%-50% of the burglaries that recur within a year do so within the first month of an initial victimization (e.g., Robinson, 1998, 78). These facts suggest promising avenues for crime prevention, since knowledge of where and when burglaries are likely to recur should help in identifying the places and times where crime prevention programs might be most effective.

Knowledge Concerning Repeat Burglary in Denmark

As of now, we know very little about the extent of repeat burglary in Denmark. The only information currently available comes from the International Crime Victims Survey (ICVS), a cooperative transnational project that collects comparative survey data on victimization experiences worldwide. A recent ICVS-based report concerning 17 industrialized nations indicates that Denmark's rate of repeat burglary is only half the 17-nation average (Kesteren et al., 2000). Table 1.1 depicts the prevalence, incidence, and concentration of burglary in these 17 ICVS nations. The table is rank ordered by level of concentration, which represents the proportion of total burglary that is repeat burglary. According to these figures, only 14.3% of the burglaries occurring in Danish homes are repeat crimes against one or more of the same households. This is an intriguing piece of information, since it suggests (a) that the extent of repeat victimization varies considerably by country, and (b) that it is lower in

[1] I gratefully acknowledge the assistance of Detective Chief Inspector Ole L. Jacobsen of the GIS Office, National Center of Investigative Support, National Commissioner's Office (Rigspolitiet). Ole extracted the POLMAP data used in this report for me on 18 September 2003, and has generously given many hours of his time to explain its content. Ole's research on geographic crime patterns is both fascinating and vital. I am sure it will play an increasingly important role in day-to-day Danish policing. I would also like to thank Peter Kruize, of the University of Copenhagen, for helpful comments on an earlier draft of this report.

[2] Indbrud i beboelse, straffeloven §276.

Denmark than in many other nations. This, however, is the full extent of current research knowledge concerning repeat burglary in the private Danish home.

Table 1.1: Prevalence, Incidence, and Crime Concentration, by Country, 1999

Country	Sample Size	Burglary*		Concentration (Incid-Prev)/Incid
		Prevalence	Incidence	
USA	1,000	3.8	6.6	42.4%
Japan	2,211	1.8	2.9	37.9%
Finland	1,783	1.2	1.8	33.3%
Belgium	2,402	4.1	6.1	32.8%
Netherlands	2,001	3.6	5.3	32.1%
Portugal	2,000	2.5	3.5	28.6%
Sweden	2,000	2.3	3.2	28.1%
Poland	5,276	3.1	4.3	27.9%
England-Wales	1,947	5.2	7.2	27.8%
Australia	2,005	6.6	8.8	25.0%
Canada	2,078	4.4	5.6	21.4%
France	1,000	2.3	2.9	20.7%
Switzerland	4,234	2.7	3.2	15.6%
Denmark	**3,007**	**4.2**	**4.9**	**14.3%**
Scotland	2,040	3.2	3.7	13.5%
Catalonia, Spain	2,909	1.9	2.0	5.0%
Northern Ireland	1,565	2.5	2.6	3.8%
All 17 Countries	**39,458**	**3.3**	**4.5**	**26.7%**

Source: International Crime Victims Survey, as reported by Kesteren et al. (2000, 30; 180-181).[3]
* Includes attempts. Excludes thefts from garages, sheds and lock-ups, but includes burglaries in cellars. Incidence is measured per 100 households.

Aims of the Current Study

The current study provides what this author believes to be the first detailed examination of the extent and time course of repeat residential burglary in Denmark, and the first treatment of registered repeat burglary ever conducted anywhere on a national basis. Data are based on 55,920 burglaries against villas, apartments and farmhouses reported to Danish police between January 1, 2002 and August 31, 2003.[4] The report is designed to inform both comparative researchers and policy makers. The four primary goals of this official record study are:

1. To provide calendar-year estimates of the annual rate of repeat burglary victimization in Denmark. These calendar year estimates can be roughly compared to corresponding police data from other countries. If the Danish estimates are lower than

[3] The prevalence rates for burglary (including attempts) in Table 1.1 come directly from Kesteren et al (2000, Chapter 2, Figure 3, p. 30). Incidence rates for burglary (including attempts) in Table 1.1 were calculated by summing incidence rates for attempted and completed burglaries, respectively, provided by Kesteren et al. (2000) in Appendix 4, Table 2, p. 180-181.

[4] This report follows the practice of the National Commissioner's Office (Rigspolitiet) by using the term "villa" to mean single- or double-family houses, including row and linked houses, as long as they are not used for farming. For more, see *Defining Primary Residences* in Section 2.

those reported in prior international research, it would confirm the ICVS-based conclusion that repeat burglary really is less common in Denmark than elsewhere.

2. To examine the Danish household risk of repeat victimization within one year of an initial burglary. This is different from the calendar year-based estimate, since each household is followed for a full 365 days from its initial burglary. In addition to the purely factual information regarding the one-year follow-up risk of repeats and the number of repeats suffered, these estimates can be used to determine the potential crime preventive effects of treating prior victims.

3. To measure the *time course* of repeat burglary (i.e., the average time elapsing between initial and first-repeats based on the full sample of repeats occurring within 365 days of an initial burglary). Prior research has shown that the risk of repeat burglary is highest during the first four weeks subsequent to an initial burglary. This suggests the possibility for increasing the cost-effectiveness of crime prevention by focusing on this initial period of heightened risk.[5] It also provides clues as to why repeats occur.

4. Finally, this project aims to provide information pertinent to whether anti-repeat victimization programs, such as those now popular in the UK, make sense in the Danish context.

Advantages of an official record study

Criminologists are well aware of the methodological limitations of official police data – especially in regard to their failure to capture crimes unreported to authorities. Nonetheless, official data remain interesting for three reasons.

First, the extent of repeat burglary identified in official Danish police data can be compared to that identified on the basis of police data elsewhere. If the level of repeats identified in Danish police data is lower than that identified in other international research, then the combination of this and the ICVS survey results would suggest that repeat burglary really is less frequent in Denmark than elsewhere.

Second, despite the many advantages of victim survey research, police data are arguably more valid when it comes to examining the speed with which repeats occur. While victim surveys are relatively well suited for asking people "how many times" they were burgled during the last 12 months, it is unrealistic to expect victims to remember the precise dates of these victimizations. It is therefore difficult, if not impossible, to estimate the time course of repeat burglary on the basis of victim survey data. On the other hand, police data contain estimates of the dates and times crimes occurred based on prospectively gathered police reports. While not without their own problems, these data seem likely to provide far more reliable estimates of the time course of repeat burglary than retrospective surveys relying upon long-term victim recollection.

[5] For example, both the Biting Back Burglary Reduction Project at Huddersfield (Anderson and Pease, 1997) and the Residential Burglary Prevention Project in Cambridge (Bennett and Durie, 1999) loaned security equipment to burglary victims for short periods immediately following an initial victimization. In the Cambridge project, motion-sensored, audible burglar alarms were loaned to victims for a period of eight weeks.

Finally, and most importantly, even if victim surveys provide a more valid estimate of the actual *extent* of repeat burglary, practical decisions regarding the cost-effective application of anti-repeat programs should be based on the extent of repeat victimization identified in official police reports. This is because burglary prevention programs focused on prior victims can only treat those victims who actually identify themselves to police. Repeat victims who fail to report victimization cannot in practice be identified for treatment. The actual extent of repeats is therefore irrelevant to the question of whether an anti-repeat program makes sense in Denmark. The interesting question is whether the level of repeat burglary *reported to police* seems to justify the initiation of such a program.

One year focus
While the long-term risks (e.g., five years or more) of repeat victimization are fascinating from a theoretical/victimological perspective, the current report focuses on short-term risk in order to estimate the immediate crime prevention benefits one might expect to achieve via a focus on prior victims. Since both crime prevention resources and the period of heightened risk for repeat victimization are limited, it makes sense to focus on a period that is short enough for crime prevention efforts to be intensely applied.

Why study burglary?
According to the ICVS, residential burglary (including attempts) comprises 13% of all serious crime in Denmark (Kesteren et al., 2000, 190). Yet the citation rate for burglary is only 8.9%, one of the lowest rates for any major crime (Statistics Denmark, 2002, Table 2.1, p 49). Denmark ranks no less than second for completed burglaries among the 17 industrialized nations examined in the most recent wave of the ICVS (Kesteren et al., 2000, 178-179). While the symptoms of burglary-related anxiety have not been measured in Denmark, research from the UK suggests that they are intense (Hough and Mayhew, 1985; Budd, 1999, 66-67), especially among repeatedly burgled victims (Shaw, 2001). Though burglary rarely results in physical harm to its victims, it is a crime that ranks consistently high in terms of public concern internationally – presumably due to the very personal invasion it entails. While burglary in Denmark has little financial impact upon individual victims, the costs to society in terms of police hours and increased insurance premiums are extensive.

Prior Research Concerning the Extent of Repeat Victimization
The extent of repeat victimization (hereafter RV) can be measured via either official police reports or victimization surveys. Both sources of data have well-acknowledged methodological drawbacks which are only magnified in the context of RV research. Nonetheless, both types of data point to the same general conclusion, which suggests that the RV phenomenon is real as opposed to methodologically driven.

Repeat victimization as measured in official police data
Official police reports can be used to measure the recurrence of crime at the same street address. Yet problems abound. First off, not all crimes are reported to the police, and there is evidence that repeat crimes may have an even lower probability of being reported than first-time victimizations (Guidi et al., 1987, as cited by Morgan, 2001, 86).[6] Second, since police

[6] Since police tend to place a rather low emphasis on burglary, there is a general tendency toward dissatisfaction with police response among burglary victims. Repeat burglary is therefore likely to suffer an even lower reporting rate than initial victimizations. It should also be kept in mind that both initial and repeat burglaries are disproportionately concentrated in economically disadvantaged communities (Budd, 1999, 16; Mawby, 2001,

incident reports are not designed for the purpose of measuring repeats, they often lack precise and/or correct address data – especially at the level of the individual residence - which limits the ability of researchers to identify repeat crimes as such. The use of official police reports is therefore bound to underestimate the extent of RV.

This said, prior research based on official police reports indicates that burglary is disproportionately spread across addresses. For example, burglary reports covering one year (May 1997-April 1998) in three Scottish police districts showed that 23% of the (n=3,675) reported burglaries (including attempts) occurred at 11% of burgled addresses (based on numbers from Shaw and Pease, 2000, Table 4.4). Burglary calls for service over a 1½-year period (June 1995-November 1996) in Beenleigh, Queensland, Australia, indicated that 32% of (n=1,219) burglary reports came from 16% of burgled residences (Townsley et al., 2000, 45). And over a six-year period (1987-1992) in Enschede, the Netherlands, 25% of (n=6,266) reported burglaries occurred at only 13% of burgled residences (Kleemans, 2001, 58-59).

Repeat victimization as measured in victimization surveys

Victimization surveys, in which a representative sample of respondents is asked about prior victimization experiences, can be used to measure the recurrence of crime among the same persons or households. Victimization surveys almost certainly provide a more accurate picture of the full extent of repeat crime because their results are independent of whether crimes were reported to the police, and because they suffer none of the problems related to incorrect and/or missing address data. Valid results, however, are dependent upon the size and generalizability of the respondent samples interviewed, the degree to which respondents recognize and recall burglary events as having occurred within the specified time frame, and the degree of standardization with which interviews are conducted. While these and other potential threats to validity should not be underestimated,[7] the results of a well-conducted survey will undoubtedly capture far more victimization events – including RV events - than that identifiable on the basis of official police reports.

The British Crime Survey (BCS), one of the most respected victimization surveys worldwide, began collecting information concerning the extent of repeat victimization in the mid-1990s.[8] 3.4% of BCS respondents reported experiencing one or more burglaries (including attempts) during the 12 months prior to the most recent BCS survey (2002/3). Table 1.2 indicates that among these victims, 82% experienced a single burglary, while 13% experienced two, and 5% experienced three or more. This 18% of burglary victims who were burgled 2 or more times represents only 0.6% of the entire BCS sample, yet this group experienced somewhat more

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56). Members of these communities experience more crime, tend to perceive police response less favorably, and are less likely to have the contents of their homes insured against burglary.

[7] Skogan provides a detailed look at the methodological problems suffered by victimization surveys in the context of RV research (National Institute of Justice, 1996).

[8] The British Crime Survey (BCS) collects interview data concerning socio-demographic characteristics, attitudes toward crime and the justice system, and criminal victimization during the previous 12 months. Beginning in 1982, the most recent wave (2002/3) of the BCS covered a representative sample of approximately 36,500 aged 16+ residents of England and Wales surveyed in their homes by interviewers using Computer Assisted Personal Interviewing (CAPI). The 2002/3 response rate was 75% (Smith, 2003, 11). The BCS is administered by the British Home Office.

than 33% of all BCS reported burglaries.[9] These data suggest that burglary is heavily clustered among a very small proportion of the population. The prevention of repeat victimization should thus be expected to result in a meaningful reduction in overall rates of burglary.

Table 1.2: Percentage of Burglary Victimizations by Number of Victimizations: BCS 2002/3 (n~1,241 burgled respondents)

Number of Victimizations	Proportion of Respondents (%)	Proportion of Events (%)
1	82	66.7
2	13	21.1
3+	5	12.2

Source: Based on numbers from Smith (2003, Table 2.05, 23). Includes attempts.

Explanations of RV: Risk heterogeneity and event dependence

The risk of future burglary is highly correlated with number of past burglaries – the more past burglaries, the higher that risk. Researchers attribute this phenomenon to one of two possible mechanisms: *risk heterogeneity and event dependence*.

Risk heterogeneity refers to the fact that some people and/or properties are more attractive and/or more susceptible to burglars than others, and that these differences between properties are relatively constant over time. Under this hypothesis, prior burglaries do not increase the risk of future burglaries. They do, however, predict them. This is because the very same characteristics that attract burglars to a particular residence the first time are likely to attract the same or different burglars on subsequent occasions. For example, houses lying in "bad" parts of town and/or constructed of flimsy materials are consistently more likely to be victimized than well-fortified flats in "good" neighborhoods. Likewise, student households are consistently more likely to be burgled because student residents are very frequently, and consistently, away from the home.

Event dependence, on the other hand, refers to the notion that an initial burglary actively increases the probability of a subsequent burglary. Under this second hypothesis, prior burglaries both predict *and causally influence* the probability of future burglaries. For example, offenders who have already burgled a property may return for goods they left behind, or for goods they expect residents to replace in the near future (e.g., loose money, TV sets, laptop computers, etc.). Furthermore, those offenders will now have a sense of how easy or difficult it was to gain entry, as well as an intimate knowledge of the interior layout of the residence. Even if they don't go back themselves, they may pass this information along to other offenders, who may then return on their own to hit these "easy" or lucrative targets. Damaged points of entry that are left unrepaired may also attract opportunist burglars – a possibility that Pease (1998, 6) likens to Wilson and Kelling's (1982) famous "broken windows" thesis.[10]

[9] Proportions of events are estimated on the basis of published BCS distributions, which were truncated at 3+ crimes. This means that the proportion of events experienced by the most victimized categories may, in fact, be slightly higher than that depicted above.

It is important to note that while distinct, these explanations are not necessarily mutually exclusive. Some kinds of houses and/or people may be consistently more prone to burglary while, at the same time, the burglars who burgle them may also be more likely to return to these "easy," familiar targets. This mixed explanation, in fact, seems the most likely.

In terms of relative importance, however, offender accounts suggest that burglars regularly return to previous targets, which is an event dependence. Pease (1998, 10), for example, quotes Ericsson (1995), who interviewed 21 convicted English burglars and found that 16 of them:

> …said they had gone back to a number of houses after a varying period of time to burgle them between two and five times. The reasons given for returning to burgle a house were because the house was associated with low risk…they were familiar with the features of the house… the target was easily accessible…or to steal more goods in general…The reasons for going back for goods were things they had left behind…replaced goods…and unhidden cash (Ericsson, 1995, 23, as cited by Pease, 1998, 10).

Though Ericsson's sample was rather small, such findings are typical of offender accounts (see Pease, 1998, 10-13). Ericsson, however, makes no mention of tips traded among burglars. Almost half of the burglars interviewed by Bennett (1995, cited by Pease, 1998, 10) said they had chosen a particular target on the basis of a recommendation from someone who had already burgled that target. Despite this, Pease (1998, 14) concludes that most RV is the work of the same offender – as opposed to a second offender receiving a tip. Furthermore, Pease (1998, 15) cites evidence indicating that repeat offenders are more active that non-repeat offenders. This suggests that the apprehension of repeat offenders could have a significant impact on a local burglary problem (see Everson and Pease, 2001, for an examination of this subject).

The timing of repeat victimization

When victimization recurs, it tends to do so quickly. Some studies have found that as much as 50% of repeat burglaries occur within one month of a previous burglary, and that a large percentage of these occur within just days.

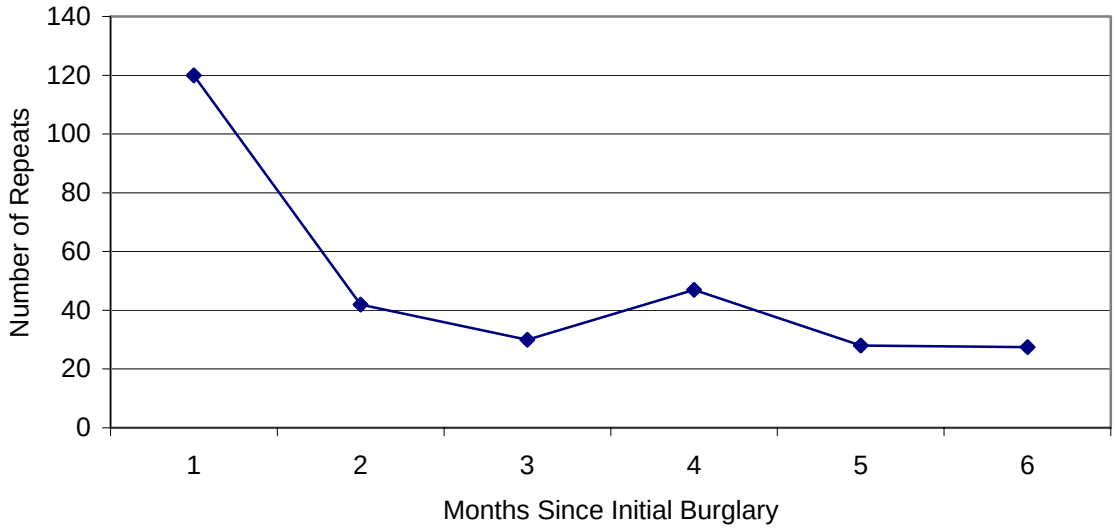
In a pioneering study of official police data from Saskatoon, Canada, Polvi et al. (1990; 1991) noted that the chances of burglary victimization were about four times higher among those burgled during the previous 12 months than among those not burgled. More interesting, however, was that among those recently burgled, the rate of new victimization during the first month alone was 12 times the expected average. Furthermore, 50% of the repeat burglaries occurring within the first month happened within seven days of the initial burglary (Polvi et al., 1991, 412). Polvi et al. (1991, 413) noted a slight rise in repeats four to five months after the initial burglary. They interpreted this rise as most likely due to a "chance fluctuation in

[10] In a groundbreaking article, Wilson and Kelling (1982) argued that unrepaired vandalism invites more vandalism, as well as more serious crime, since it suggests to offenders that, "nobody cares." As a general analogy to urban blight, Wilson and Kelling note, "if a window is broken and left unrepaired, the rest of the window will soon be broken."

the data," but cautioned that it might also "represent the period after which replacement of goods though insurance is virtually certain to have occurred" (Polvi et al., 1991, 413-414).

Andersen et al. (1995, 12), however, observed this same pattern in their study of burglary in the Huddersfield section of West Yorkshire, England. Figure 1.1 shows the number of repeat burglaries experienced during the six months following an initial victimization. Over 40% of these burglaries occurred during the first month subsequent to the initial incident. Furthermore, the same slight rise identified by Polvi et al. (1991) after four to five months is also visible in the Huddersfield data.

Figure 1.1: Repeat Burglaries in Huddersfield by Month (n=circa 294 RVs).[11]



Source: Andersen et al, 1995, 12 (as cited by Mawby, 2001, 55).

In a study of official police reports from Tallahassee, Florida, Robinson (1998, 78) found that 51% of repeat burglaries occurred within a month of an initial burglary, while 25% occurred within a single week.

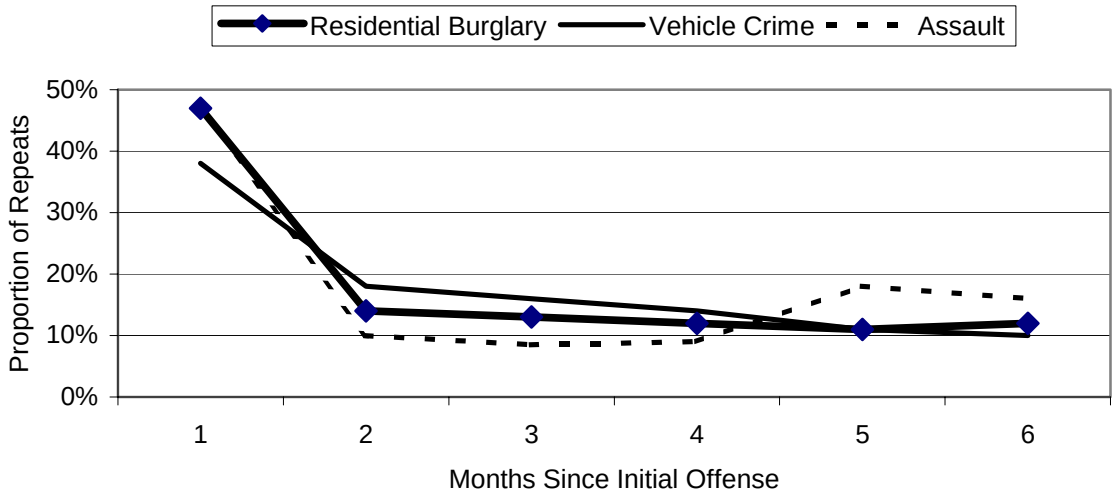
The quick recurrence of victimization is common for many crimes. Figure 1.2 is reproduced directly from Shaw and Pease's (2000) analysis of official data from three Scottish police divisions. Note that around 47% of both housebreaking and assault, and 37% of vehicle crime, recurred in the first month subsequent to a prior victimization.

This same basic pattern has been observed for repeat residential burglary in the Netherlands (Kleemans, 2001, 60), Australia (Morgan, 2001, 100-109), and Sweden (Carlstedt, 2001, 9).

Furthermore, it has been demonstrated in connection with repeat "school crime," racial victimization, and domestic assault in the UK (Farrell and Pease, 1993, 8-12).

[11] I was unable to obtain the original Anderson et al. (1995) article. Figure 1.1 is reconstructed from an identical figure provided by Mawby (2001, 55).

Figure 1.2: Time Course of Repeated Offences, by Type of Offence



Source: Reproduced by hand from Shaw and Pease (2000, Chapter 4, Figure 4.7).

A Road Map

The remainder of this report examines the extent and time course of repeat burglary in Denmark for the purposes of making international comparisons and evaluating crime prevention possibilties. Section 2 describes the police data used in this report, and the methods how burglaries at distinct residential addresses are identified. Section 3 measures the extent of repeat burglary observed in Denmark during a single calendar year. Section 4 examines the risk of repeat burglary in Danish homes during a 365-day period subsequent to an initial burglary, and estimates the crime preventive gains that might be expected by treating prior victims. Section 5 explores the time course of repeat burglary in order to pinpoint the period of heightened risk, and to see whether the patterns observed suggest anything about the underlying causes of repeat burglary in Denmark. Section 6 discusses the overall findings of the study, and evaluates the potential benefits of a focus on prior victims in Denmark.

Section 2: Data

This section of the report discusses the source and nature of the data used, and the decision to focus on primary residences. Extensive coverage is given to how the data were cleaned, and how repeats were identified.

Data

This report is based on 55,920 cases of burglary and attempted burglary reported at villas, apartments and farmhouses across Denmark during the 20-month period January 1, 2002 to August 31, 2003. The intent is to focus on burglary at primary residential properties. The data therefore exclude burglaries directed solely against storage units (garages, sheds, cellars and lofts) that are associated with these properties. This is because factors relevant to the current research – such as reporting propensity, guardianship patterns, and the specificity of both address data and time of occurrence – differ significantly between primary residential properties and their storage unit extensions. While qualifying as "primary residences," burglaries against rooms are excluded due to their infrequency (n=496 in 2002) – a number so low as to preclude reliable analyses of this property type on its own.

Attempted burglaries are included in these data because they are useful predictors of both future attempts and future completed burglaries. The inclusion of attempts coincides with the recommendations and practices of past research (Pease, 1998, 29-30). 12.6% of the 55,920 cases examined in this report were attempted burglaries (no entry or loss). Table 2.1 shows the distribution of cases by property type and % attempts for 2002 and for the first 8 months of 2003. Proportional breakdowns were relatively stable over these two periods.

Table 2.1: Distribution of Burglaries in Primary Residences by Property Type and % Attempts, 2002 and January 1 to August 31, 2003 (n= 55,920 cases)

2.1a: Full 12 Months in 2002				2.1b: First 8 Months of 2003		
Property Type	**Total Burglaries Jan 1-Dec 31 2002**	**% Total 2002**	**% Attempts 2002**	**Total Burglaries Jan 1-Aug 31 2003**	**% Total 2003**	**% Attempts 2003**
Villas	26,518	75.2%	12.7%	15,138	73.2%	13.4%
Apartments	6,553	18.6%	14.0%	4,101	19.8%	14.0%
Farmhouses	2,170	6.2%	4.8%	1,440	7.0%	5.1%
TOTAL	35,241	100.0%	12.4%	20,679	100.0%	12.9%

Source: POLSAS

POLMAP/POLSAS

Data for this study are derived from the POLMAP database, which is based upon POLSAS, an integrated "case steering system" now operating in all 54 Danish police districts.[12] POLSAS data is of a relatively high quality in terms of validity, and represent what may be the only centralized national data on police-registered crime anywhere in the world. It is, therefore, a rather unique source of information and aptly suited for the current analyses.

[12] POLMAP data are identical to those available in POLSAS, except that POLMAP adds GIS coordinates based on address data so that crime events can be examined geographically using MAPINFO software.

Primary Variables
While additional data were used to help validate and clean the primary variables,[13] the substantive results of this report are based on only a small subset of the overall data available in POLSAS. In particular:

- Property type (i.e., villa, apartment, or farmhouse)
- Full Address, including street name, house number, floor, apartment number/side, and postcode
- Date and time that the resident first discovered the burglary

The nature and quality of these data are discussed below in the sub-section on Data Cleaning.

Defining primary residences
This report focuses on burglaries in villas, apartments and farmhouses, which collectively comprise over 98% of all occupied, full-year dwellings in Denmark.[14] The attending officer determines the POLSAS classification of property type either with or without input from residents. Distinctions between property types are taken relatively seriously since the five-digit crime code (gerningskode) used to distinguish different forms of burglary is recorded on the basis of property type. In POLSAS, the term:

- Villa is used to describe single-family houses, excluding farmhouses, but including row- and linked- houses. Two-family houses, such as those found in some parts of Frederiksberg, are borderline cases in which the attending officer determines property type on the basis of his or her own judgment and/or the judgment of residents. Typically, however, a residence will be classified as a "villa" if it has one or, at most, two residences inside it, and has the outward appearance of a single-family structure.
- Apartments are multi-family dwellings, typically stacked on top of one another.
- Farmhouses are stand-alone residences distinguished by their active use in connections with farming.

Classification as any of the above indicates that the resident reported a burglary directed at the interior of the residential dwelling, as opposed to against any storage unit extensions (e.g., cellars/lofts, garages/sheds, etc.).

Why focus on primary residences?
Since crime analysis is best focused on the factors that contribute to the occurrence of specific crimes in specific contexts, the analysis of those factors should be as concrete and localized as possible (Clarke, 1997). A specific focus on primary residences provides a look at RV in a very specific residential context, which means that the results obtained are relatively straightforward in terms of interpretation. Storage units are excluded from the current analysis for two primary reasons.

[13] Including case number, date and time the resident left home before the burglary, and date and time the burglary was reported to police.

[14] The residual being rooms, including those used in connection with residential communities for youth and the elderly, and college dormitories (Statistics Denmark, StatBank, Table BOL1).

First, storage unit suffer a much higher degree of missing and/or clearly incorrect unit designations. Missing data may reflect the absence of clearly marked designation numbers on storage unit doors – especially in older apartment buildings. By data that are "clearly incorrect," I refer to cases where a storage unit is designated at "1.tv." or "st.th." – which seem unlikely to be legitimate storage unit designations. In these latter cases, the attending officer has probably recorded vertical address data for the apartment *associated with the storage unit*, as opposed to the designation for the unit itself. The inclusion of storage units that either lack vertical address designations or contain erroneous designations increases the risk of overestimating repeats. Furthermore, it does so disproportionately by property type, since the types of storage facilities that are most apt to suffer these problems (cellars and lofts) are predominantly found in apartments.

Second, the estimates for the time-window in which burglaries may have occurred – as based on residents reports concerning when they last left the property and when they returned - are much wider for storage facilities than for primary residences. This should not be surprising, since many people visit their loft or cellar units only occasionally – particularly the elderly. Lack of specificity in regard to when burglaries occurred invalidates the interpretation of the time course of RV (i.e., time elapsing between initial burglaries and repeat events).

While the exclusion of storage units limit the number and nature of burglaries examined in this report, it will almost certainly increase the validity of the patterns described for the specific properties that are examined. This seems a reasonable trade-off, especially when one considers that the public's fear of burglary is primarily generated by violations of the inner sanctum of the home.

Data Cleaning and Validity

Cleaning incorrect and/or missing address data

The presence of inaccurate address data will generally result in an underestimation of the extent of RV. This is because cases that have occurred at the same address will not be identified as such if addresses differ by even as much as a single punctuation point. Given the size of the data being analyzed, address-cleaning procedures had to be automated via programming routines. Even this, however, required careful attention since it is easy to make inadvertent changes to "clean" address data while attempting to fix "dirty" data. The process therefore required extensive post-cleaning quality control checks. For those interested, the cleaning procedure is described in a footnote.[15]

[15] The cleaning procedure began by breaking full address down into its constituent parts, including: *street name*, *house number*, *floor*, and *apartment number/side*. The full range of values for *apartment number/side* was examined and standardized (e.g., periods were removed from "t.v."and "tv." so that all instances became "tv"; prefixes to *apartment number/side* were removed so that "Værelse 3", "V3", and "003" all became "3", etc). Note that while a given apartment number may, in fact, truly use the designation "V3", it seems highly unlikely that one would find two apartments at the same address with the apartment numbers "V3" and a "3" – especially when one recalls that storage units are not included in these data. Therefore, changing the correct *apartment number/side* "V3" to the incorrect value "3" will have no influence on whether a repeat crime is identified as such. It is, however, relatively likely that two burglaries occurring at the same residence could be recorded as having occurred at apartment "V3" on one occasion and at apartment "3" on another. Without apartment number standardization, this latter scenario would result in a failure to identify these crimes as repeats. Instances where *apartment number/side* contained what seemed to be information on *floor* (e.g., "st.tv") - and where no data were otherwise present for *floor* - were fixed, and so on. The full range of values for *floor* was also examined, though these data seemed relatively valid from the start. It is important to note that data were never changed for any field unless it was 100% clear precisely what those changes should be. Cases for which the

Missing floor and/or apartment number/side

While very few farms and villas have vertical address designations (i.e., *floor, apartment number/side*), one should think that most apartments would. Yet Table 2.2 indicates that POLSAS contains data on both *floor* and *apartment number/side* for only 64% of the burgled apartments. An additional 17% of apartments have no vertical address data whatsoever. The remaining 19% have designations for either *floor* or *apartment number/side*, but not both. An examination of this latter 19% suggested that the data *may*, nonetheless, be complete, since a spot check of Kraks Kort online (www.krak.dk) - which provides full listings for all officially registered residences by address - indicated that many of the apartments lacking *apartment number/side* data in POLSAS actually lay in buildings where apartments were identified only on the basis of *floor*. Similarly, a spot check of apartments where *floor* was missing, but where *apartment number/side* was present, indicated that the majority of the apartments spot-checked lay in buildings that designated apartments solely on the basis of a number. There were, however, many exceptions. One risks identifying "false repeats" if burglaries in the same building take place in distinct apartments that lack vertical address designations. The analyses conducted in Section 3 of this report therefore examines repeats identified using two separate samples: (1) the whole sample of apartments (n=6,553), and (b) only those apartments where *floor*, *apartment number/side*, or both are present (n=5,451). To jump ahead, the result of this was no difference whatsoever - indicating that the absence of these data in POLSAS may well reflect their absence in reality.

Table 2.2: Presence of Vertical Address Data, by Type of Property (n=55,920 cases)

Vertical Address Data Present	Villas %	Apts %	Farms %	Villas N	Apts n	Farms n
Floor and Apartment Number Present	0.1%	63.7%	0.1%	55	6,789	2
Floor Present, Apartment Number Missing	0.6%	16.7%	0.1%	229	1,782	3
Floor Missing, Apartment Number Present	0.4%	2.1%	0.1%	154	227	4
Floor Missing, Apartment Number Missing	99.0%	17.4%	99.8%	41,218	1,856	3,601
TOTAL	100.0%	100.0%	100.0%	41,656	10,654	3,610

"intended" data entry seemed 98% clear were left as they were, since doing otherwise would lead one down a slippery slope concerning where to draw the line on such interpretations. Furthermore, given the size of this data set, the relatively few changes one might make on the basis of subjective interpretations would be unlikely to have a significant effect on the overall study results. Turning to *street name*, examination of the data indicated that there were extremely few standardization problems in regard to the spelling of street names (e.g., "Boulevard" versus "Blvd." etc.). Problems identified were easily fixed. The relative lack of problems, it turns out, is due to the fact that the POLSAS system uses a "justified address program" that standardizes alternative spellings – and misspellings – of street names on the basis of a dictionary of applicable street names for each postcode. House numbers were, however, periodically missing from the *house number* field. An automated search for numbers embedded within the *street name* field sometimes indicated that house number had inadvertently been entered along with *street name*. And vice versa. After this, punctuation of any kind (e.g., hyphens, commas, periods, etc.) was removed from all address data, as were all spaces within fields. All address field values were standardized in capital letter format. Last, but not least, all cases in which *street name* and or *house number* were either missing or marked as "Unknown" were deleted from the dataset. If overlooked and left in, these missing and/or "Unknown" addresses would constitute matches – and thus lead to a gross overestimation of repeat victimization. When address cleaning was completed, all address fields plus *postcode* were melded back into a single field called *address*. It is important to include *postcode* within the *address* variable, since failure to do so would result in two burglaries identified at "Nørrebrogade 25 st.tv" showing up as matches – even if they occurred in different cities!

Eliminating duplicate records

An initial examination of the time course of repeats indicated that a significant number of secondary burglaries were being reported at the same address within hours - and sometimes minutes - of an initial report. While not impossible, such scenarios seemed unlikely, and closer analysis proved that the data contained duplicate records on some burglaries. Failure to eliminate duplicate records would lead to an over-estimation of RV. Worse yet, however, it would lead to a very serious misrepresentation of the time course of RV, since the proximity of reporting dates/times would wildly exaggerate the speed with which secondary burglaries recur. In short, these duplicate cases had to be eliminated.

While POLSAS contains information on related/linked crimes in a data field called *AdJournalNummer* (for Additional Journal Number), an analysis of primary and additional journal numbers did not seem to clarify or explain the problem. Since burglars work hard to avoid contact with residents, police ask burglary victims (a) the date and time they left their homes (From Time/Fra Tid) and (b) the date and time they returned to discover their homes burgled (To Time/Til Tid). POLSAS also contains (c) a measure of the date and time the crime was first reported to police (Report Time/Anmeld Tid). A typical "duplicate case" involved a scenario such as the fictitious example presented in Table 2.3. In both cases, the "From," "To," and Report" dates are on the same day, 05 July 2002. The times given overlap in each case, but don't match. One possible explanation is that one family member discovered the burglary prior to another, phoned police, then phoned the other family member who then also phoned police.

Table 2.3: Typical Duplicate Case

CASE 1		**CASE 2**	
Address:	Sankt Peders Stræde 19, 3.th. 1453	Address:	Sankt Peders Stræde 19, 3.th. 1453
From:	05JUL2002 10:00	From:	05JUL2002 08:15
To:	05JUL2002 13:45	To:	05JUL2002 14:30
Reported:	05JUL2002 13:55	Reported:	05JUL2002 14:35

Sometimes dates in two cases are different, but overlapping – as in the fictitious example provided in Table 2.4. A case like this may result from a homeowner being away for the weekend. Meanwhile, a neighbor notices a damaged window and phones police (Case 1). The homeowner returns two days later, finds her home burgled, and calls police herself (Case 2).

Table 2.4: Another Typical Duplicate Case

CASE 1		**CASE 2**	
Address:	Solsortevej 12, st.tv. 3630	Address:	Solsortevej 12, st.tv. 3630
From:	23AUG2002 13:20	From:	22AUG2002 10:00
To:	23AUG2002 13:20	To:	24AUG2002 17:50
Reported:	23AUG2002 13:25	Reported:	24AUG2002 17:50

These hypothetical explanations are, of course, pure conjecture. What matters, however, is that the dates and times given for these cases suggest that they are single – as opposed to multiple – events, and that they must be dealt with if RV is not to be over-estimated. The solution applied in this report was this: (1) Cases were sorted in order of reporting date and time (from earliest to latest). (2) If the "To" date/time on a prior case overlapped with the "From" date/time on a subsequent case, one of the two was considered a duplicate record. (3) In such cases, the first of the two cases reported was deleted from the dataset. The second case was chosen for inclusion over the first because it was reported later in time – and this suggests that the parties involved may have had more time to consider the facts of the case. Note that in some "duplicate cases," the first reported crime is reported as an attempt while the second reported crime is reported as a completed burglary. In such cases, the second report may have come from the same person – who only realized something was missing after spending a bit more time inventorying his or her property. For this, and other similar reasons, the second case seems the best choice to keep of the two. This process resulted in the removal of 228 cases from the dataset (a removal already reflected in the numbers provided above in Table 2.1).[16]

Measuring the date and time of burglary events

Most studies concerning the timing of police-reported burglary use the date and time the event was *reported* as an approximation for when it occurred. The current study departs from this trend, and instead uses the date and time the crime was *discovered* (To Time). The decision to do so is based on the fact that (a) most events are reported almost immediately following discovery, yet (b) in those cases where this is not true, the date of discovery is a better indicator of the actual date of the event than the reporting date. In cases where residents report crimes long after their discovery, the use of reporting date can seriously bias the estimate derived for the time course of RV. To understand why, consider the fictitious examples in Table 2.5. Both cases were reported to police at precisely the same time. Yet the dates associated with Case 1 lie 3½ months prior to those associated with Case 2. The likely explanation for this is that the resident neglected to report the first burglary to police, but did so after finding himself burgled a second time. Once reported, these two cases were entered into POLSAS as separate events with separate case numbers. Yet if one were to estimate the time course of recurrence based upon the date and time of reporting, the second (RV) event would appear to have occurred immediately after the initial event. This problem is eliminated by using the date and time of discovery - as opposed to reporting – as a measure of when crimes occurred.

[16] It is, of course, possible that cases that appear to be duplicates are actually distinct incidents that occurred in the same building around the same time, but in different apartments – and for which no *apartment number/side* data were recorded by attending officers. This would result in their appearing to be repeat events in the same dwelling even if they were, in fact, not. Apart from reviewing original police documents, there is no way to rule out this possibility. Note, however, that if this were the case, the two cases in question would not, in fact, be true repeats. Since this is a study of repeat burglary, it is far better to eliminate cases that will result in false repeats than to leave such cases in.

Table 2.5: Different Events Reported at the Same Time

CASE 1		**CASE 2**	
Address:	L.I Brandes Alle 13, st.tv. 1956	Address:	L.I Brandes Alle 13, st.tv. 1956
From:	02NOV2002 00:00	From:	17FEB2003 07:45
To:	03NOV2002 09:00	To:	17FEB2003 16:10
Reported:	17FEB2003 16:20	Reported:	17FEB2003 16:20

Section 3: The Extent of Repeat Burglary During a Single Calendar Year

This section of the report examines the concentration of burglary reported against villas, apartments, and farmhouses during the course of a single calendar year (2002). Two forms of concentration are considered: *Burglary Concentration* refers to the proportion of burglaries that are repeat burglaries against a previously burgled address. *Address Concentration* refers to the proportion of addresses burgled more than once. The analysis is based upon 35,241 burglaries discovered by residents in 2002 and reported to Danish police.[17] The primary purpose of this section is to provide RV statistics that can be compared to those derived in comparable calendar year studies elsewhere around the world.

Address Specificity

Street address versus full address

The concentration of burglary is examined on the basis of both (1) *street address*, which includes only street name, house number, and postcode, and (2) *full address*, which includes apartment number/side in addition to the data contained in *street address*. This is done to facilitate the comparison of the concentration of burglary in Denmark to that found elsewhere – since some prior research is based solely upon street address, while other prior research has used full address.

Apartments lacking vertical address data

As one last check on the validity of these data, concentrations for apartments are examined using two samples – one based upon all apartments that reported a burglary (n=6,553), and the second based upon only that sub-sample of burgled apartments for which some indication of vertical address data was provided (n=5,451). This seems worthwhile because 17% (n=1,102) of the 6,553 burglaries reported at apartments in the 2002 sample have no vertical address data recorded (Section 2, Table 2.4). After all, the inclusion of these undesignated apartments risks inflating the estimated rate of repeats

The Concentration of Danish Residential Burglary in 2002

Table 3.1 allows easy comparison of Crime and Address Concentrations for different types of residential properties in 2002 based on different levels of address specificity. Since estimates for both Crime and Address concentration are so similar in these data, the current discussion focuses on Address Concentration - the proportion of addresses burgled more than once during the year.[18]

The first line in Table 3.1 shows that when repeats are calculated for all property types combined on the basis of *street address*, Address Concentration is 6.0%, meaning that 6% of burgled *street addresses* were burgled more than once. The second line shows that Address Concentration is reduced to 4.6% (a drop of 23%) when separate residential units within

[17] Recall that this study uses the date that burglaries were discovered by residents as an estimate of the date of occurrence. This practice differs from that used by the Danish National Police, who calculate annual crime occurrence on the basis of reporting date. The difference is, however, very minor. The rationale for this study's use of date of discovery as an estimate of time of occurrence – as opposed to date of reporting – was discussed in Section 2.

[18] While Crime and Address Concentrations are very similar in these data, this need not be the case. Their similarity here reflects the relatively low frequency of repeats suffered by repeat victims in Denmark (i.e., the mean of repeats) as compared to elsewhere.

buildings are distinguished on the basis of *full address*. This, of course, makes sense, since burglaries committed against individual dwellings in multi-dwelling buildings are no longer identified as repeat crimes. The third line indicates that the exclusion of 1,102 crimes occurring in apartments with no vertical address data (apartment number/side) makes absolutely no difference when Address Concentration is measured on the basis of full address for all property types combined; it remains 4.6%.

Table 3.1: Crime and Address Concentrations in Denmark for Calendar Year, 2002, by Type of Property and Address Specificity[19]

TYPE OF PROPERTY AND ADDRESS SPECIFICITY	Total Addresses	Total Burglaries	Number of Victimizations			CONCENTRATION	
			1	2	3+	Burglaries That Are Repeats*	Addresses Burgled 2+ Times
Villas, Apts, and Farms							
Street address only	32,952	35,241	94.0%	5.3%	0.7%	6.5%	6.0%
Full address	33,542	35,241	95.4%	4.2%	0.4%	4.8%	4.6%
Excl apts w/no vertical data**	32,513	34,139	95.4%	4.2%	0.4%	4.8%	4.6%
Villas							
Street address only	25,208	26,518	95.2%	4.4%	0.4%	4.9%	4.8%
Full address	25,234	26,518	95.4%	4.3%	0.4%	4.8%	4.7%
Apartments							
Street address only	5,790	6,553	89.9%	8.1%	1.9%	11.6%	10.1%
Full address	6,328	6,553	96.8%	3.0%	0.2%	3.4%	3.2%
Excl apts w/no vertical data**	5,266	5,451	96.8%	3.0%	0.2%	3.4%	3.2%
Farmhouses							
Street address only	2,076	2,170	95.9%	3.8%	0.3%	4.3%	4.1%
Full address	2,077	2,170	96.0%	3.7%	0.3%	4.3%	4.0%

* Repeat Burglaries / Total Burglaries = (Total Burglaries-Total Addresses)/Total Burglaries.
** The 1,102 crimes reported at apartments where no vertical address were recorded represent 3.1% of the crimes reported in the full VAF sample, and 16.8% of the crimes reported in the apartment sample.

Continuing downward in Table 3.1, one sees levels of concentration for each specific type of property by level of address specificity. Examination of these data overall suggest four important facts. First, when considering villas and farmhouses, concentration differs very little regardless of whether repeats are counted on the basis of *street address* or *full address*. Second, this is not the case for apartments. The Address Concentration identified for apartments on the basis of *street address* alone (10.1%) is over three times higher than when vertical address data are used to distinguish individual residences (3.2%). This, of course, makes sense, as does the fact that the inclusion of vertical address data would have a greater effect on the level of concentration identified for apartments than it would for villas and

[19] Total *street addresses* for VAF (n=32,952) is 122 cases smaller than that derived by summing street addresses for the three property categories (25.208 + 5,790 + 2,076 = 33,074). Total *full addresses* for VAF (33,542) is 97 cases smaller than that derived by summing full addresses for the three property categories (25.234 + 6,328 + 2,077 = 33,639). This reflects the fact that in some cases, police have classified a particular addresses as one form of property in an initial report but as a different form of property in a subsequent report. This means that property-specific crime concentrations may be slightly under-estimated. The degree of under-estimation is, however, trivial, given the large number of cases in the sample.

farmhouses (which tend to be single-unit dwellings). Third, however, when measurements of concentration in apartments are based on *full address*, the inclusion or exclusion of apartments lacking any vertical address designations has no effect on Address Concentration, which remains 3.2%. This suggests that a significant proportion of the apartments that lack any form of vertical address data simply have no vertical designation. Though that seems somewhat odd, let it suffice to say that their lack of vertical address data does not seem to bias the results obtained. Given this, the remaining sections of this report consider apartments as a whole - including the 1,102 cases lacking vertical address data. Fourth and finally, Address Concentration is 4.6% for both villas and all properties combined when calculated on the basis of *full address*. The equivalence of these two categories is not surprising given that just over 75% of the burglaries examined in this sample were committed against villas (see Section 2, Table 2.1). Concentration is somewhat lower for farmhouses (4.0%), and lower still for apartments (3.2%), though these differences may be partially attributable to urban/rural location. Full distributions for all property types at all levels of address specificity are provided in the Appendix.

The Concentration of Danish Burglary in an International Perspective

Comparing official crime statistics across national boarders is a hazardous business. This is even more true in regard to repeat victimization statistics, because one must contend not only with differences in legal definitions, propensities to report, and police registration practices, but also with differences in the methodologies used to identify distinct addresses and count repeats. In fact, there may be no country in the world – at least outside of Scandinavia – in which police routinely record crime address data as thoroughly as they do in Denmark. This means that there is very little international police data against which to compare the crime and address concentrations presented in this report, and absolutely none known to this author that are available on a national level. Comparison is therefore limited to studies of repeat burglary conducted in limited areas.

The repeat rates reported across various international studies differ considerably. Yet the overall impression one gets is that they tend to be higher in other countries than the current data suggest for Denmark. Address Concentrations based on official police data described in Section 1 ranged from 11%-16%, and one localized study in a crime ridden UK housing estate (Kirkholt) reported a 50% rate of repeat (Crime Concentration; Forrester et al, 1988; 1990).

There are, however, a variety of purely methodological reasons why the repeat rates observed in official police data from other countries might be higher than those estimated in the current report. For example, all else being equal, repeat rates will be higher in studies that:

- Are conducted in areas with unusually high burglary rates to begin with (e.g., The Kirkholt Estates, as described by Forrester et al.,1988; 1990)
- Are based on street address as opposed to full address, especially if conducted in areas with a high proportion of apartments and/or where there are high-rise apartments buildings with many individual units
- Do not properly account for overlapping, dual reports regarding the exact same event
- Are based on a one-year rolling follow-up period as opposed to a calendar year period
- Are based on a longer period as opposed to a shorter period

- Are selectively chosen for publication precisely because they show high repeat rates, as opposed to studies showing low repeat rates, which may be more likely to remain unpublished.

While outside the realm of police data, one must also keep in mind that they will *always* be higher in studies based on victimization survey data as compared to those based on police reports.

Yet the fact that the International Crime Survey (ICVS) also indicates a relatively low rate of repeat burglary in Denmark suggests that the differences in repeat rates may be real as opposed to methodologically driven. If so, one might speculate that they result from cross-national differences in police performance, the nature of burglars, or the physical and/or social contexts in which burglary occurs.

Cross-national differences in police performance would explain variations in repeat rates if the police in one country were considerably more effective at identifying and apprehending burglars the first time than police in another country. Yet while the ICVS-based rate of repeat burglary is much higher for England and Wales than it is for Denmark, the official clearance rates for reported burglaries in these two countries are rather similar.[20] Given this, differences in police performance do not stand out as an obvious explanation for the cross-national differences observed in repeats.

Cross-national differences in the proportion of burglars that are drug addicts might explain variations in repeat rates if a burglar's likelihood of a returning to a previously burgled property varies depending on addiction. According to comparative EU survey data, the proportion of national samples reporting illicit drug injection during the past 12 months is approximately equal in Denmark and the UK, at 0.44% (EMCDDA, Chapter 1, Figure 5). Note, however, that equivalence in drug injection rate, or even drug addition for that matter, does imply equivalence in the proportion of burglary conducted by addicts, since there may be differences in the extent to which addicts are forced to support their addictions through crime. According to a website co-sponsored by the (Danish) Crime Prevention Council (2004), drug addicts account for the majority of Danish burglars – as much as 75% in big cities. Meanwhile, Kruize (2001, 60-61) reports that the comparatively high price of drugs in Denmark forces more addicts to support their addictions through crime, at least as compared to The Netherlands. Assuming that drug-addicted burglars are more opportunistic and less professional than the average burglar, a high rate of drug-addicted burglars in Denmark could account for the relatively low rate of repeats. On the other hand, this author knows of no prior research on whether repeat burglary is more common among professionals or non-professionals, and could think of theories to support either view.

Cross-national differences in the physical and/or social contexts of burglary might also affect variations in repeats. The specific mix of property types could affect it, since stand-alone

[20] The citation rate (sigtelsesprocent) for domestic burglary (indbrud i beboelse) in Denmark in 2001 was 8.9% (Statistics Denmark, 2002, Table 2.1, p 49). Meanwhile the "detection rate" (where a subject is identified, but not necessarily charged) in England and Wales for 2000/2001 was 14% for completed "burglary in a dwelling" and 13% for attempts (Home Office, 2001, Table 2.13, p50). While the detection rate in England and Wales is somewhat higher than the citation rate in Denmark, the level of certainty needed for "detection" seems likely to be lower than that needed for "citation." All in all then, the two rates do not appear to be markedly different.

houses have higher rates of both overall burglary and repeat burglary. Multivariate analyses of the British Crime Survey indicate that the three most important risk factors for burglary overall are (1) young head of household, (2) location in an inner city, and (3) an absence of security devices (Budd, 1999, 82). According to the ICVS, Danes are less than half as likely as residents of 17 other industrialized nations to have burglar alarms or special door locks installed, and less than one-fourth as likely to use window grills or high fences to protect their property (Kesteren et al., 2000, 216-217). This may partially explain the very high rate of residential burglary observed for Denmark in the ICVS. Yet these facts do not jive with the relatively low rate of repeat burglary observed in both police and ICVS data for Denmark, since prior research indicates that repeat rates generally increase proportionally with the overall burglary rate.

In short, it is unclear why the rate of repeats observed in Denmark appears to be lower than elsewhere. To date, there has been a good deal of published research concerning the similarity in repeat victimization rates across countries, but next to nothing written in regard to why some nations may differ from the norm. Understanding these differences first requires standardized research methodologies in order to measure whether police reported repeat rates truly differ across nations, and if so, careful analyses of the factors that might account for these differences.

None of this, however, negates the potential benefits of using a focus on repeats to reduce burglary in Denmark overall. The next section attempts to quantify the potential crime preventive gains achievable via a focus on prior burglary victims.

Section 4: The Risk of Repeat Burglary Within One Year of an Initial Burglary

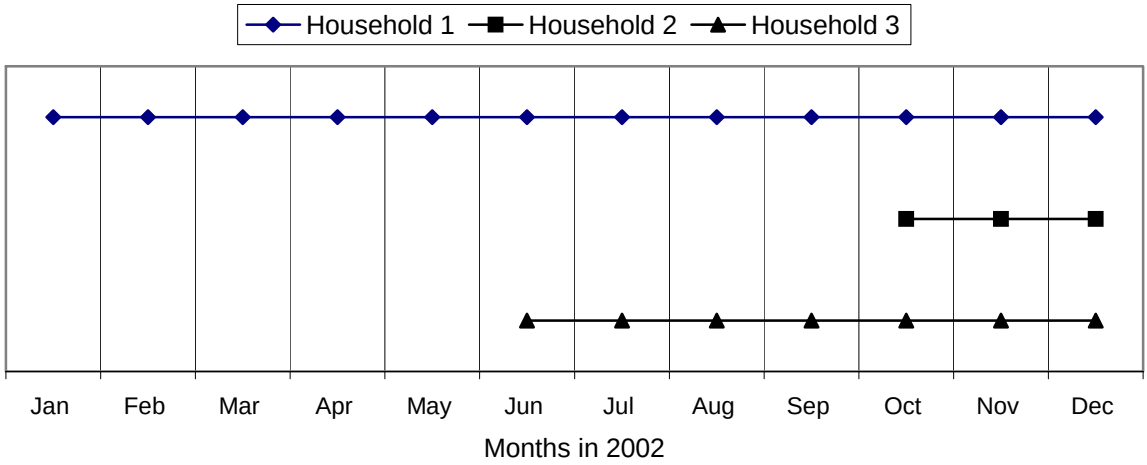
This section of the report examines the individual household risk of repeat burglary within one year of an initial burglary. The results are used to estimate the crime preventive effects one might expect via a focus on previously victimized households as compared to treating Danish households at random. All risks estimated in this section are based on repeat victimization at the same dwelling – using *full address* (including apartment number/side). Risks of re-burglary to prior victim households are compared to overall prevalence and incidence rates, which are calculated by type of property.

The one-year household risk is quite a different issue from the annual extent of repeat burglary examined on a calendar year-basis in Section 3. While Section 3 provided useful benchmarks for comparison to international research, it did not provide a useful indication of individual household risk. This is because the time period under analysis concluded at the end of 2002 regardless of the day and month in which individual households were burgled. The risk for re-burglary was therefore different for each household depending upon when their first burglary occurred (e.g., it was greater for households burgled during the beginning of 2002 than for those burgled toward the end of 2002).

Methodology for Examining One-Year Household Risk

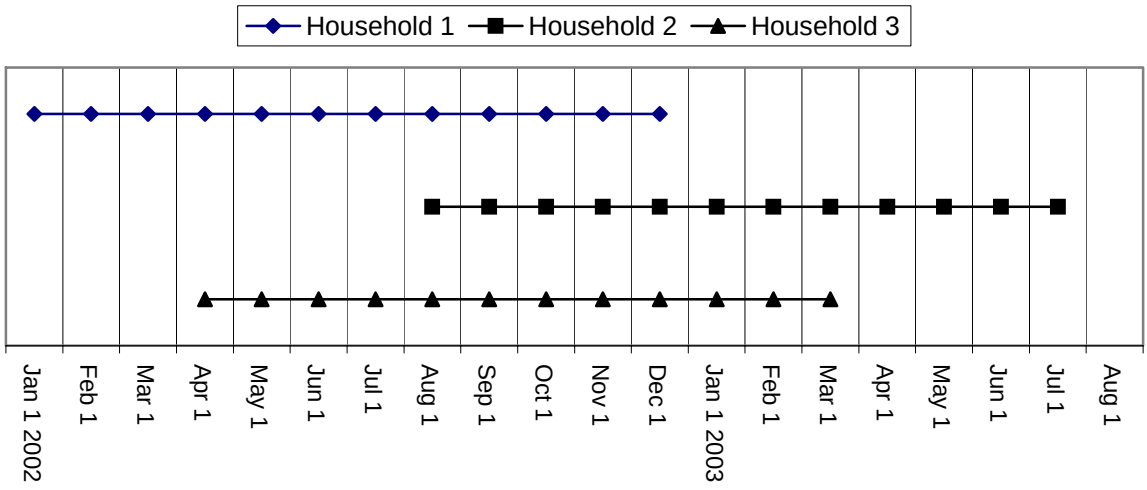
Figure 4.1 clarifies the issue by depicting three hypothetical households examined for repeats on a *calendar year basis* – as was done in the analyses conducted in Section 3. Each household was followed from the time of their first burglary to the end of 2002. If Household 1 was first burgled in January, it had nearly 12 full months at risk for re-burglary. Meanwhile, if Household 2 was first burgled in October, it had less than three months remaining at risk. Household 3 had somewhat less than seven months at risk. In methodological parlance, we say the data are *right-censored*, since time at risk was artificially terminated at the end of the 2002 calendar year. While use of a calendar year period made perfect sense from a standpoint of comparing annual rates of repeat burglary across countries, it will drastically underestimate the individual household risk of re-burglary within one year of an initial victimization. Furthermore, any measure of the time course of RV based upon these data will drastically *overestimate* the speed with which crimes recur. This is because the speed of recurrence is measured solely upon the basis of those crimes that *did* recur, and the use of a calendar year sampling frame captures speedy recurrences more often than it does later recurrences.

Figure 4.1: Three Hypothetical Households in a Fixed Calendar Year Study



The current section therefore uses a one-year, *rolling follow-up period*. The rolling follow-up period allows examination of each victim household for exactly 365 days since the date of its first burglary. This makes it possible to obtain a standardized, unbiased measure of the individual household risk of RV within one year. It also allows for an unbiased measure of the time course of RV, which is estimated in Section 5. Figure 4.2 depicts the sampling methodology used in the current analysis. Time at risk for repeat burglary is standardized at one-year for all households. Thus, if Household 1 was first burgled on January 18th, 2002, that household is followed until January 17th, 2003. Likewise, if Household 2 was first burgled on August 3, 2002, that household is followed until August 2, 2003. Since only 20 months of data are available for the full study, eligibility for inclusion in this analysis is limited to those (n=20,765) households that experienced their first burglary during the first 8 months of 2002. This setup allows each household to be followed for a full 12 months subsequent to their first victimization. The number of victimizations occurring in this period is examined in this section. The speed with which they occur is examined in Section 5.

Figure 4.2: Three Hypothetical Households in a Rolling, One-Year Follow-up Study



The Prevalence and Incidence of Reported Burglary in Primary Danish Residences
Before discussing the potential gains of a focus on prior victims, it is necessary to establish the baserate prevalence and incidence of burglary at primary residences in Denmark. According to Statistics Denmark, there were 2,422,462 households occupied year round in Denmark in 2002, of which 2,380,157 constitute "primary residences" as defined in this report (Table 4.1).

Table 4.1: Households Occupied Year Round in Denmark, by Type of Dwelling, 2002

Villa-Type Dwellings	**1,330,945**
Detached houses	1,000,562
Terraced, linked or semi-detached houses	316,834
Other full-year residential buildings	13,549
Apartment Dwellings	**928,922**
Multi-dwelling houses	928,922
Farmhouse Dwellings	**120,290**
Farmhouses	120,290
SUBTOTAL: PRIMARY RESIDENTIAL	**2,380,157**
Non-Primary Residences	
Residential buildings for communities	13,227
Student housing	29,078
Subtotal: Non-Primary Residential	42,305
GRAND TOTAL	2,422,462

Source: Statistics Denmark, StatsBank Website (2004, Table BOL1).

Armed with this number, one can estimate the household prevalence and incidence of burglary in primary Danish residences, by property type, for 2002, which provide useful benchmarks against which to compare the potential crime preventive gains achieved via a focus on prior victims.

- *Household Prevalence* represents the proportion of all households burgled once or more during a given year. Since the data in Section 3 indicated that 33,542 dwelling units (based on full address) reported one or more burglaries in 2002, the household prevalence of burglary in primary Danish residences in 2002 was (33,542 / 2,380,157 =) 0.014092, or about 1.4%

- *Household Incidence* represents the number of residential burglaries reported during a year per 100 households. Since the data in Section 3 indicated that there were 35,241 burglaries reported in 2002, the household incidence of burglary in primary Danish residences in 2002 was ([[Total Burglaries / Total Households] * 100] = [[35,241 / 2,380,157] * 100] =) 1.4806166, or about 1.5 burglaries per 100 primary residences. .

In short, approximately 1.4% of Danish primary residences reported a burglary in 2002 (prevalence), and there were 1.5 reported burglaries per 100 primary residences (incidence).

Household prevalence and incidence rates are estimated for specific forms of primary residences in Table 4.2. Prevalence and incidence are nearly identical in these data because of the relatively low rate of repeat burglary observed. The remainder of this report therefore focuses solely on prevalence. According to these estimates, both the prevalence and incidence of *reported* burglary in villas and farmhouses are more than twice that estimated for apartments.[21]

Table 4.2: Estimated Household Prevalence and Incidence (per 100 Households) for Danish Residential Burglary, by Property Type, 2002

Type of Property	Dwellings in Denmark	Burgled Addresses	Total Burglaries	Household Prevalence*	Household Incidence **
Villas	1,330,945	25,234	26,518	1.9%	2.0
Apartments	928,922	6,328	6,553	0.7%	0.7
Farmhouses	120,290	2,077	2,170	1.7%	1.8
Villas, Apts, Farms[22]	2,380,157	33,542	35,241	1.4%	1.5

* Household Prevalence = Burgled Addresses/Dwellings in Denmark

** Household Incidence per 100 Households = (Total Burglaries/Dwellings in Denmark)*100

The One-Year Risk of Re-Burglary in Danish Households

This section examines the risk of re-burglary within one year of an initial burglary in villas, apartments and farmhouses on the basis of full address. The sample is limited to n=20,765 households that experienced their first burglary during the first 8 months of 2002 (January 1-August 31). Table 4.3 provides information specific to property type concerning the total number of addresses burgled, total burglaries reported, Percent of households reporting one, two and three or more victimizations, and the total number and percent of households burgled more than once in the period. Of the 20,765 households that experienced a burglary in the first eight months of 2002, 7.9% experienced a second burglary within 365 days of the first. This proportion was somewhat higher for villas (8.2%), and somewhat lower for apartments (5.0%) and farmhouses (6.7%). On average, the 7.9% concentration figure indicates that the one-year prevalence of re-burglary among households that already experienced an initial burglary is 5.6 times higher than the 1.4% household prevalence rate estimated in Table 4.2 for the average Danish household (where previous burglary history is unknown).

[21] On the one hand, this is surprising because apartments tend to be located in urban areas – which are assumed to have higher burglary rates than rural areas. On the other hand, data from the National Commissioner's Office (2003) indicate that while number of burglaries (including attempts) reported against villas increased 25% between 1996 and 2002, the number reported against apartments and rooms declined by 50% during that same period. Furthermore, multivariate analyses of the British Crime Survey indicate that the odds of burglary in apartments in England and Wales is nearly half that for detached houses when location and various socio-demographic covariates are held constant (Budd, 1999, 82). This makes sense since apartments have fewer entry points and more neighbors to watch them. All in all then, the differences in prevalence and incidence rates estimated in Table 4.2 for apartments as compared to villas and farmhouses may not be as surprising as they seem at first glance.

[22] Total Burgled Addresses for all properties combined (n=33,542) is 97 cases smaller than that derived by summing the number of addresses for the three property categories (25.234 + 6,328 + 2,077 = 33,639). This reflects the fact that in some cases, police have classified a particular addresses as one form of property in an initial report but as a different form of property in a subsequent report. This means that property-specific prevalence and incidence rates may be very slightly under-estimated. The degree of under-estimation is, however, trivial, given the large number of cases in the sample.

Table 4.3: Address Concentration in a One-Year Rolling Follow-up, by Property Type

TYPE OF PROPERTY	Total Addresses	Total Burglaries	Number of Victimizations (%)			Addresses Burgled 2+ Times	
			1	2	3+	n	%
Villas, Apts, and Farms	20,765	22,624	92.1%	7.1%	0.8%	1,647	7.9%
Villas	15,309	16,722	91.8%	7.4%	0.9%	1,255	8.2%
Apartments	4,158	4,389	95.0%	4.6%	0.4%	209	5.0%
Farmhouses	1,346	1,446	93.3%	6.1%	0.6%	90	6.7%

Table 4.4 provides additional details in regard to all property types. The first three columns show the number and proportion of households reporting 1 to 6 burglaries within the rolling 365-day period. For example, 19,118 households (92.1% of all households) reported just one burglary, while 1,474 households (7.1% of all households) reported two. The remaining columns of Table 4.4 show the total number of burglaries experienced by each of the 20,765 households within the full 365-day rolling period.

Table 4.4: Number and Proportion of Households Reporting One or More Burglaries within a Rolling 365-Day Period, and the Number of Burglaries Reported

Number of Victimizations	Households		Number of Burglaries Experienced						Total Burglaries
	N	%	1	2	3	4	5	6	
1	19,118	92.1%	19,118						19,118
2	1,474	7.1%	1,474	1,474					2,948
3	138	0.7%	138	138	138				414
4	32	0.2%	32	32	32	32			128
5	2	0.0%	2	2	2	2	2		10
6	1	0.0%	1	1	1	1	1	1	6
Total	**20,765**	**100%**	**20,765**	**1,647**	**173**	**35**	**3**	**1**	**22,624**

The raw numbers above are translated into expected prevalence rates in Table 4.5. Examination of these figures indicates that the household risk of re-burglary increases with the number of prior burglaries. Thus, while only 1.4% of Danish households are burgled during an average year, 7.9% of those recently burgled can expect a re-burglary within 365 days. Among those burgled twice, the percent that can expect a third burglary rises to 10.5%, while 20.2% of those already burgled three times can expect a fourth burglary. Note that these rates increase despite the fact that the time remaining at risk decreases – since the analysis follows households for only 365 days from the date of the first reported burglary. The raw numbers necessary to calculate expected prevalence rates for households previously burgled four and five times are too low to generate reliable estimates, which are therefore left uncalculated.

Table 4.5: Expected Prevalence of Burglary at Villas, Apartments and Farmhouses within a 365-Day Period, by Number of Prior Burglaries

Number of Prior Burglaries	Prevalence of New Burglary Within 365 Days	Prevalence Calculated as
Unknown	1.4%	National average
1	7.9%	1,647/20,767
2	10.5%	173/1,647
3	20.2%	35/173
4	*	3/35
5	*	1/3

* Base numbers are too small to provide reliable estimates

Relevance to Crime Prevention

The risk of RV within one-year of an initial victimization may be a very important piece of crime prevention information. This is because it allows one to estimate the number of households that might be sparred a repeat burglary if all first-time victim households were successfully treated. While the elimination of all RV is hardly a credible goal, knowledge of where and when burglaries are likely to recur increases the number of burglaries one might expect to prevent with any given program.

To illustrate this, assume we have a well-developed burglary prevention program that will prevent future burglary at 25% of the households at which it is applied. Now assume that we apply this program to a random sample of 1,000 Danish households. Since the annual household prevalence of reported burglary is approximately 1.4% in Denmark, we should expect to prevent future burglaries at (0.014*0.025*1,000 =) 3.5 households. However, assume for a moment that the same program is applied against a sample of 1,000 recently burgled households. Since the estimated prevalence of re-burglary within 365 days at these households is 7.9%, that same burglary prevention program might be expected to prevent future burglaries at (0.079*0.25*1000=19.8) nearly 20 households during the coming year. While the overall numbers remain low, the prevention rate potentially achievable by applying the program to previously burgled households is 5½ times greater than it would be if applied against a random sample of Danish households. Furthermore, that prevention rate increases if applied to households already burgled *two* or more times in the recent past.

Note that these rates of prevention are based on crimes predicted to occur within 365 days of an *initial burglary*. If a longer period of data had been available for the current analyses, one could measure *continuously* rolling one-year risk (i.e., risk of a second burglary within 365 days of a first, risk of a third burglary within 365 days of a second, etc.), which would undoubtedly result in higher rates of both predicted prevalence and potential prevention. Furthermore, while not examined in the current report, prior research indicates that the risk of repeat is higher in precisely those places and among those people where overall burglary rates are highest (e.g., Farrell and Pease, 1993, 14). Applying burglary prevention programs to prior victims who belong to high-risk demographic subgroups or who live in high risk areas could thus be expected to increase the potential effectiveness of these programs above and beyond that described here. This point is revisited in the conclusion of this report.

There are, however, two issues that deserve mention in regard to the potential crime prevention improvements implicated above. These issues concern the relative effectiveness of burglary prevention programs across households, and the possibility for displacement.

Relative effectiveness

The improvements in potential prevention suggested above are provided under the assumption that a burglary prevention program applied against a previously burgled household will be just as effective as it is when applied against the average household. This, of course, may not be the case, since the same factors that account for the higher prevalence of repeat burglary among previously burgled households may work to increase the effort burglars are willing to make to gain access to these properties. Thus, a burglary prevention program with an average rate of 25% effectiveness may be somewhat less effective when applied against the kinds of properties most attractive to burglars. This is, however, ultimately a question of program design, and in no way dismisses the fact that number of potentially preventable offenses is higher in some places than others. To use an analogy, mousetraps should be placed in households with the biggest mouse infestation problems, even though those particular mice may be more effective than average at getting away with the cheese.

Displacement

A second issue concerns the potential for displacement. It might be assumed that the prevention of burglary at one property will simply shift, or displace, that burglary to another, less protected location. If correct, the potential for prevention described above would have no effect on the overall volume of burglary - though it would still be applicable to the specific locations where applied.

The potential for displacement, however, is even less problematic than that discussed above in regard to relative effectiveness. There are three reasons for this. First, there is no reason to expect that the displacement caused by burglary prevention programs at previously burgled households should be any greater than that caused by those same programs at the average household. Displacement is thus a generic issue in regard to crime prevention, and in no way specific to the prevention of repeat victimization. Second, from a standpoint of distributive justice, Farrell and Pease (1993, 21) argue that the displacement of repeat crime may even be a laudable outcome. This is because it would work to spread the pain and fear of victimization a little more evenly. Third, research suggests that displacement is not as inevitable as common sense might suggest. Following a review of 55 crime prevention programs in which evidence for displacement was formally evaluated, Hesseling found that 22 (40%) revealed no evidence of displacement. Hesseling (1994, 219) summarized his findings by stating that, “The main conclusion from the above analysis is that displacement is a possible, but not inevitable, consequence of crime prevention.”

All in all, the application of burglary prevention programs to prior victims would seem likely to increase their potential effectiveness in relative terms, regardless of their effectiveness in absolute terms.

Relative Risk by Type of Property

Tables 4.6 to 4.8 provide raw numbers for re-burglary in villas, apartments, and farmhouses in the same style as that provided earlier for all property types in Table 4.4. These three tables

are followed by Table 4.19, which provides a summary of prevalence and incidence rates by number of prior burglaries and type of property akin to that provided earlier in Table 4.5.

Table 4.6: Number and Proportion of Villas Reporting One or More Burglaries within a Rolling 365-Day Period, and the Number of Burglaries Reported

Number of	Households		Number of Burglaries Experienced						Total
Victimizations	N	%	1	2	3	4	5	6	Burglaries
1	14,054	91.8%	14,054						**14,054**
2	1,125	7.3%	1,125	1125					**2,250**
3	105	0.7%	105	105	105				**315**
4	23	0.2%	23	23	23	23			**92**
5	1	0.0%	1	1	1	1	1		**5**
6	1	0.0%	1	1	1	1	1	1	**6**
Total	**15,309**	**100%**	**15,309**	**1255**	**130**	**25**	**2**	**1**	**16,722**

Table 4.7: Number and Proportion of Apartments Reporting One or More Burglaries within a Rolling 365-Day Period, and the Number of Burglaries Reported

Number of	Households		Number of Burglaries Experienced				Total
Victimizations	N	%	1	2	3	4	Burglaries
1	3,949	91.8%	3,949				**3,949**
2	192	7.3%	192	192			**384**
3	12	0.7%	12	12	12		**36**
4	5	0.2%	5	5	5	5	**20**
Total	**4,158**	**100%**	**4,158**	**209**	**17**	**5**	**4,389**

Table 4.8: Number and Proportion of Farmhouses Reporting One or More Burglaries within a Rolling 365-Day Period, and the Number of Burglaries Reported

Number of	Households		Number of Burglaries Experienced				Total
Victimizations	N	%	1	2	3	4	Burglaries
1	1,256	93.3%	1,256				**1,256**
2	82	6.1%	82	82			**164**
3	6	0.4%	6	6	6		**18**
4	2	0.1%	2	2	2	2	**8**
Total	**1,346**	**100%**	**1,346**	**90**	**8**	**2**	**1,446**

Table 4.9 indicates that in all cases, the expected prevalence of new burglary within 365 days increases with the number of past burglaries. On average, the estimated prevalence of new burglary is 5.6 times higher for once-burgled properties that it is for the average Danish residence. Expected prevalence of a new burglary within 365 days in once-burgled villas (8.2%), apartments (5.0%), and farmhouses (6.7%) is 4.3, 7.1, and 3.9 times higher, respectively, than the annual national prevalence for these respective forms of property. The increase in expected prevalence for apartments is greatest – an interesting finding given that

both the national average and expected prevalence for once-burgled apartments are lower than those for any other type of property examined. Thus, when viewed in relative terms, prior burglary in apartments results in the largest relative rise in future burglary risk

The basic trend is, however, clear for all forms of property. Prior burglary increases the risk of future burglary. The cost-effectiveness of burglary prevention is therefore greater when applied to previously burgled households than when applied to households at random.

Table 4.9: Expected Prevalence of Burglary within a 365-Day Period, by Number of Prior Burglaries and Type of Property

Number of Prior Burglaries	Prevalence of New Burglary Within 365 Days				Calculations[23]			
	VAF	Villas	Apts	Farms	VAF	Villas	Apts	Farms
Unknown	1.4%	1.9%	0.7%	1.7%	National Avg.	National Avg.	National Avg.	National Avg.
1	7.9%	8.2%	5.0%	6.7%	1647/20765	1255/15309	209/4158	90/1346
2	10.5%	10.4%	8.1%	8.9%	173/1647	130/1255	17/209	8/90
3	20.2%	19.2%	*	*	35/173	25/130	5/17	2/8
4	*	*	NA	NA	3/35	2/25	NA	NA
5	*	*	NA	NA	1/3	1/2	NA	NA

* Base numbers are too small to provide reliable estimates.
NA: None of the sample households had the requisite number of prior burglaries

[23] The number of VAF households re-burgled once (n=1,647) is 93 cases smaller than that obtained by summing the number of households re-burgled once across individual property type categories. Like wise, the number of VAF households re-burgled twice (n=173) is 18 cases smaller than that obtained by summing the number of households re-burgled twice across individual property type categories. For three re-burglaries, it is 3 cases smaller, and for four, 1 case smaller. This reflects the fact that in some cases, police have classified a particular addresses as one form of property in an initial report but as a different form of property in a subsequent report. This means that property-specific expected prevalence rates might be under-estimated in some cases.

Section 5: The Time course of Repeat Burglaries

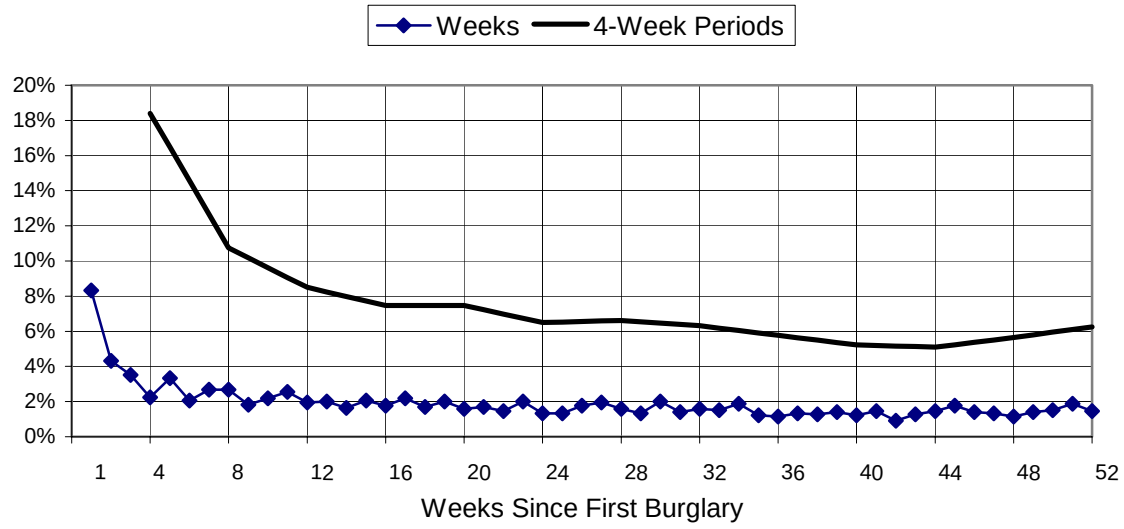
This section of the report examines the speed with which repeat burglaries occur subsequent to initial burglaries. The data are based on all of the first-repeats identified in Section 4. As always, patterns are examined by property type both individually and collectively. Time elapsing between initial and first-repeat burglaries is measured on the basis of when those crimes were discovered by residents as discussed in Section 2. Estimation of the speed of recurrence in Denmark is interesting for at least four reasons. First, it allows comparison to the speed of recurrence identified elsewhere in previous international research. Second, it indicates precisely when crime prevention efforts will be most effective at reducing repeats. Third, it shows the extent to which prior burglary elevates the risk of new burglary as compared to average risk. And forth, it provides clues as to why repeat victimization occurs.

The Speed of Recurrence in Danish Residences

Speed in weeks and four-week periods

Section 4 indicated that 1,647 of the 20,765 households burgled during the first eight months of 2002 reported a second burglary within 365 days of the first. Figure 5.1 shows the speed with which these 1,647 first-repeats occurred. Two trend lines are provided. The line marked "Weeks" indicates the proportion the 1,647 first-repeats that occurred during each of the 52 weeks subsequent to the initial burglary. The line marked "4-Week Periods" indicates the cumulative proportion of repeats occurring during the previous 4-week/28 day period (i.e., the first trend point for "4-Week Period" is the sum of the percentages for Weeks 1-4). The period of greatest risk for re-burglary is clearly during the first four weeks subsequent to an initial burglary, and that risk is at its absolute greatest during the very first week. 18.3% of the 1,647 first-repeats occurred within the first four weeks subsequent to an initial burglary - 8.3% during the first week, 4.3% during the second, 3.5% during the third, and 2.2% during the fourth. The trend line for 4-week periods indicates a gradual decline in the proportion of first-repeats until sometime after Week 44, where that proportion rises again. The implications of this upswing are discussed momentarily.

Figure 5.1: Proportion of 1,647 First-Repeats Occurring by Week and 4-Week Periods



No clear indication of return for replacement goods

Contrary to some of the prior research, the Danish data presented in Figure 5.1 show no clear evidence that burglars are retuning to collect replacement goods. As discussed in Section 1, both Polvi (1991) and Andersen et al. (1995) observed increases in the proportion of repeats occurring in their data during the fourth month subsequent to an initial burglary. While Polvi et al. (1991, 413-414) interpreted this rise as most likely due to a "chance fluctuation in the data," they cautioned that it might also "represent the period after which replacement of goods though insurance is virtually certain to have occurred." There is, however, a slight leveling off of the decline in the 4-Week Periods line between Weeks 16 and 20, which could indicate a slight upswing in returns. On the other hand, it may just as well be an non-meaningful, coincidental fluctuation in the data.

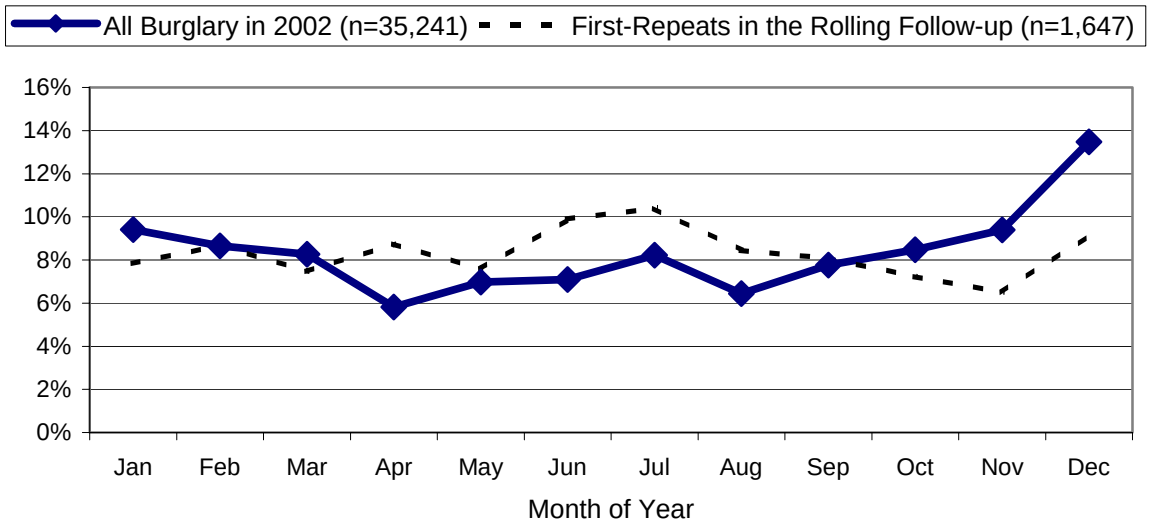
The upswing at the end of the year

Figure 5.1 does indicate a clear rise in the proportion of first-repeats occurring during the last two four-week periods. This rise is evident for each type of property individually (as can be seen later in Figure 5.4). My first assumption was that this probably reflected a methodological problem with the data. The fact that the rise occurs around the 12th month was particularly suspicious in this regard, since it suggested the possibility that the year of discovery might have been incorrectly recorded for some burglaries – an easy mistake to make, especially just after the turn of a new year. I therefore removed all cases from the dataset in which 90 days or more had elapsed between the Start and End dates given by residents, and re-calculated the speed of recurrence for all properties.[24] The removal of these cases, however, had absolutely no effect on this rise, which remained clearly evident for each and every property type.

Still suspicious that the rise at Month 12 reflected some pattern of incorrectly recorded dates, I examined the time course of first-repeats by month. One look at the resulting distribution, however, immediately suggested that the observed distribution reflected a natural seasonal pattern in the data as opposed to any methodological problem. Consider Figure 5.2, which shows the monthly distributions for both all burglaries in 2002 (n=35,241) and for first-repeats (n=1,647). While the distributions are far from identical, both overall burglary and RV burglary exhibit increases in July and December. It seems likely then, that the rise in the proportion of RV evidenced after 11 to 12 months reflects general seasonal patterns, since - all else being equal – the seasonal distribution of a first-repeat is affected by the same seasonal factors (e.g., absence from the home during the industrial and Christmas holidays) that affect seasonal distribution of burglary in general. On the other hand, note that all else is *not* equal – since we know that repeat burglaries generally follow initial burglaries rather closely in time. Given this, the monthly distributions for all burglary and first-repeats should not be expected to be any more similar than they already appear in Figure 5.2. This said, the degree of similarity that *does* exist seems very likely to account for the rise in the proportion of first-repeats at the end of the follow-up period.

[24] The Start date is the date that the resident reported having last left his/her property prior to its burglary. The End date is the date he/she returned home to find the property burgled.

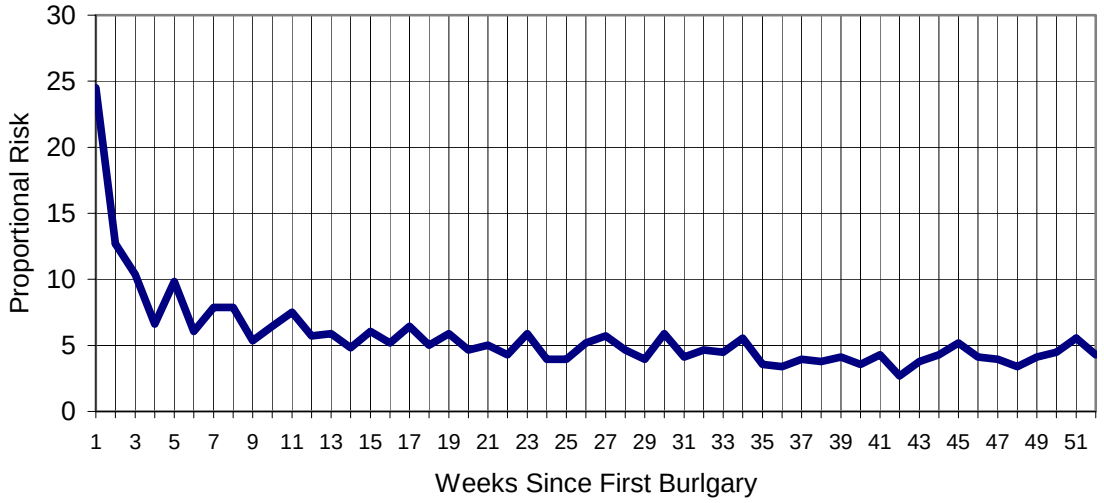
Figure 5.2: Proportion of All Burglary in 2002 and First-Repeats, by Month of Year



Proportional Risk

The average annual household prevalence for burglary among all Danish households is 1.4% (1.4% of all Danish homes were burgled in 2002). The data in Section 4, however, showed that 7.9% of the 20,765 households burgled at least once during the sampling period (January 1, 2002-August 31, 2002) were re-burgled within one year of their initial burglary. This figure can be thought of as the one-year household prevalence of new burglaries among recently burgled households. The one-year household prevalence among recently burgled households (7.9%) is thus 5.7 times higher than average household prevalence (1.4%). But these figures pertain to differences in expected prevalence during a full year period. Since 8.3% of first-repeats occurred within just one week (Figure 5.1), one can calculate the expected prevalence of burglary within this first week subsequent to an initial burglary as (7.93%*0.0832=) 0.6598%, which is 24.5 times higher than the expected prevalence of burglary for the average household during an average week (1.4%/52=) 0.0269%. Likewise, since 4.3% of first-repeats occurred during the second week, estimated prevalence for that week can be calculated as (7.93%*0.04310=) 0.3418%, which is 12.7 times higher than the expected prevalence of burglary for the average household during an average week (0.0269%). Figure 5.3 shows the decline in this ratio of elevated risk during each of the 52 weeks subsequent to an initial burglary. The shape of this figure is, of course, rather similar to that already seen in Figure 5.1. Yet Figure 5.3 is even more extreme, since it represents the relative increase in risk, by week, suffered by recently burgled households as compared to the average household. Even at Week 52, the risk of new burglaries among previously burgled households remains 4.3 times higher than the average one-week risk for all households in general (7.93%*0.0146=0.11578% versus 0.0269%). Relative risk is, however, clearly highest during the first two weeks subsequent to an initial burglary.

Figure 5.3: Risk of Re-Burglary in Recently Burgled Households, Proportional to Average Risk, During Individual Weeks Subsequent to an Initial Burglary

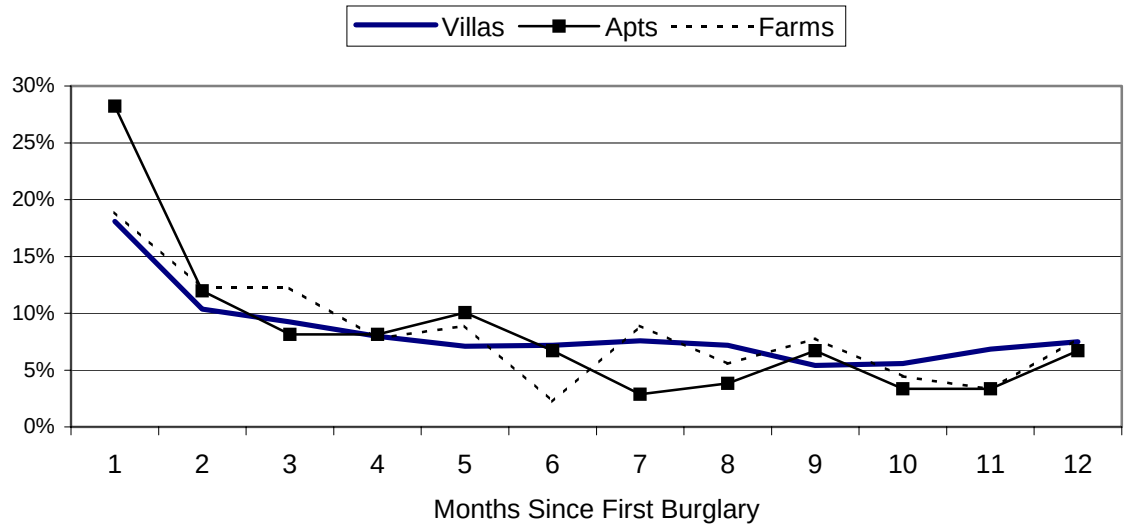


The Speed of Recurrence by Type of Property

Speed in months

Figure 5.4 shows the proportion of first-repeats occurring by month and type of property. While somewhat over 18% (18.1% and 18.9%) of the first-repeats occurring in villas and farms took place during the first month subsequent to an initial burglary, 28.2% of the first-repeats in apartments happened during this first month. Apartments therefore seem to have a significantly higher initial burst of repeats than villas or farms. This is particularly interesting since, as shown in Section 4, the overall prevalence of burglary in apartments (0.7%) is significantly lower than that in villas (1.9%) and farms (1.7%), as is the proportion of properties that suffer repeats within 365 days of an initial victimization (i.e., 8.2% of villas, 6.7% of farms, and 5.0% of apartments).

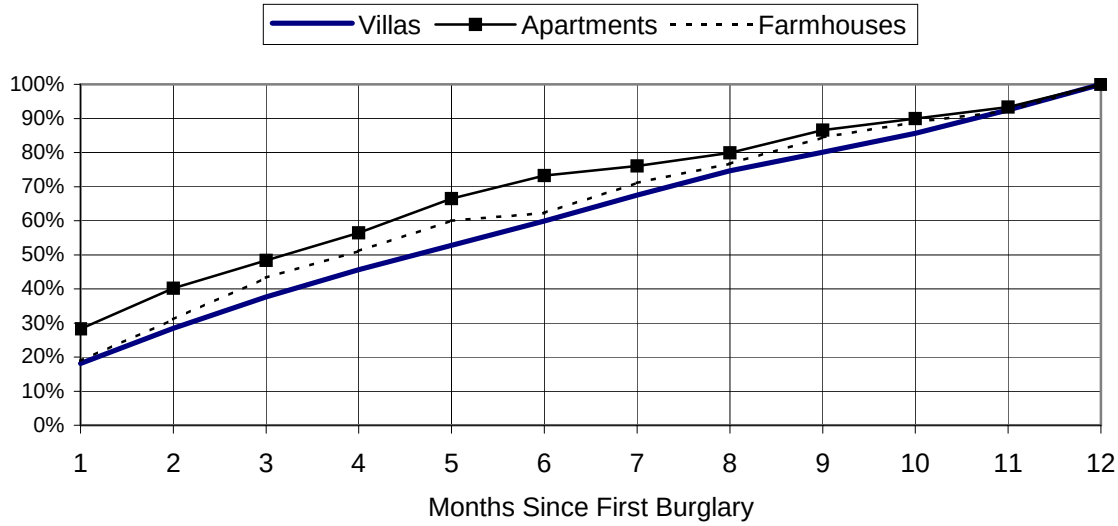
Figure 5.4: Proportion of 1,647 First-Repeats Occurring in Villas (n=1,255), Apartments (n=209), and Farmhouses (n=90), by Month (30 Day Periods)



Cumulative speed in months

Figure 5.5, which shows property-specific data on the cumulative proportion of first-repeats occurring by month, provides another indication of the relative speed with which burglaries in apartments recur. While 50% of the first-repeats in apartments occurred within approximately three months, it took four months for 50% of the first-repeats in farmhouses to occur, and six months for 50% of the first-repeats in villas to occur.[25]

Figure 5.5: Comparative Time Course of 1,647 First Repeats at Villas (n=1,255), Apartments (n=209), and Farmhouses (n=90) in Cumulative Percent, by Month (30 Day Periods)



Proportional risk

Proportionate risk is also higher for apartments. As mentioned earlier, the risk of re-burglary within 365 days is 5.6 times higher for recently burgled homes than it is for the average Danish home. Yet, as shown in Table 5.1, differences in proportionate risk differ by property type. While recently burgled villas and farms are subject to 4.3 and 3.9 times greater risk than the average villa or farm, the risk of re-burglary among apartments is over 7 times higher than average for those recently burgled.

[25] On the one hand, the rapid speed of recurrence in apartments could reflect some methodological problem with the data or my analysis of it. For example, burglaries occurring in two different apartments in the same building could be incorrectly identified as an initial and a repeat burglary if vertical address data were not available, and thus unaccounted for in the analysis. If these burglaries occurred on the same day, the speed of recurrence measured for the "repeat" would be essentially zero. And such a scenario is, of course, particularly more likely in regard to apartments than it is in regard to villas or farmhouses. On the other hand, if this were the case, one would expect the repeat rates estimated for apartments in Sections 3 and 4 to be higher that those estimated for villas and farmhouses. Yet they are significantly lower.

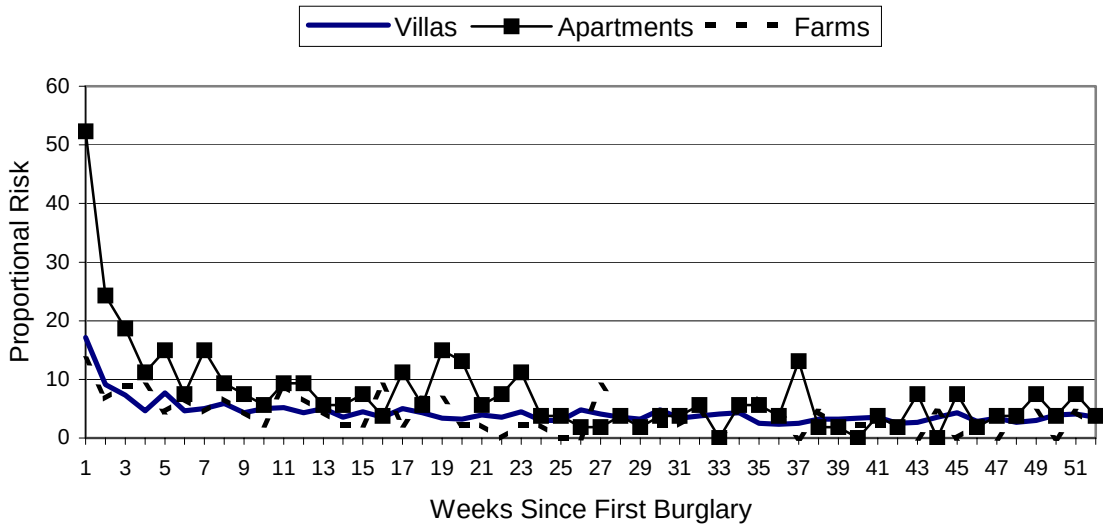
*Table 5.1: Risk of Re-Burglary in Recently Burgled Households Proportional to Average Risk**

Type of Property	Prevalence of New Burglary Within 365 Days		Proportional Difference
	Average Household	Recently Burgled Households	
Villas, Apts, and Farms	1.4%	7.9%	5.6
Villas	1.9%	8.2%	4.3
Apartments	0.7%	5.0%	7.1
Farmhouses	1.7%	6.7%	3.9

* Raw numbers for all estimates are available in Section 4, Tables 4.4 and 4.5.

While Figure 5.6 is somewhat difficult to sort out in total, one thing stands clear: the risk of new burglary in apartments during the first week subsequent to an initial burglary is over 50 times higher (53.3) than the risk of burglary in the average apartment during an average week. It therefore seems that while residents of apartments enjoy a comparatively low risk of both initial and repeat burglary, their relative risk of new burglary increases disproportionately subsequent to an initial burglary as compared to the increased risk faced by residents of both villas and farmhouses.

Figure 5.6: Elevated Prevalence Risk During Individual Weeks Subsequent to an Initial Burglary, as Compared to the Property-Specific, Average Weekly National Prevalence, by Property Type

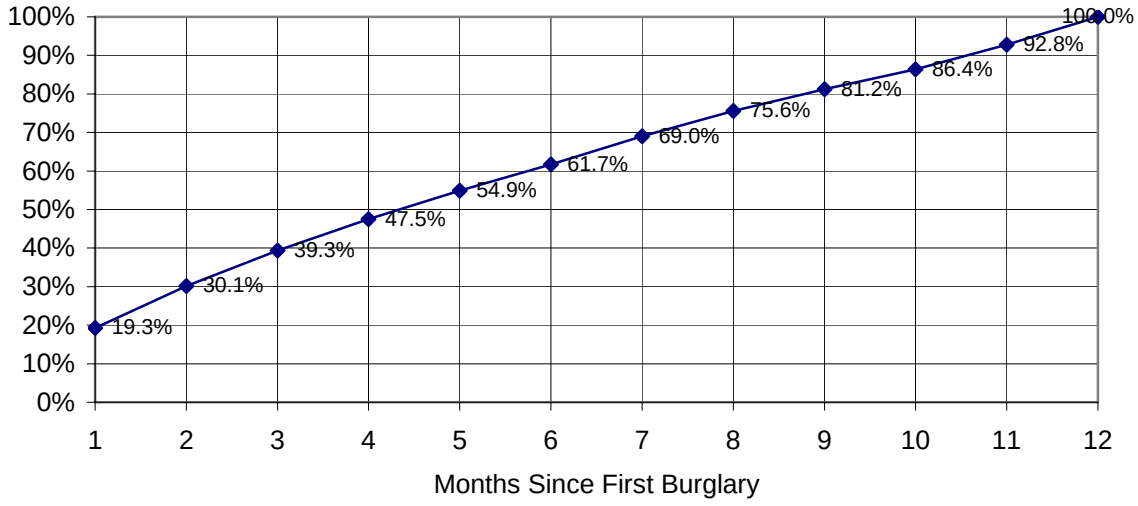


Speed of Recurrence in an International Perspective

While the risk of re-burglary is clearly highest during the first four weeks of an initial victimization, the speed with which first-repeats occur in Denmark appears to be slower than that reported in a number of previous international studies. Figure 5.7 shows the cumulative proportion of first-repeats occurring for all property types combined, by month (30 day

periods).[26] 40% of the first-repeats do not occur until the end of the third month, and 50% occur only after 4½ months. As discussed in Section 1, some prior international studies have reported 40 to 50% of repeats occurring within just one month of an initial burglary (Shaw and Pease, 2000, Chapter 4, Figure 4.7; Carlstedt, 2001b, 9), and as much as 25% occurring within a single week (Robinson, 1998, 78). The speed of recurrence in Denmark may therefore be slower than elsewhere.

Figure 5.7: Cumulative Proportion of 1,647 First-Repeats Occurring by Month (30 Day Periods)



Why might the speed of recurrence be slower in Denmark than elsewhere?
On the one hand, the fact that the speed of recurrence appears slower in Denmark than elsewhere may be due to methodological differences across studies. The measured *speed* of recurrence is affected by many of the same methodological factors that would influence the measured *rate* of recurrence. For example, all else being equal, the speed of recurrence will appear faster if:

- Studies are based on street address instead of full address, because burglaries occurring in separate dwellings on the same day in the same building will appear as rapid repeats
- Studies fail to delete dual reports concerning the same event, because these will appear as rapid repeats
- Studies are based on a shorter follow-up period as opposed to a longer follow-up period, because the repeats caught in a short follow-up period are rapid by definition
- Studies are based on a calendar year period as opposed to a rolling follow-up, because any repeats that follow burglaries occurring later in the year will be short by definition.

On the other hand, it is possible that the speed of recurrence truly *is* slower in Denmark than elsewhere. If this were the case, it would suggest that the factors that drive repeat

[26] Since 76% of the 1,647 first-repeats examined in this analysis occurred in villas, the cumulative speed of recurrence for all property types combined is largely a reflection of the speed of recurrence for villas.

victimization in Denmark may differ from those that drive it elsewhere. Specifically, it would suggest that Danish burglars are less likely than foreign burglars to return to previously burgled locales.

Recall from Section 1 that there are two mutually compatible explanations for why some people and/or places are victimized more often than others: risk heterogeneity and event dependence. Risk heterogeneity theory simply assumes that some properties are more attractive to burglars than others, and that the characteristics that make them attractive are relatively stable over time.
According to this perspective, repeat burglaries are not necessarily the work of the same offenders, since totally unrelated, subsequent offenders will be attracted to the very same properties for precisely the same reasons that earlier offenders were attracted. Event dependence theory, on the other hand, assumes that the occurrence of an initial burglary actually increases the probability of the occurrence of a second burglary. The most obvious example of this would be that the familiarity gained through a first break-in might prompt the exact same offender to return at a later date. While these perspectives are by no means mutually exclusive, offender accounts lend greater support to event dependence, since many burglars report returning to scenes of previous crimes. Furthermore, the speed with which burglaries have been shown to recur in prior research also supports this perspective, since the heavy burst of repeats immediately subsequent to initial break-ins suggest that they are the work of the same burglar. If risk heterogeneity were the only mechanism driving the repeat phenomenon, the rate of recurrence would be relatively evenly distributed across the 365-day follow-up.

While initial burst of re-burglary in the Danish data indicates clear evidence of returning burglars, and thus, event dependence, it is characterized by a far more gradual curve of recurrence than that observed elsewhere. This suggests that returning burglars may be less common in Denmark than in some other countries. The fact that the Danish data show little, if any, evidence that burglars are returning for replacement goods after the third or fourth month points in the same direction. Furthermore, the notion that returning burglars are less common in Denmark than elsewhere is supported by the overall lower rate of repeats than that observed in other countries. All of this suggests that risk heterogeneity may account for a larger proportion of the repeats occurring in Denmark than it does for those occurring elsewhere. If the differences observed in extent and speed of repeats in Denmark are not simply due to methodological factors, then they would almost have to result from differences in the proportion of burglars who return to their former crime scenes. This is because the effects of risk heterogeneity seem far less likely to differ across nations. As with factors affecting the extent of repeats (discussed in Section 3), the speed of repeats may also be affected by differences in police performance, the nature of burglars themselves, or the physical and/or social contexts in which burglary occurs.

Relevance to Crime Prevention
While the speed of recurrence may (or may not!) be slower than elsewhere, none of this detracts from the fact that recently burgled households seem to suffer 5½ times more burglaries in a given year than that suffered by the average household. This means that burglary prevention efforts focused on prior victims should still be considerably more effective than those applied at random. Nor does it detract from the fact that the data suggest

that those efforts should be most effective during the first one to three weeks subsequent to an initial victimization.

The fact that risk heterogeneity appears to play a greater role in production of repeats in Denmark than elsewhere may actually imply a more optimistic potential for prevention – at least as it concerns the prevention of repeats. If it is elevated risk, as opposed to returning burglars, that drives repeats, then relatively minor efforts may be enough to steer opportunistic burglars to other households; in other words, to displace them to other locations. While this would result in no net decrease in overall burglary – and may thus seem somewhat absurd – it would at least serve the aims of distributive justice, since it would work to spread the pain of victimization a little more evenly (Farrell and Pease, 1993, 21). It may, however, even prevent some burglaries, since there is growing evidence that spatial displacement is far from inevitable (Hesseling, 1994, 219). Finally, it would certainly provide victims with a sense of empowerment, since it suggests that relatively minor adjustments to vulnerable entry points and/or the application of other forms of deterrence might meaningfully reduce the risk of repeats. I use the term "minor" with caution, of course, since the victim should not be convinced that cosmetic improvements alone will suffice. Such improvements should also be made very rapidly, since they may also ward off returning burglars, who appear to strike relatively quickly subsequent to the first burglary.

Deterring and/or preventing returning burglars from re-violating a property will, however, be somewhat more difficult. This is because these offenders may be highly motivated by their familiarity with the property's access points and interior, as well as the likely rewards that lie inside. Yet this is not to say that it can't be done. Prior approaches to the reduction of repeat burglary are briefly reviewed in Section 6.

Section 6: What Next?

After a very quick review of the findings of the current study, this section of the report discusses: (1) suggestions for future research, (2) how a focus on prior victims in high-risk geographic areas and/or demographic sub-groups might increase the cost-effectiveness of a focus on prior victims, (3) additional, non-crime benefits of a focus on prior victims, (4) evaluations of a handful of anti-repeat burglary programs conducted in the UK and Australia, and (5) some comments on the overall potential effectiveness of these programs.

Results of the Current Study

Approximately 1.4% of Danish residences were burgled in 2002. Among those burgled, 7.9% were burgled again within 365 days of their first burglary. The prevalence of new burglaries within one year at these households (7.9%) was thus 5½ times greater than that for the average Danish household (1.4%). The prevalence of new burglaries during the coming year rose with the number of prior victimizations, from 7.9% for once burgled households, to 10.5% and 20.2% for twice and thrice burgled properties, respectively. Thus, all else being equal, burglary prevention programs aimed at previously victimized households should prevent more burglaries than those directed at a random sample of households. Just over 19% of the first-repeats occurring within one year of an initial burglary took place during the first month, and 8.3% occurred during the first week. This initial burst of quick repeats implies that a certain proportion of burglars are returning to collect goods left behind or assumed replaced. The potential for deterring and/or apprehending these burglars should therefore be greatest in the days and weeks immediately following an initial break-in. Despite this, the speed of recurrence in Denmark seems somewhat slower than elsewhere, indicating that returning burglars may account for a lower proportion of total repeats than they do in some other countries. Preventing repeats would therefore seem to require a combination of deterring and/or apprehending returning burglars, and reducing the vulnerability or attractiveness of previously burgled properties.

Suggestions for Future Research

While they may well exist, this author knows of no other study that has disaggregated repeat rates by type of property. The identification of lower rates of repeat for apartments, coupled with a faster speed of recurrence, is intriguing. In the end, however, the differences observed in the extent and speed of recurrence across property types may be simply attributable to the types of locations (e.g., urban/rural) in which different forms of property are found. Future research should examine repeat rates by property type within well-defined geographic areas. Disaggregation by commune is undesirable because of the mix of land use and housing types found within them. Postcode comes closer, but there are still significant differences even within these boundaries. The Danish National Grid (Det Danske Kvadratnet), which splits Denmark into hundreds of 1.0 and 0.1 square meter areas, may be useful in this regard. However, the smaller the areas examined become, the lower the frequency of burglary - and thus the reliability of repeat statistics – become. Alternatively, differences in both the extent and speed of repeats could be investigated via multivariate analyses, where the independent effects of property type can be examined. Such analyses might also account for differences, if any, in the kinds of people who inhabit these properties.

Some Danish communities – whether geographically or demographically defined – are likely to suffer far high rates of both initial and repeat victimization than others. The potential for

linking electronic police reports and CPR registries offers a relatively easy means by which to identify and measure repeat rates in these communities. Given the international findings in this regard, this should, in fact, be the very next step for repeat victimization research in Denmark.

Prior Victims in High-Risk Areas and Demographic Communities

Burglary is concentrated both geographically and demographically. According to prior research, repeat victimization is concentrated in the very same areas and among the same households where overall burglary is highest. For example, Kleemans (2001, 62) noted that the proportion of burglaries that were repeats was strongly correlated with the overall prevalence of burglary in 48 neighborhoods in Enschede, The Netherlands ($r=0.74$, $p=0.000$, $n=48$). This and similar findings have led Farrell and Pease (1993, 14) to conclude that, "high crime areas are primarily so because of the rate of repeat victimization that characterizes them."

Note, however, that crime concentrations that appear to be geographic in nature may actually represent concentrations of at-risk demographic communities. Burglary is clearly concentrated among certain types of households. Data from the British Crime Survey (BCS) indicate that single parent households, low-income households, and urban households – among others - all have higher than average rates of burglary in England and Wales (Budd, 1999, 10-12; 82). They also experience a higher proportion of repeats.

While 20% of British Crime Survey (BCS) respondents reported two or more burglaries in 1997, that proportion was significantly higher among certain types of households (Budd, 1999, 16), for example:

- Single parent households (37%)
- Households headed by single, divorced and separated persons (23%)
- Households earning less than £5,000 (DKr 54,000) per year (24%)
- Households in inner cities (26%) and council estate areas (25%)
- Households in areas characterized by high levels of physical disorder (27%)

Some of these risk factors pertain to differences in household economics and urban decay, which may be less important in Denmark than in countries characterized by higher levels of income disparity. On the other hand, the most important risk factor identified above is Single Parent Household, which increases risk due to absence from the home, and which should be no less pertinent in Denmark than elsewhere.

Furthermore, it seems safe to presume that households characterized by more than one of these risk factors (e.g., low income, single parent households located in inner city areas) would have even higher rates of repeat burglary than those characterized by just one. Rates of repeat victimization among multiple risk factor households in Denmark may therefore be considerably higher than the rates estimated in the current report. Targeting members of (a) high-risk demographic groups (b) residing in high-risk neighborhoods (c) who have already experienced an initial victimization would thus seem likely to maximize both the prediction and prevention of future burglary.

Additional Benefits of a Focus on Prior Victims

Burglary prevention programs that focus on prior victims offer additional benefits quite apart from crime reduction. These include a reduction in the public's fear of crime, increased in confidence in police, a push toward distributive justice, the provision of a sensible sampling frame for victim treatment, and a useful measure of police performance.

Reduced fear of crime and increased confidence in police

One of the qualities of RV-based programs is that they combine crime prevention with victim services. British research indicates that the emotional effects of burglary are surprisingly similar to those experienced by victims of robbery (Hough and Mayhew, 1985, as cited by Shover, 1991, 96). These overlapping effects include shock, fear and sleeplessness (Budd, 1999, 66-67). Perhaps not surprisingly, then, a study by Shaw (2001) suggests that the emotional trauma of repeated victimization can be so intense as to mimic bereavement. Two-thirds of BCS burglary victims said they would like to have received some sort of help or advice, especially an update from the police about the progress of their cases (28%), and/or advice about security and crime prevention in general (24%) (Budd, 1999, 70). Yet only 9% reported having actually received any such help or advice from police (Budd, 1999, 70). This seems especially unfortunate given that one British study concluded that victims would be far more satisfied with police if they merely received a letter apprising them of the status of their case (Maguire, 1980, as cited by Shover, 1991, 96). Common sense suggests - and prior research has shown - that burglary prevention programs focused on prior victims serve all of these purposes. The benefits in fear reduction and increased confidence in police and approval of police performance may therefore justify such programs in and of themselves.

Distributive justice

As mentioned in Sections 4 and 5, programs that focus on prior victims serve the moral needs of distributive justice. This is because they place resources precisely where the most pain has been suffered, and where people are most anxious about future victimization. Research suggests that the displacement of crime from "hardened" targets to other properties is far less inevitable as common sense might suggest (Hesseling, 1994, 219). Yet from a standpoint of distributive justice, Farrell and Pease (1993, 21) argue that even if displacement occurs, it would still be a laudable outcome, since it would spread the pain and fear of victimization a little more evenly.

A sensible sampling frame

Before commencing operations, a crime prevention program has to decide where and among whom to try to prevent crime. A focus on prior victims offers a sensible sampling frame by which to intervene. Forrester et al. (1990, 45; also see Pease, 1998, 16) refer to this process as "drip-feeding" the problem, since cases are treated on the same pace as they arise in police burglary report files.

A measure of police performance

The British Government is so impressed by the importance of repeat prevention that they have made it a primary performance indicator for police departments (Farrell et al., 2000, 2-3). Since large-scale crime trends are affected by so many factors - including economy, drug patterns, and political change – the British Home Office has decided that its police cannot be meaningfully held accountable for these patterns. One the other hand, the fact that prior

victimization indicates the place and location of future crime suggests that police can, and perhaps should, be held accountable for reducing repeats.

Anti-Repeat Burglary Program Case Studies

This section provides a very brief overview of five anti-repeat burglary projects conducted and evaluated in the UK and Australia. Detailed reviews of each are available in Sorensen (2003). Each project is discussed in terms of both process and outcome. They are provided here as examples of efforts to reduce the overall rate of residential burglary by reducing the rate of repeats. Yet despite the promise of repeat victimization theory, three out of the five of programs described failed to meet their burglary-reduction objectives. In most cases, this seems to have resulted from implementation failures and lack of victim compliance.

The Kirkholt Burglary Prevention Project (Forrester, 1988; 1990) was the first application of RV-theory to a concrete, crime prevention project. Like many UK public housing estates of the time, the Kirkholt apartments contained coin-operated gas and electric utility meters. The interventions used included: removal of pre-payment meters; target Hardening; community support teams to visit burglary victims; Cocoon Watch; and property marking.[27] The Kirkholt Intervention went into full swing in March 1987. By 1989, the incidence of reported residential burglary dropped by 72%, much more than in the control area. There was no evidence of spatial displacement. RV declined substantially, and there was a significant reduction in fear. Kirkholt is hailed as a primary example what can be accomplished through a focus on repeat victimization.

Biting Back: The Burglary Reduction Project at Huddersfield (Andersen and Pease, 1997; Chenery et al., 1997) was another success. The purpose of Biting Back was to examine prospects for transferring an anti-RV strategy from a carefully monitored, research endeavor (as it was in Kirkholt) to a mechanized, day-to-day approach to policing in a large police division. The intensity of intervention was based on number of previous victimizations. "Bronze," "silver," and "gold" interventions were applied to victims of one, two or three previous burglaries, respectively (thus called, the "Olympic Model of Crime Prevention"). Interventions included: Bronze Responses included a victim letter with crime prevention advice; a UV property-marking kit; a check with known informants and stolen goods outlets; the loan of temporary alarms; Cocoon Watch; target hardening; and rapid repairs. Silver Responses included: a visit from a CPO; issuing of search warrants; the loan of a monitored, silent alarm; police drive-bys twice weekly. Gold Responses included: a visit from a CPO; a priority fingerprint search; the loan and installation of covert cameras; daily police drive-bys. Chenery et al. (1997, 24) describe the data as showing a 30% decline in burglary at Huddersfield, far more than in the surrounding force (which served as a control area). There was no evidence of spatial displacement. There was a decline in repeat victimization over time. No evidence was presented on changes in fear of burglary/crime.

The Residential Burglary Prevention Project in Cambridge (Bennett and Durie, 1999) proceeded in three stages: (1) identification of hot spots and hot wards within the city; (2)

[27] Cocoon Watch is a more focused variant of the Neighborhood Watch theme where residents keep an eye on homes immediately adjacent to one another. Property marking involves the inscription of owner identification on valuable property such as jewelry and electronic equipment. Operation Mærkning is a popular property marking program in Denmark.

selection of a study area, and data collection therein; and (3) the design and implementation of interventions on the bases of the data collected. The project failed to reduce burglary and RV as compared to control areas. Failure seems to be attributable to low victim participation in the program. The interventions included: Cocoon Watch; the loan of alarms; a security survey to identify vulnerable entry points; target hardening; and the free installation (but not purchase price) of back and side alley fences and gates. In addition to these victim-focused interventions, other interventions included: Post Watch (where local mail delivery personnel were enlisted to keep an eye out for suspicious persons); Neighborhood Watch seminars; community seminars; a community centers with free crime prevention advice and property marking kits; targeted police patrols; and a youth development project for at-risk youth. Victim compliance with the program was miserably low: only 28 out of 171 total victims were actually visited by a crime prevention officer, and even fewer complied with their suggestions. Given the low number of victims treated, it should not be surprising that the project's evaluation indicated no effect when compared to various control areas. Effects on repeat victimization were also nil. No data were collected on fear of crime, fear of burglary, or police satisfaction.

The Safer Towns and Cities Housebreaking Reduction Project (Taplin et al., 2001), like Huddersfield, also sought to examine whether a project-focused endeavor could be translated to a standard policing procedure. Police initiated the interventions themselves during crime scene investigations. The interventions, applied to victims, included: a security audit to identify vulnerabilities in the dwelling; and canvas cards distributed by police in neighbors' mailboxes informing them that a burglary had been committed next door. This was designed to (a) increase general awareness of household security, and (b) solicit tips from neighbors in regard to the immediate burglary. The intervention also included target hardening; increased fingerprinting; and a victim support package including (1) a cover letter, (2) a crime prevention pamphlet, and (3) property identification stickers; Target hardening. Two additional services were provided to the community as a whole: establishment of repeat offender units; and a crime prevention package sent by mail to all residents that contained (a) an introductory letter, (b) general advice on home security, and (c) crime prevention pamphlets. Outcomes were measured relevant to changes in burglary and repeat burglary in five control areas. While burglary declined in the target areas, the decline was equivalent or greater in three of the five control areas. These results underscore the importance of using controls to measure intervention effectiveness - without which, the interventions in this case would almost certainly have been deemed a success. The target areas showed no change in repeat burglary. There was no evidence of displacement. No data were collected on fear of crime/burglary.

The South Australian Residential Break and Enter Project (CPUSA, 2002; Hendersen, 2002) was a relatively low-budget endeavor. Intervention consisted of a visit to victims by a crime prevention volunteer who provided the following services: informal victim support; a security audit; referral for property marking; links to neighbors; and referrals to relevant agencies. In addition, victims from one of the two target areas were also offered free locks and installation up to a value of $200 Australian dollars. Only 31.7% of burglary victims provided consent for a visit from a crime prevention volunteer, and only 26.6% of victims were actually visited. Burglary increased by 31.3%, but rose even higher than in the control areas. While the project did not reduce the rate of repeat burglary, it stabilized it relevant to the rise of repeats in the control areas. No information was collected in regard to fear of crime/burglary.

Do Anti-Repeat Victimization Programs Reduce Burglary?
Only two out of the five anti-RV programs reviewed had any significant effect on either overall burglary or RV when examined relevant to a control group. These two were the projects in Kirkholt and Huddersfield (Biting Back). Why did they succeed where the other three failed?

Table 6.1 summarizes the primary intervention techniques offered in the five anti-RV programs. Kirkholt doesn't stick out in terms of the absolute number of interventions offered. Yet one thing seems clear. Given the enormous contribution of pre-payment meters to the burglary problem to begin with, their removal at Kirkholt was destined to have a significant impact on the overall incidence of burglary. Nonetheless, this doesn't explain the whole picture, since burglary rates fell further than one can attribute to the removal of pre-payment meters alone.

Huddersfield offered a far broader combination of interventions than Kirkholt. This could be important, since burglary researchers are quite fond of saying that a combination of measures seems to reduce burglary better than one or two measures used in isolation (e.g., Forrester et al., 1988, 11, but this is stated throughout the literature). If true, this may be due to the public awareness of burglary that the simultaneous implementation of so many interventions must generate. Or it could simply be due to blind luck. Yet whatever the case, the mere application of multiple tactics cannot explain the successes at Huddersfield, since the project at Cambridge used just as many, if not more intervention techniques.

Table 6.1: Primary Intervention Techniques Offered in the Five Anti-RV Programs

	Target Hardening	Cocoon Watch	Property Marking	Loan Alarms	Targeted Patrol	Fingerprint Teams	Other
Kirkholt	X	X	X				*
Huddersfield	X	X	X	X	X	X	**
Cambridge	X	X	X	X	X		***
NSW	X					X	****
South Australia	X		X				

*Removal of pre-payment meters.
**Fingerprint checks; informant checks; check of stolen goods outlets.
***Postal watch; alley gating (no takers); NW seminar; community seminar; community center; youth development.
****Canvas cards; repeat offender units.

Part of the answer, is that Kirkholt and Huddersfield were the only two projects that were able to motivate any reasonable degree of victim participation. The question then may not be whether anti-RV programs "work," but whether the citizens they are designed to protect can be motivated to utilize the techniques offered. The next logical step in anti-repeat program development may therefore have nothing to do with the design of new burglary prevention approaches. Rather, it may focus on the psychology of motivation, and how project managers and/or police can encourage higher levels of participation among the citizens they aim to protect.

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Appendix

Full Distributions for Calendar Year Crime Concentrations, by Property Type and Address Specificity

Table 1

PROPERTY TYPE: Villas, Apartments, and Farmhouses
ADDRESS SPECIFICITY: Street Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	30,980	30,980	0	30,980	94.0155%	87.9090%
2	1,747	1,747	1,747	3,494	5.3017%	9.9146%
3	176	176	352	528	0.5341%	1.4983%
4	34	34	102	136	0.1032%	0.3859%
5	8	8	32	40	0.0243%	0.1135%
6	3	3	15	18	0.0091%	0.0511%
8	1	1	7	8	0.0030%	0.0227%
10	1	1	9	10	0.0030%	0.0284%
13	1	1	12	13	0.0030%	0.0369%
14	1	1	13	14	0.0030%	0.0397%
TOTALS	32,952	32,952	2,289	35,241	100.0000%	100.0000%
Crime Concentration =		6.50%				
Address Concentration =		5.98%				

Table 2

PROPERTY TYPE: Villas, Apartments, and Farmhouses
ADDRESS SPECIFICITY: Full Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	31994	31,994	0	31,994	95.3849%	90.7863%
2	1423	1,423	1,423	2,846	4.2424%	8.0758%
3	101	101	202	303	0.3011%	0.8598%
4	22	22	66	88	0.0656%	0.2497%
5	2	2	8	10	0.0060%	0.0284%
TOTALS	33,542	33,542	1,699	35,241	100.0000%	100.0000%
Crime Concentration =		4.82%				
Address Concentration =		4.62%				

Table 3

PROPERTY TYPE: Villas, Apartments, and Farmhouses
Excludes apartments with zero vertical data.
ADDRESS SPECIFICITY: Full Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	31029	31,029	0	31,029	95.4357%	90.8902%
2	1367	1,367	1,367	2,734	4.2045%	8.0084%
3	94	94	188	282	0.2891%	0.8260%
4	21	21	63	84	0.0646%	0.2461%
5	2	2	8	10	0.0062%	0.0293%
TOTALS	32,513	32,513	1,626	34,139	100.0000%	100.0000%

Crime Concentration = 4.76%
Address Concentration = 4.56%

Table 4

PROPERTY TYPE: Villas
ADDRESS SPECIFICITY: Street Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	24,009	24,009	0	24,009	95.2436%	90.5385%
2	1,106	1,106	1,106	2,212	4.3875%	8.3415%
3	76	76	152	228	0.3015%	0.8598%
4	16	16	48	64	0.0635%	0.2413%
5	1	1	4	5	0.0040%	0.0189%
TOTALS	25,208	25,208	1,310	26,518	100.0000%	100.0000%

Crime Concentration = 4.94%
Address Concentration = 4.76%

Table 5

PROPERTY TYPE: Villas
ADDRESS SPECIFICITY: Full Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	24060	24,060	0	24,060	95.3475%	90.7308%
2	1082	1,082	1,082	2,164	4.2879%	8.1605%
3	75	75	150	225	0.2972%	0.8485%
4	16	16	48	64	0.0634%	0.2413%
5	1	1	4	5	0.0040%	0.0189%
TOTALS	25,234	25,234	1,284	26,518	100.0000%	100.0000%

Crime Concentration = 4.84%
Address Concentration = 4.65%

Table 6

PROPERTY TYPE: Apartments

ADDRESS SPECIFICITY: Street Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	5207	5,207	0	5,207	89.9309%	79.4598%
2	471	471	471	942	8.1347%	14.3751%
3	84	84	168	252	1.4508%	3.8456%
4	16	16	48	64	0.2763%	0.9767%
5	5	5	20	25	0.0864%	0.3815%
6	3	3	15	18	0.0518%	0.2747%
8	1	1	7	8	0.0173%	0.1221%
10	1	1	9	10	0.0173%	0.1526%
13	1	1	12	13	0.0173%	0.1984%
14	1	1	13	14	0.0173%	0.2136%
TOTALS	5,790	5,790	763	6,553	100.0000%	100.0000%

Crime Concentration = 11.64%

Address Concentration = 10.07%

Table 7

PROPERTY TYPE: Apartments

ADDRESS SPECIFICITY: Full Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	6123	6,123	0	6,123	96.7604%	93.4381%
2	189	189	189	378	2.9867%	5.7684%
3	12	12	24	36	0.1896%	0.5494%
4	4	4	12	16	0.0632%	0.2442%
TOTALS	6,328	6,328	225	6,553	100.0000%	100.0000%

Crime Concentration = 3.43%

Address Concentration = 3.24%

Table 8

PROPERTY TYPE: Apartments

Excludes apartments with zero vertical data.

ADDRESS SPECIFICITY: Full Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	5097	5,097	0	5,097	96.7907%	93.5058%
2	156	156	156	312	2.9624%	5.7237%
3	10	10	20	30	0.1899%	0.5504%
4	3	3	9	12	0.0570%	0.2201%
TOTALS	5,266	5,266	185	5,451	100.0000%	100.0000%

Crime Concentration = 3.39%

Address Concentration = 3.21%

Table 9

PROPERTY TYPE: Farmhouses

ADDRESS SPECIFICITY: Street Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	1991	1,991	0	1,991	95.9056%	91.7512%
2	78	78	78	156	3.7572%	7.1889%
3	5	5	10	15	0.2408%	0.6912%
4	2	2	6	8	0.0963%	0.3687%
TOTALS	2,076	2,076	94	2,170	100.0000%	100.0000%

Crime Concentration = 4.33%

Address Concentration = 4.09%

Table 10

PROPERTY TYPE: Farmhouses

ADDRESS SPECIFICITY: Full Address

Number of Victimizations	Addresses	# Single Crimes	# Repeat Crimes	Total Crimes	% of Total Addresses	% of Total Burglaries
1	1993	1,993	0	1,993	95.9557%	91.8433%
2	77	77	77	154	3.7073%	7.0968%
3	5	5	10	15	0.2407%	0.6912%
4	2	2	6	8	0.0963%	0.3687%
TOTALS	2,077	2,077	93	2,170	100.0000%	100.0000%

Crime Concentration = 4.29%

Address Concentration = 4.04%

About the Author

Dave Sorensen is an assistant research professor at Research Department III, Faculty of Law, University of Copenhagen. Born and raised in New York City, he has a Bachelor's degree in sociology from the University of Arizona, Tucson, Arizona, and M.A. and Ph.D. degrees in criminal justice from Rutgers University, Newark, New Jersey. His research interests include crime prevention, the versatility of deviance, and longitudinal patterns in criminal careers. Dave's great-great grandfather emigrated from Mors, Jylland to the USA in 1878, where he lost his Ø and became a Sorensen.

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