Closing the doors
van Dijk, J.J.M.

Document version:
Publisher's PDF, also known as Version of record

Publication date:
2012

Link to publication

Citation for published version (APA):

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy
If you believe that this document breaches copyright, please contact us providing details, and we will remove access to the work immediately and investigate your claim.
Closing the doors;
Highlights of the International Crime Victims Survey 1987-2012

prof. Jan Van Dijk

Valedictory lecture Prof. Pieter van Vollenhoven Chair in Victimology and Human Security,
Tilburg, The Netherlands, 7 December, 2012
“As is the case with global data on diseases, economies, climate and other universal concerns, the ICVS has provided a systematic resource for addressing a wide range of major questions”
(BRA, Stockholm Criminology Symposium, 2012)
Introduction

At a special meeting on crime prevention of the Council of Europe in Barcelona in 1987, I first formally aired plans for a standardized crime victims survey (Van Dijk, Shapland & Leger, 1987). In the next year Pat Mayhew, Martin Killias and myself launched the International Crime Victims Survey (ICVS), a standardized victimization survey modeled after the Dutch, British and Swiss national surveys (Van Dijk, Mayhew & Killias, 1990). The survey went into the field for the first time in 1989 in thirteen countries. The surveys have since, with some adjustments, been repeated in five subsequent sweeps, with intervals of four or five years (1992, 1996, 2000, 2005 and 2010). The last round in 2010 was conducted in 13 countries (Van Dijk, 2012). Altogether the ICVS has to date been carried out among over 400,000 respondents covering 80 countries from all world regions.

The ICVS provides, first of all, comparable data on victimization by several types of much-occurring crimes. The key results of the surveys are league tables of countries according to their levels of ten types of common crime. The data have also been used for cross-sectional analyses of relationships between characteristics of countries and levels of crime. The ICVS has, as said, been conducted in six major sweeps between 1989 and 2010. The availability of trend data covering two decades allows time series analyses looking at relationships between changes in characteristics of countries over time and changes in the levels of victimization. The ICVS has from the outset also collected data on reporting of crime to the police by victims, satisfaction of victims with their treatment by the police, the reception of specialized victim support, fear of crime and opinions on police performance and on sentencing. In this presentation I will not dwell on the ever changing methodological challenges of a standardized survey, fascinating as they are, or try to give a comprehensive overview of findings. I will just present some of the highlights of its results concerning levels of victimization by crime.

1 To reduce costs, sample sizes were kept at a modest 2,000 per country, just enough to allow a comparison of the level of the main types of volume crime. Data were collected with the efficient means of computer-assisted telephone interviewing. Results have been presented in a series of research reports with extensive documentation on the survey’s methodology (Van Dijk, Mayhew & Killias, 1990; Van Dijk & Mayhew, 1992; Mayhew & Van Dijk, 1997; Van Kesteren, Mayhew & Nieuwbeerta, 2000; Van Dijk, Van Kesteren & Smit, 2008; Van Dijk, 2012).

2 For overviews of ICVS results on other issues besides victimization see Van Kesteren & van Dijk (2009) and Van Dijk & Groenhuijsen (2007). For an overview of methodological issues see Mayhew & van Dijk, (2011).
Initially, the survey results were mainly used to compare levels of victimization. Table 1 gives an overview of the ranking of nations in terms of overall levels of criminal victimization around 2002 in the urbanized parts of 72 countries.

<table>
<thead>
<tr>
<th>Fifteen Countries With the Highest Rates</th>
<th>Fifteen Countries With Medium-High Rates</th>
<th>Fifteen Countries With the Lowest Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Colombia 48.7</td>
<td>6. Peru 41.0</td>
<td>11. Tunisia* 35.9</td>
</tr>
<tr>
<td>2. Zimbabwe 46.8</td>
<td>7. Mongolia 40.6</td>
<td>12. Namibia 35.1</td>
</tr>
<tr>
<td>3. Costa Rica 43.5</td>
<td>8. Bolivia 38.0</td>
<td>13. Paraguay 34.5</td>
</tr>
<tr>
<td>4. Swaziland 43.4</td>
<td>9. Mozambique 37.7</td>
<td>14. Zambia 34.4</td>
</tr>
<tr>
<td>5. Cambodia 41.3</td>
<td>10. Tanzania* 37.6</td>
<td>15. Slovak Republic 34.4</td>
</tr>
<tr>
<td>21. India 29.7</td>
<td>34. South Africa 25.7</td>
<td>51. Switzerland 20.1</td>
</tr>
<tr>
<td>26. Lesotho 27.3</td>
<td>37. United States 23.3</td>
<td>53. Canada 19.1</td>
</tr>
<tr>
<td>28. Netherlands 27.0</td>
<td>38. Russian Federation 23.3</td>
<td>56. Brazil 18.4</td>
</tr>
<tr>
<td>58. Turkey 17.9</td>
<td>63. Italy 16.6</td>
<td>68. Japan 10.8</td>
</tr>
<tr>
<td>59. France 17.8</td>
<td>64. Spain 15.7</td>
<td>69. Portugal 9.7</td>
</tr>
<tr>
<td>60. Austria 17.2</td>
<td>65. Greece 15.5</td>
<td>70. Philippines 9.1</td>
</tr>
<tr>
<td>61. Australia 16.9</td>
<td>66. Croatia 12.9</td>
<td>71. Hong Kong, China 7.8</td>
</tr>
</tbody>
</table>

* Countries with data from ICVS, 1992

The world ranking reveals that levels of common crime are most prevalent in some developing countries (e.g. Colombia and Zimbabwe). This result may be unsurprising but is important nevertheless because it does not show up in comparative crime statistics based on police administrations which invariably show industrialized countries to be most crime ridden. Perhaps more tellingly the category of countries with moderately high levels of crime includes some of the most affluent nations in the world, notable the United Kingdom, The Netherlands and The United States. Analyses of the ICVS datasets have refuted the conventional criminological wisdom that levels of crime necessarily always reflect socio-economic problems (Van Dijk, 1990). Victimization by crime is a major social problem for the public living in urban areas in a broad range of countries in both the developing and developed world. No simple generalizations about the root causes of crime can be made.
Police figures as measures of crime

Both the UN survey of official statistics on crime and the ICVS contain a measure for ‘total crime’. For 39 countries data is available on the overall ICVS victimization per 100 respondents in 2000 and the total numbers of crimes per 100,000 recorded by the police in 2002. Figure 1 depicts both the number of police-recorded crimes per 100,000 inhabitants and the percentage of the public victimized by crime according to the ICVS. Although the picture is somewhat complex by combining two scores with different scales on the vertical axis, it usefully visualizes how these two measures of crime relate to each other.

As can be seen at a glance, there is no correlation between the actual level of victimisation by crime according to the surveys and the rates of crime recorded by the police among these 39 countries (r=0.212; n=39; n.s.). Some countries with exceptionally high numbers of recorded crimes also show comparatively high victimization rates (South Africa) but many others, such as Finland and Canada do not. The results unequivocally confirm what criminologists have always
suspected. Because of differences in reporting of crimes to the police and to an even larger extent differences in recording practices, statistics of crimes recorded by the police present a grossly distorted image of the actual distribution of crime across countries. In response to this result the international law enforcement organization, INTERPOL has taken the decision to discontinue its ongoing publication of comparative statistics of recorded crime. Other international organizations such as UNODC and Eurostat continue to release statistics on police-recorded crimes but add warnings that the figures are not strictly comparable. In order to prevent readers from making unwarranted comparisons of national crime rates, only absolute numbers per country are published. It remains to be seen whether this publication strategy has the intended effect of preventing the spread of disinformation on international levels of crime. Someone looking for international crime data on internet will now find country ranking based on absolute numbers of recorded crimes per country. On top of these rankings are globally the USA, UK, Germany and France. As we know from the ICVS these countries do not suffer from high levels of criminal victimization. Their top position in the league tables offered online reflects nothing else than that their populations are relatively large and their police forces relatively competent in crime recording4. If absolute numbers of police-recorded crimes are used for ranking countries on crime, the results are even more erroneous than those based on rates per 100,000 inhabitants. As I have argued elsewhere, a moratorium on comparative statistics of police-recorded crimes seems to be called for (Van Dijk, 2008). Further attempts to compare the incomparable - police figures as measures of crime- are to be avoided. If no information from standardized victimization surveys is available, no information on relative levels of crime seems a better option than misinformation.

4 In the global ranking The Netherlands stands at place thirteen. This is a somewhat lower place than the country used to have in previous comparisons of police-recorded crime per 100,000 inhabitants. This more favorable position is largely due to the country’s relatively small population size.
The conduct of the ICVS in 80 nations including all main Western countries allows for cross sectional analyses of relationships between characteristics of nations and national levels of victimization by various types of crime. In the report on the first ICVS, strong correlations were shown between the national owner rates of cars and bicycles and the rates of thefts of such items. Figure 2 shows results for bicycles and rates of bicycle theft.

Figure 2 Percentages of bicycle ownership and bicycle theft in the ICVS
Sources: ICVS, 1996-2000; Van Dijk, 2008

The correlation between ownership of vehicles and theft rates is often regarded as self evident and therefore theoretically pointless. On reflection these strong and universal links between ownership rates and theft are far from mundane. If levels of crime would be determined by the presence of a more or less fixed amount of motivated offenders, as motivational criminological theories assume, an increase in available targets would not lead to more crimes but simply to a reduction of the risks to be victimized per target. The finding that levels of theft are invariably strongly positively linked to ownership levels and that risks per target actually tend to go up with higher ownership rates is difficult to reconcile with motivational theories. The results confirm the theory that levels of property crime are determined by criminal opportunity structures (Felson and Clarke, 1989). Bicycle theft, as car theft, appears to be clearly driven by availability.
Even in otherwise low crime countries such as China and Japan, the general availability of bicycles generates high rates of bicycle theft as ‘crimes of expediency’. The analysis of bicycle theft rates even reveals an exponential relationship between bicycle ownership and theft. If bicycle theft surpasses critical levels, a chain reaction seems to be set into motion by victims committing themselves to stealing or to knowingly buying from fences to replace the stolen bicycle. This phenomenon of ‘compensatory stealing’ of bicycles has been well-documented among student populations in The Netherlands (Van Dijk, 1986). The mechanism was dubbed “the Van Dijk crime chain” by the authors just cited (Felson & Clarke, 1989; Felson, 2002). It is just one example of the many multiplying mechanisms which cause long lasting crime epidemics when critical limits are passed (Clarke, 2007).

The second topic to be addressed is a golden oldie in criminological epidemiology, the relationship between alcohol consumption and crimes of violence. Dutch criminologist Bonger showed that in the 19th century in many Western countries a high proportion of arrested violent offenders were chronic alcoholics (Bonger, 1905; 1932). In his view chronic alcohol abuse belongs to a lifestyle marked by poverty and ensuing demoralization. In our times rates of homicide have been found to be related to the national consumption of hard liquor and victimization by threats/assaults to national rates of beer consumption (Van Dijk, 2008). We have revisited the alcohol-violence link with a secondary analysis of ICVS data from developed nations participating in the 2005 sweep. Figure 3 shows results in the form of a scatter plot where the x-axis represent the extent of beer consumption per country and the y-axis the level of victimization by violent crime.

As can be seen in figure 3, the statistical correlation between the two social phenomena of beer consumption and violence is fairly strong. In Ireland, the United Kingdom, New Zealand and Australia both beer consumption and violence are relatively prevalent. In Southern European countries both beer consumption and violent crime are less common. There are no blatant outliers. The results also show that countries in the upper right corner are all comparatively affluent. In the current era, the alcohol-crime link seems no longer a symptom of social deprivation. Among developed nations the link is caused by adolescents drinking beer or other forms of alcohol during their time spent in the night time economies rather than by chronic alcoholism among the socially-deprived (Hartfield, 2009; Killias & Lanfranco, 2012).

The third topic that will be addressed here, is the link between firearms and violent crime. This topic is, and has for some time been, the subject of a prolonged and heated public debate in the USA. Supporters of defensive gun use in the USA have argued that gun availability might actually save lives and prevent crime by deterring would-be offenders from attacking. The economist John Lott elaborated on this in his book More Guns, Less Crime (Lott, 1998). Within the USA, clear cut relationships have been found between rates of ownership of firearms, notably handguns, at the state level and rates of firearm homicides.
The ICVS offers unique possibilities of analyzing the links between firearms and victimization by violent crime in a comparative global perspective. Reliable data on firearm possession are difficult to find. The ICSV questionnaire includes questions on the possession of firearms. The ICVS also provides a good indicator of ordinary violence in the public domain, a type of crime which often stays unrecorded.

Analyses of the relationships between ICSV-based data on firearm possession and ICSV based rates of victimization by gun assaults and gun robberies have consistently shown fairly strong positive relationships between handguns and violence (Van Dijk, 2008). The link was once again examined, this time using the combined dataset of the last four sweeps of the ICVS in order to increase the numbers. As can be seen in figure 4, the link between handgun ownership and gun violence was confirmed.

Figure 4 Correlation between handgun ownership levels and five-year victimization rates of three types of crime. Sources: ICVS 1992-2005/latest available; Van Kesteren (2012/forthcoming)

<table>
<thead>
<tr>
<th>Ownership level of firearms</th>
<th>Handguns</th>
<th>Long guns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handgun ownership</td>
<td>-0.03</td>
<td>-0.07</td>
</tr>
<tr>
<td>N=47 (p&lt;0.05)</td>
<td>N=47 (p&lt;0.05)</td>
<td></td>
</tr>
<tr>
<td>Contact crimes with gun</td>
<td>0.57</td>
<td>0.07</td>
</tr>
<tr>
<td>N=47 (p&lt;0.05)</td>
<td>N=47 (p&lt;0.05)</td>
<td></td>
</tr>
<tr>
<td>Assault threat with gun</td>
<td>0.48</td>
<td>-0.16</td>
</tr>
<tr>
<td>N=47 (p&lt;0.05)</td>
<td>N=47 (p&lt;0.05)</td>
<td></td>
</tr>
</tbody>
</table>

The results show, first of all, that in all categories of countries individual handgun owners are significantly more at risk to be attacked with a gun than non owners, controlling for several other factors. This finding refutes the idea that ownership offers protection against gun attacks to individuals. The risk enhancing effects are largest for owners in countries were few or moderately few inhabitants own guns. The latter finding suggests that in such countries many gun owners exhibit a distinct lifestyle, possibly related to gang membership, which enhances their risk to be attacked. In countries with high ownership levels individuals owning guns are probably less atypical. But they too run somewhat higher risks than others to be attacked by someone with a gun. As expected, no similar relationships were found concerning the ownership of long guns. By and large, the individual level results offer no support for Lott’s notion that more guns mean less crime either.

1 Of special interest in this respect are comparisons between Canada and the USA. Sloan et al (1988) compared homicide rates of Seattle, USA and Vancouver, Canada. Although these two cities are comparable in age composition, race and income, homicide rates were 50% higher in Seattle, most probably because of greater availability of handguns.
As said, the ICVS was carried out in 1989 for the first time and repeated four times till 2005 in a large group of countries. For Johannesburg, Buenos Aires, Australia, Canada and eleven European countries data are available from four or five sweeps of the survey. See figure 6 for results.

Figure 6 Trends in total crime experienced by national or city populations per year during 1988-2004 (ICVS 1989-2005). Source: Van Dijk, 2008

Notes: Trends in overall victimization rates are based on 10 crimes that are consistent over time.
The Australian rate is based on 9 crimes consistent over time.

The results in figure 6 show that levels of victimization by conventional crime have fallen in the USA since the first sweep of the survey in 1989. In Europe and all other parts of the world levels of victimization have gone up between the first and the third sweep of the survey (up to the mid 1990s). Thereafter crime has fallen significantly everywhere. The results in figure 6 also show that in 1988 levels of crime in the USA were still considerably above the mean of other Western nations. The level of crime in the USA has subsequently started to fall sooner than elsewhere. From 1992 onward the level of crime in the USA has therefore no longer been above the level found in Europe or Australia. Since the
third sweep in the mid 1990s crime has dropped significantly nearly everywhere in the participating nations. The steep falls in crime appear not to be a unique American phenomenon as suggested by Blumstein and Wallman (2006). The falls have occurred universally in the industrialized world, as well as in some middle income nations (South Africa and Argentina). The 1989-2005 ICVS datasets were reanalysed by a team of British criminologists conducting a multilevel analysis of the trends in incidence victimization rates of 26 nations which participated in the ICVS three times or more (Tseloni et al, 2010). Their results confirm the truly international nature of the crime falls. They also found that the falls in different types of crime showed a distinct sequencing. Their analyses showed that burglary and car theft fell steadily from the late 1980s onwards. Next it was thefts from cars and other thefts from people which began to fall since the mid-1990s. And, finally, assaults started to decline around the year 2000. This sequencing was, once again, fairly universal across nations. We will revert to the uniform sequencing of the falls of different types of crime in the concluding section.

For a limited number of countries results are available from surveys of the sixth round of the ICVS carried out in 2010 (Van Dijk, 2012). For these countries trend data are available covering a period of more than two decades. Table 2 shows results on burglary, a type of crime roughly representative of overall conventional crime.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>3.0</td>
<td>3.4</td>
<td>3.4</td>
<td>2.3</td>
<td>2.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Denmark</td>
<td>3.1</td>
<td>2.7</td>
<td>3.1</td>
<td>2.7</td>
<td>3.1</td>
<td>3.6</td>
</tr>
<tr>
<td>Estonia</td>
<td>6.0</td>
<td>4.2</td>
<td>3.7</td>
<td>2.5</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Georgia</td>
<td>2.5</td>
<td>3.6</td>
<td>2.6</td>
<td>7.1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Germany</td>
<td>1.3</td>
<td>0.9</td>
<td>1.2</td>
<td>0.9</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2.4</td>
<td>2.0</td>
<td>2.6</td>
<td>1.9</td>
<td>1.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.4</td>
<td>1.3</td>
<td>1.7</td>
<td>0.7</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1.0</td>
<td>1.3</td>
<td>1.1</td>
<td>1.6</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>UK</td>
<td>2.1</td>
<td>2.8</td>
<td>2.7</td>
<td>3.3</td>
<td>3.1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Only Canada and The Netherlands have participated in all six ICVS rounds. Their trends in burglary victimization are curvilinear with a peak in 1996 and a very steep decline thereafter. The UK and Sweden show a similar curvilinear trend. In Georgia crime continued to go up to 2005, most probably because of the transition to a market economy and the civil unrest between 2000 and 2005. Since then levels of crime in Georgia have dropped with a vengeance (van Dijk & Chanturia, 2012). The trends in Denmark, Estonia and Switzerland seem somewhat out of tune with those elsewhere. In Switzerland burglaries have trended upwards since 1989, especially in recent years. In Denmark the level also increased between 2005 and 2010. In Estonia the level has remained more or less stable at a relatively high level between 2005 and 2010.

Trends in victimization by threats/assaults are different from those of burglary. In none of the twelve countries except Georgia and Estonia levels of common violence have gone down over the full period. Especially noteworthy is the upward swing between 2005 and 2010 in several countries (see table 3 for results).

6 Analyses of ICVS results have proven that rates of victimization by burglary are strongly related to rates of victimization by any crime.

7 Statistics of police-recorded burglaries show a similar steep rise in burglaries between 2005 and 2009 in both Switzerland and Denmark (see also Soerenson, 2011)
Table 3: Victimization by threats/assaults; one year victimization rates for 2009/2010 (percentages) and results of available previous surveys (1989-2010). Sources: ICVS 1989-2010; Van Dijk, 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>3.9</td>
<td>4.8</td>
<td>4.0</td>
<td>5.3</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Denmark</td>
<td>3.6</td>
<td>3.3</td>
<td>3.3</td>
<td>4.1</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>5.0</td>
<td>5.7</td>
<td>6.3</td>
<td>2.7</td>
<td>2.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Georgia</td>
<td>0.6</td>
<td>3.2</td>
<td>1.7</td>
<td>1.2</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>3.1</td>
<td>2.7</td>
<td>2.7</td>
<td>2.7</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>3.3</td>
<td>4.0</td>
<td>4.0</td>
<td>3.4</td>
<td>4.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>2.7</td>
<td>3.4</td>
<td>3.8</td>
<td>3.5</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>1.2</td>
<td>3.1</td>
<td>2.4</td>
<td>2.5</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>1.9</td>
<td>5.6</td>
<td>6.0</td>
<td>5.4</td>
<td>4.9</td>
<td></td>
</tr>
</tbody>
</table>

Elsewhere we have argued that the significant increases in police-recorded crimes of violence in North America and Western Europe over the past 15 years result from increased detection efforts and improved recording, rather than from an increase in real crime (Van Dijk, 2009). There is evidence from several countries that this has indeed been the case. In my view the drop in volume crime has freed resources allowing police forces to more actively respond to less serious crimes of violence which remained undetected and unrecorded in the past. Having said this, the results of the latest round of ICVS surveys point at a surge in violent crime over the past five years in at least some countries, most notably Switzerland (Killias et al, 2011; Killias & Lanfranconi, 2012; Aebi & Linde, 2012). I agree with my Swiss colleagues, just cited, that the most likely explanation for the recent boom in violent crime is the increased participation of young people in the nightlife industries and the related increase of alcohol abuse.

Now that the fall in overall crime, especially common crime such as burglaries has been established as a universal phenomenon in the Western world, the key question to be answered by criminologists is how these changes can be explained. Which macro factors have caused the universal falls in crime during the final years of the 20th century? Can the recent falls perhaps be seen as a vindication of the criminological theory formulated by Dutch criminologist Bonger in 1905 that crime is driven by poverty and/or inequality (Bonger, 1905)? In other words, has post war prosperity finally delivered the expected bonus of lower crime rates? In my view this interpretation seems farfetched. If prosperity would indeed have had a dampening effect upon crime, such beneficial effects should have manifested themselves much earlier, for example around 1980 when the post war economic booms had peaked. In those years crime was rising steeply across the Western world (Field, 1999; Laycock, 2001; Lagrange, 2003). Since then economic growth has been more modest and economic inequalities have in fact widened, especially in the USA and the UK (Wilhertdink, 1993). From 2008 onwards the Western world even experienced an economic recession. In the USA the fall of crime has continued unabatedly, at least up to 2011 (FBI, 2012). In Europe there is as yet no sign of a recession-induced surge in total crime. Whatever factors may have caused the international falls in crime, it cannot have been economic prosperity or the reduction of poverty.

Many other explanations for the crime decline have been advanced by American scholars (Blumstein and Wallman, 2006). The USA falls have been explained as resulting from respectively massive incarceration, the ending of the crack cocaine epidemic, the use of computerized crime data (Compstat) and zero tolerance policing. Economist Levitt added an imaginative hypothesis to the list of post hoc explanations: violent crime was reduced by the legalisation of abortion in 1976, reducing the cohort of unwanted young males (Levitt, 2006). As demonstrated above, the falls in volume crime are a global phenomenon. Such phenomenon cannot be explained by country-specific factors but requires a global explanation (Van Dijk, 2006; 2010). The factors propounded in the American debate do not qualify. In most European nations, Canada and Australia prisoners rates have remained modest compared to those in the USA, there never was a crack cocaine epidemic, Compstat was never practiced and zero tolerance policing remained a slogan of some politicians at best. And yet in all these countries - with their diverging criminal policies - crime started to fall around the same time with the same sequencing and with roughly the same magnitude as in the

8 The FBI statistics of police-recorded crime show a continued fall up and including 2011. The national crime surveys of the USA have shown a continuation of the fall up to 2011. During 2011 crime showed for the first time in two decades an upward swing.

9 There was no change in the level of crime according to the British crime surveys in 2011 compared to 2010 (Home Office, 2012). Results of the annual Dutch national surveys also show a continued downward trend in both property and violent crime in recent years up and including 2011 (Ministerie van Veiligheid en Justitie, 2012).
USA. The explanations of the crime drop mentioned in the American literature may or may not be valid in the context of the USA but they can not explain the international drops.  

From the cross-sectional analyses of ICVS data, presented above, criminal opportunity theory emerged as a powerful theoretical perspective. Levels of crime were found to be associated with rates of ownership of vehicles and hand guns and with liberalised leisure industries. Could criminal opportunity theory possibly also provide an explanation for the international falls in crime? As I have suggested elsewhere, rates of victimization are determined by interactions between the rational choices of offenders and victims on a market of crime (Van Dijk, 1994b). As long as the benefits of crime outweigh the costs of offending, the pool of offenders keeps expanding and crime rates will continue to go up. Resulting rises in the losses of crime incurred by victims, will trigger more investments in self protection by potential victims. When the proportion of well-protected potential victims expands, criminal opportunities will be reduced. When the scale of such responsive securitization reaches a critical level, potential new offenders will be discouraged from entering the criminal market. The pools of offenders will shrink and crime rates will start to fall. The key dynamics of the post war crime waves are represented in figure 7.

This argument was earlier made by Zimring (2006) regarding Canada. I avail myself of this opportunity to point out that the two names under which criminal opportunity theory has entered Anglophone criminology, routine activity theory and situational crime prevention theory seem both flawed. The term routine activity theory, coined by Felson, ignores that the sheer availability of suitable targets of theft constitute a major component of opportunity structures shaping crime. The term situational crime prevention, coined by Clarke, exclusively focuses on responsive measures to reduce existing opportunities rather than on their sheer availability as such.

The theoretical perspective of responsive securitization is obviously informed by criminal opportunity theory. It is also informed by the notion of markets of crime where offenders and victims interact (Cook, 1986). Especially in the United Kingdom and Northern Europe, this new theoretical perspective was from the outset geared towards finding practical applications to reduce criminal opportunities (hence situational crime prevention theory). In the Netherlands criminal opportunity theory was in fact officially adopted by the government as the policy theory underpinning its program of national crime prevention policies launched in 1985 (Ministry of Justice, 1985). If levels of crime have, as supposed by criminal opportunity theory, been driven up by expanding pools of suitable targets of crime, improved security triggered by booms in crime will drive crime rates down. From this perspective criminal opportunity theory is intrinsically optimistic about long term trends in crime. It has always held the promise of spontaneous drops in crime when criminal opportunities are contracted by responsive securitization. But if the cyclical nature of crime flows logically from criminal opportunity theory, have any of its protagonists then ever predicted the universal falls before they had actually started to take place? The answer to this question is a positive one. Following the logic of situational prevention theory I myself predicted in 1994 in the Festschrift for Wouter Buikhuisen, my predecessor at Leiden University, that opportunistic criminality in the 21st century would, and I quote “no longer be a mass phenomenon due to more and better situational prevention.”
On similar grounds British criminologist Ken Pease predicted in 1997 falls in amateur thefts. He predicted a bifurcation of future offending into either clever e-fraud or predatory violent street crime (Pease, 1997). Responsive securitization, then, is not, as the American explanations, a post hoc explanation of observed falls in crime. That potential victims would take action to reduce their risks follows logically from criminal opportunity theory and the international falls in crime have on this theoretical basis been duly predicted years before their onset.

In a keynote at the European Society of Criminology conference in Bologna in 2007, Ron Clarke addressed the key issue whether situational crime prevention can reduce the overall crime rate, considering that at the micro level displacement is always possible (Clarke, 2007). His first argument is that investments in self protection have since the 1970s grown phenomenally, impacting on almost every aspect of society. A prime example is the huge increases in private security guards and alarm centers. In “Western” countries private security guards now outnumber police officers (Van Steden and Sarre, 2007). If public policing is widely supposed to impact on levels of crime to at least some extent, it would, according to Clarke, be strange if private security with its exclusive focus on crime prevention would not. But responsive securitization is not limited to human surveillance by the private security industry. A wide range of different measures to prevent crime has become mainstreamed into modern society. Harnessing new technologies, security provisions have been built into homes, cars, stores and parking lots, public transport and public/social housing, schools and hospitals, offices and other work places, entertainment venues and sports stadiums, airports and seaports, and to warehouses and transportation terminals (Clarke and Newman, 2008). The ICVS database shows significant upward trends in the use of special locks and burglar alarms across the world with very few exceptions (Van Dijk et al, 2008).

The universality and pervasiveness of the security response across industrialized countries, and thereby its potential impact on trends in crime, seem difficult to dispute. Trends in home security show much greater communality than the criminal policies pursued by governments. The security response also fully meets the requirement of synchronized timing across countries. The lasting rise in private security started in the seventies in the USA and somewhat later everywhere in Europe (Cullingham et al, 1991). It is likely to have reached critical mass around 1985 in the USA and around 1990 in Europe, just in time to have had an impact on the subsequent falls in crime. The pervasiveness and timing of the boom in private security make it a promising contender as explanatory factor of the international falls in crime at the end of the 20th century.

In the next section we will use empirical data including ICVS-based results to put the security hypothesis to the test. We will first look at the role of improved security in the falls in car thefts and then look at the impact of home security on burglary.

---

12 Worldwide more people are employed as security guards (348 per 100,000) than as police officers (310 per 100,000) (Van Dijk, 2008). According to the latest figures collated by Jaap de Waard, the number of private security employees in Western Europe has over the past ten years increased further by 90% (De Waard, Berghuis, 2010).
Vehicle crimes provide an important testing ground for the hypothesis of responsive securitization. Levels of car theft have gone up universally in Western nations from 1960 onwards in tandem with rates of car ownership. Car thefts used to make up ten percent or more of the total costs of volume crime in Western nations (Mayhew, 2003). Considering the costs of car thefts, responsive securitization among owners stands to reason. Although car ownership levels are stable or still rising, thefts of cars have according to the ICVS gone down considerably since the 1990s in all Western nations, sometimes by more than 50% (Van Dijk, Van Kesteren & Smit, 2007).

In Germany rates of car theft had already fallen by almost 50% in 1961. The German falls in car theft have been analyzed by Mayhew et al (1975). In 1960 the federal government passed legislation which made high quality steering column locks mandatory in all cars. Car thefts dropped already in the same year. In this case responsive securitization was imposed on the target population through legislation. In the USA and Britain similar legislation was passed ten years later but limited to the fitting of steering column locks in newly sold cars. As was to be expected, the impact of these regulations was less immediate than in Germany (Webb, 1994). In Britain it took almost ten years before over 80% of cars were fitted with steering column locks. It was indeed around that time that rates of car theft per 100 owners started to stabilize. In the USA the impact of the new regulation manifested itself sooner, probably because of a faster renewal of the vehicle population. The critical penetration rate of 80% was reached earlier than in the UK and car theft rates started to fall accordingly.

Studies into the impact of state-of-the-art security measures against car theft have since been conducted in many countries, often using data from victimization surveys. Electronic immobilizers became the new preferred security measure to prevent theft of cars. In Australia, the USA, Europe and Canada the falls in car theft have tracked increases in the penetration rate of new anti-car theft security (Mayhew, 1992; Farrell, Tseloni & Tilley, 2011; Fujita & Maxfield, 2012). Electronic immobilizers were made mandatory in 1998 for all newly sold cars within the European Union. Within ten years after the regulation took effect, it had further reduced car thefts in The Netherlands and in Britain (Van Ours & Vollaard, 2012).

Traditionally a large part of car thefts are committed by juveniles for temporary transportation, known in Britain as joyriding. A smaller part is committed by professional thieves for resale or sale of car parts. If the recent falls have indeed been caused by improved security, this effect is likely to have been stronger on...
theft for temporary transportation by opportunistic juveniles than on theft by experienced professionals. In the ICVS victims of car theft are asked whether the stolen car was ever recovered. To test the hypothesis that drops in thefts in car theft have been most pronounced among the category of theft for temporary transportation, we have looked at trends over time in recovered and non-recovered car thefts in thirteen Western nations. Figure 8 shows results.

Figure 8 Trends in one-year victimization by joyriding and car theft, ICVS 1989-2005. Source: Van Dijk, 2008

The trends in figure 8 confirm the hypothesis. In the thirteen Western countries together rates of joyriding dropped by 50 % (from 1.4 % in 1988 to 0.6 in 2005) while rates of car theft remained stable at a one year victimization rate of 0.3%13.

13 From 2010 onwards total numbers of car thefts are rising again in Germany and The Netherlands. This new upward trend seems to be caused by the improved capacity of professional car thieves to circumvent electronic security measures.
As car theft, household burglary makes up a considerable part of the total costs of crime. For many victims the experience to see once house burgled is also highly traumatic. Responsive securitization by high risk groups is to be expected. Since the 1970s several forms of household security have been adopted by more and more households, such as high security locks and bolts, burglar alarms, outdoor lightning etcetera. Analyses of results of national victimization surveys in The Netherlands and Britain have shown that individual houses equipped with such security have a reduced risk to be burgled. For example in the Netherlands houses without any special security run an 8 times higher risk to be burgled than houses with a comprehensive package of security measures in place (Van Dijk, Junger & Sagel-Grande, 2011).

In the ICVS respondents are asked about the installment of basic security measures such as special security locks and burglar alarms. Using data from 114 regions in Europe and North America, collected in the first two sweeps of the ICVS, we analyzed the relationships between regional levels of affluence, degree of urbanization, burglary victimization rates, fear of burglary and the use of burglar alarms with the help of path analysis (Van Dijk, 1994a). Figure 9 shows the results in the form of a model explaining a fair amount of the variation in levels of burglary victimization and burglar alarm ownership.

Figure 9 Main drivers of the use of burglar alarms; a secondary analysis of the ICVS 1989-1992 at regional level (N=114). Source: Van Dijk, 1994a
The model shows strong links between the level of burglary in regions and fear of burglary and between such fears and the purchasing of burglar alarms. This causal path reflects the first stages of responsive securitization regarding household burglary. The model also shows that people living in relatively wealthy regions are more likely to invest in burglar alarms, regardless of their situation in other respects. This result demonstrates that well off households can more easily afford investments in such devices. Finally, the model shows that people in wealthy and urbanized regions more often live in detached houses and experience more burglaries. Obviously, responsive securitization takes shape in a multi-factorial setting. In wealthier regions more people live in detached houses which offer ample opportunities for burglars. In such regions rates of victimization by burglary are higher. The negative experiences of victims generated increased awareness of risks to be burgled and this promotes investments in self-protection, including in expensive measures that normally only well off households can afford. The model, first presented at a conference of the Council of Europe on Crime and the Economy, covers all stages of responsive securitization except the final and crucial one. The statistical model shows that responsive securitization as such takes place but it does not prove that reduced opportunities of burglary actually result in lower rates of burglary victimization.

In The Netherlands the installment of basic household security measures has been actively promoted by the central government since the mid 1980s (Ministry of Justice, 1985). In 1999 basic household security was finally incorporated in the Building Regulations and since then such security is mandatory for all newly built houses. Ben Vollaard of Tilburg University has analyzed results of the Dutch national victimization surveys to determine the impact of the new building regulations upon burglary victimization. He compared burglary victimization rates of owners of newly built houses with owners of houses built before 1999. His analysis shows that risks to be burgled of newly built houses were reduced by 50%, controlling for the impact of external factors (Vollaard & Van Ours, 2010). Supplementary analyses found no evidence of displacement to houses in other neighborhoods or cities or to other types of theft. According to the authors the new building regulations have been responsible for almost a fifth of the total drop in burglaries in The Netherlands in recent years.

The litmus test of the theory of responsive securitization concerning burglary is whether national trends in rates of victimization by burglary can be predicted on the basis of the penetration rate of elementary home security measures.

In other words, are countries with a higher penetration of household security rewarded by lower burglary rates in the years ahead? The repeats of the ICVS in 2005 and 2010 allow us to explore this issue empirically. In 2010 the ICVS was repeated in just eight Western nations, Canada, Denmark, England/Wales, Estonia, Germany, The Netherlands, Sweden and Switzerland (Van Dijk, 2012). Fortunately these eight nations, although similar in many respects, show considerable variation in the penetration of household security in 2005. The data therefore allow us to examine the possible link between security penetration at time 1 (2005) and the changes in burglary victimization between time 1 and time 2 (2010). Figure 10 shows results.

![Figure 10](http://62.50.10.34/icvs/Products/Database_Results_ICVS_2010_Pilot)

14 Data sources: Source: Van Dijk et al., 2007; For 2010 see: http://62.50.10.34/icvs/Products/Database_Results_ICVS_2010_Pilot. Swiss data are from Killias et al., 2012 and data from Estonia from Ahven, et al. 2010.
This figure depicts the statistical significant relationship between the levels of security in 2004 and the changes in burglary victimization between 2004 and 2010 ($r = +.88; n = 8; p < 0.002$). During this period rates of burglary victimization went down in countries with the highest penetration of home security and went up in countries with the lowest penetration. In 2010 the burglary victimization rates in Denmark was 3.6%. In Estonia it was 3.1% and in Switzerland 1.9%. These rates are twice as high as in The Netherlands and Sweden, countries similar in many other respects, including open borders with Central and Eastern European countries. The results suggest that the active promotion of household security in Great Britain and The Netherlands has indeed paid off and that Denmark, Estonia and Switzerland are paying the price for their government’s policies of laissez-faire on the security market.

The European experience with burglary rates over the past ten years underlines the wisdom of the universal saying that opportunity makes the thief, elegantly expressed in the Spanish version “puerta abierta al santo tenta” (Open doors make thieves even of holy men). The falls in burglary across the Western world seem largely to have been caused by a critical mass of households closing their doors to opportunistic burglars.

We have presented evidence from the ICVS and other sources supporting the hypothesis that falls in car theft and household burglary have at least in part been security-driven. As discussed, these two types of crime were the first to start declining. Farrell, Tseloni, Tilley & Mailley (2011) suggest that these falls might have had a knock on effect on other types of crime. As mentioned above, many thefts of cars are committed by juveniles (the typical starting age for this type of criminality is 14 or below). According to the authors young boys are typically initiated into a life of delinquency by participating in acts of joyriding with peers. Car theft is, in their words, a debut crime. If such experimental acts of car theft act succeed, they can act as stepping stone to involvement in more serious types of criminality. This stepping stone hypothesis can in my view be extended to burglaries in the neighborhood, also mainly committed by young teenagers in the early stages of delinquent careers. Improved security, then, may have reduced opportunities for relatively easy crimes such as car theft and burglary in the neighborhood and this may in turn have blocked access to the necessary learning stages of a criminal career for cohorts of would-be delinquents.

---

17 In Dutch: De open deur roept den dief (Cats) and in German: Offene Tür verführt einen Heiligen.
18 The original title of our upcoming book on the international crime falls (Van Dijk, Tseloni & Farrell, 2012) was Closing the Doors, a tribute to Ron Clarke, whose seminal book on situational suicide prevention was called Suicide: Closing the Exits (Clarke & Lester, 1986). At the request of the publisher the more straightforward title of The International Drop in Crime was eventually chosen. Clarke’s book, and a follow up article by Ron Clarke and Pat Mayhew, presented empirical evidence showing that changes in the composition of household gas in Britain and The Netherlands in the mid 1980s had caused abrupt falls in the numbers of people committing suicide by gas, without major displacement to suicides by other means (Clarke & Mayhew, 1985). If highly motivated acts such as suicide can be reduced by simple situational measures, why not, the authors argued, various acts of opportunistic thieving such as joyriding or burglaries in the neighborhood? Why not indeed?
19 Others have observed that the early introduction of steering column locks in Germany in the 1990s may have had a lasting impact on levels of car theft in the country by preventing the emergence of a subculture of joyriding among juveniles (Clarke & Harris, 1994). In a more general sense improved car and home security may have blocked the emergence of delinquent subcultures in vulnerable neighborhoods across the Western world around 2000.
As discussed earlier, the international falls in crime started with car theft. Then burglaries went down as well, followed by thefts from car and other types of personal theft. Finally, crimes of violence started to fall, belatedly and haltingly, too.

This uniform sequencing of the falls of different types of crime is in line with the stepping stone hypothesis. The secondary crime falls could be seen as spin-offs of the earlier ones. In many other respects too criminal acts seem to feed on each other. Victims of bicycle thefts are, as discussed above, more prone than others to become bicycle thieves themselves and/or to purchase second-hand bicycles, thereby driving up fencing operations (Van Dijk, 1986). If levels of bicycle theft are reduced by improved security, chain effects will act as negative multipliers and the market of bicycle theft may fall into a deep recession.

The comparative analysis of trends in security and trends in burglary rates has pertinent policy implications. The governments of Denmark, Estonia and Switzerland should obviously take heed. Their crime prevention policies appear to have been criminologically flawed. In this political context I want to stress that to me situational crime prevention is not just a matter of efficiency. It is also a matter of social justice (Van Dijk, 1994b). Results of the ICVS show that across Western nations the lowest income groups have stepped up their household security to a lesser extent than the middle and upper classes. They simply cannot afford to protect their houses as well as the others. If the governments of countries such as the United Kingdom and The Netherlands would not have actively promoted home security in social housing projects, the differences would even have been more marked. As was to be expected, diverging investments in security are reflected in trends in victimization by burglary. The ICVS data show that the lowest two quartiles have benefited less from the falls in burglary victimization than the rest of the population (see figure 12 for results).

When left to market forces, responsive securitization is bound to increase the security gap between the haves and have not’s. State interventions in the form of legislation or financial incentives on the market of security and crime seem not only economically sound but also morally and politically desirable.

There are other policy implications of our epidemiological explorations. Governments in Western Europe should tackle alcohol abuse among youngsters as a preventive measure. The Netherlands is a case in point. So is Switzerland. Binge-drinking is a problem in Australia, Great Britain and Germany too. The restriction of access to alcohol for young people would take a serious bite out of violent crime. It would also prevent many other health problems. And, finally, governments of the USA and many countries in Latin America should make every effort to reduce gun ownership among their population. This may be a tall order, considering the prevalence of guns in these regions and entrenched pro-gun attitudes, but the stakes are high. Globally an estimated 500,000 people are killed every year by violent crime according to the Small Arms Survey group in Geneva.
The surveys have provided a new and unprecedented database on inter country differences in levels of victimization by crime between 1988 and 2010. These data have provided incontestable evidence for the near universal falls in levels of conventional crime around 2000. They are well placed to signal possibly emerging upward trends in crime across the Western world in the future. In addition they have, as discussed above, provided evidence-based insights in some of the main drivers of crime at the macro level. The ICVS-based datasets offer unique opportunities to examine links between victim-related opportunity structures in societies and the prevalence of criminal victimization. Analyses of these links have confirmed the salience of criminal opportunity theory for explaining both inter country differences in crime levels and changes in crime over time.

The ICVS in 1993 received the seal approval of Jim Lynch, leading expert on crime surveying in the USA (Lynch, 1993). After running several analyses of the ICVS dataset to check its internal validity, Lynch, currently serving as director of the USA Bureau of Justice Statistics, called the project “a quantum leap in international statistics on crime and justice issues”. Based on analyses of the surveys subsequent sweeps, he later confirmed this favorable judgment (Lynch, 2006). In the words of Lawrence Sherman, co-chair of the jury of the Stockholm Prize in Criminology, the ICVS: “is the largest ever multi-national effort to apply the science of Criminology to measuring and comparing rates and trends in the harm of crime, how it affects victims, and how crime victims perceive the governmental responses to their crimes” (BRA, 2011). Sherman also concluded that the ICVS had lifted the fog surrounding international crime statistics.

Although the ICVS has over the years proven its value both for policy-formulation and theory testing, its funding on a global scale remains a challenge. The European Commission (Eurostat) has done preparatory work on a future European Safety Survey (SASU) modeled after the ICVS (Van Dijk et al, 2010). 20 In most member states pilots have been carried out with a draft questionnaire (Aromaa et al, 2009). Building on these experiences, a new, slimmed down questionnaire has subsequently been drafted (Van Dijk et al, 2010). This questionnaire also covered internet-based crimes and a set of questions allowing monitoring of the new EU directive on victims’ rights. A budget had been earmarked of 12 million euro to conduct the SASU in all member States with sample sizes of 3,000 up to 10,000 per country in 2013. The conduct of such survey required legislation and a proposal was submitted to the European Parliament in 2011 (2011/0146 (COD)). In September 2012 the European Parliament, at the advice of its rapporteur, a British MEP, Timothy Kirkhope (Conservative), informed the Commission that the proposal had been rejected and that new proposals were to be made.
Although a budget for the surveys’ execution had been secured, the European Parliament has not endorsed the proposal. With the expanded mandates of the European Commission on crime and criminal justice, a set of comparable statistics on crime seems indispensable for the planning and monitoring of fact-based EU policies in this domain. As discussed, the only possible way to collect credible and comparable statistics on the prevalence and trends in crime is a standardized victimization survey. It is to be hoped that the European Commission will soon be in a position to commission such surveys. In the meantime arrangements should be made for continued collaboration in standardized crime-surveying with countries outside the EU (as follow up to the ICVS).

Web-based modes of data collection hold the promise of conducting international surveys in the future with much lower budgets than previously required. In this respect the results of the surveys in Azerbaijan, Moldova and Tajikistan are also encouraging (Van Dijk, 2012). They demonstrate the potential of assessing the crime situation in a country with an abridged version of the ICVS. If such surveys would be implemented using web-based or smart phone-based interviewing, this would introduce a new generation of crime surveying instruments usable in a much wider range of countries, including many non-Western ones. Crime surveying would then truly be able to turn global.

21 The Commission could issue a call for public tender regarding the conduct of a standardized victimization survey using the SASU questionnaire or an abridged version thereof. Building on the experience of the European parts of the fifth and sixth rounds of the ICVS, also funded by the Commission, such survey could be efficiently and expeditiously implemented by a consortium of polling agencies and crime survey experts.

22 For the purpose of these surveys a mini version of the ICVS was designed restricted to just ten key items, taking no more than three minutes interview time per respondent (Van Dijk, 2012).
Aebi, M. F. & A. Linde (2010), Crime trends in Western Europe according to official
statistics from 1990 to 2007, In J. van Dijk, A. Tseloni & G. Farrell (Eds) (2012), The
International Drop in Crime; New Directions in research, Palgrave/Macmillan

Series 14, Tallinn: Ministry of Justice

Aromaa, K. M. Heiskanen, S. Laaksonen & M. Viuhko (2007), Final Report for action
entitled “Crime and Victimisation Survey”, Helsinki: HEUNI

Cambridge: Cambridge University Press.

Criminality and Economic Conditions, Boston: Little/Brown; also published in
English by the Political Economy Club, 1916, Vancouver, B.C., Canada

Bonger, W.A. (1932), Inleiding tot de Criminologie, Haarlem: Erven Bohn

BRA (2012), The Stockholm Criminology Symposium, The Victimology Issue, A
Summary 2012, Stockholm, October 2012

Clarke, V.C. ( 2007). Can Situational Crime Prevention Reduce the Crime Rate ?, presenta-


Clarke, R.V. & P. Mayhew (1989), Crime as Opportunity; a note on domestic gas suicide
35-46


FBI, E-mail Update, FBI Release 2011 Crime Statistics, October 29, 2012-10-30


Killias, M., S. Staubli, L. Biberstein , M. Nanzinger & S. Iadanza (011), Studie zur Kriminalität and Opfererfahrungen der Schweizer Bevolkerung; Analysen im Rahmen der schweizerische Opferbefragung 2011, Zurich: Universitat Zürich/Kriminologisches Institut


Closing the doors; Highlights of the International Crime Victims Survey 1987-2012


Ours, J.C. van & B. Vollaard (2012). The engine immobilizer; a non starter for car thieves, Department of Economics, Tilburg University (unpublished)


