Intercorrelations of crime

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11 INTERCORRELATIONS OF CRIME

Results of an analysis of the correlations between indices of different types of conventional and non-conventional crime

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INTRODUCTION

A fundamental issue in epidemiological criminology is whether national rates of different types of crime are correlated. For example, are countries experiencing high rates of household burglary more likely to suffer from high rates of violence and theft or from corruption in the public sector? Can we expect countries that are relatively free of street robberies to also be relatively free of homicide or criminal racketeering? Or are the prevalences of these various criminal phenomena largely unrelated to each other? To what extent, then, does the concept of crime refer to related social phenomena?

If prevalence rates of different types of crime are unrelated, there is hardly justification for supporting general statements about levels or trends of crime in a country. Comparative rankings of low-crime and high-crime countries would similarly be unwarranted. Countries would typically possess high rates for some types of crimes and low rates for others. Trends of different types of crime would likely go in different or even opposite directions.

This issue is pertinent not only for descriptive statistical purposes, but also has relevance as to the nature of explanatory theories of crime. If national household burglary rates correlated with national measures of violence, theft and corruption, this would suggest the operation of common determinants of similarly defined[1] criminal phenomena. Such interconnected types of crime – and any other types related to them – would call for a

1. ICVS data on seriousness scaling by victims have revealed a remarkable degree of international consensus on the seriousness ranking of the different types of crimes covered by the survey. This empirical finding is difficult to understand if no universal definitions of crime would exist (Van Dijk, 1999).

general explanatory theory. In that case, a strong argument could be made for a unified criminology. If, however, these and other types of crime are not, or are only weakly intercorrelated, differential theories would seem to be called for instead.

Among criminological theorists, those focusing on the role and characteristics of offenders,'the demand side of the crime market', tend to be generalists. Both motivational and control theories typically deal with the causes of crime in general. If societies, for example, sustain a large pool of socially-marginalized people experiencing social frustration (' strain'), all sorts of crime and violence are supposed to be more common (Currie, 1985). If poverty breeds crime, it is likely to breed crime across the board. Control theories tend to be equally generalist. Gottfredson and Hirschi (1995) call their latest model of social and personal control 'a general theory of crime', designed to explain all crimes from robbery and rape to mail fraud and securities violations. In these dominant theoretical perspectives in criminology, high correlations between the rates of different types of crime are thus to be expected.

Some offender-oriented theorists have promoted a differential approach distinguishing, for example, between juvenile delinquency, career or habitual criminals and white collar criminals (Buikhuisen and Mednick, 1988). Those advocating such an approach would, in principle, have little difficulty in explaining low correlations between rates of juvenile delinquency and serious crime. In fact, their set of differential theories may very well predict such lack of correlation.

Theorists focusing on the 'supply side of the crime market', or on 'criminal opportunities', such as Marcus Felson and Ron Clarke (Felson, Carke,1988), clearly and explicitly favor a differential approach. According to them, crimes can only be understood,and effectively prevented, if analysed using sufficient behavioral and contextual specificity. The concept of 'situational crime prevention' presupposes the dominance of specific situational influences on the occurence of criminal incidents. Low, or even non-existent correlations between rates of different types of crime, are fully in line with this theoretical approach. Others protagonists of criminal opportunity theory have stressed the general impact of opportunity structures, such as affluence and urbanization, on the prevalence of different types of crime (Van Dijk, 1994). They believe that high levels of GNP and urbanization present a wide range of opportunities for all sorts of crime and are bound, therefore, to be accompanied by high levels of crime across the board. They are convinced that high correlations between offence-specific crime rates are the expected result of unifying forces working on the supply side of a general crime market.

An explorative analysis of the correlations between indices of different types of crime is of interest to statisticians. Where indices of types of crime are highly correlated, adequate descriptions of the extent of crime could be based on a limited number of indices or even on just one composite index. The results of such analysis will also shed light on the explanatory potential or relevance of different competing theoretical perspectives in criminology. The analysis will especially inform the debate on the usefullness of general versus differential theoretical approaches.

In this article, we will first look at the correlations between crime-specific victimization rates of the ICVS. The types of crime covered by the ICVS will be labeled 'conventional crime'. We will examine the intercorrelations of national victimization rates of conventional crime, such as household burglary, street robbery, car theft, assault, car vandalism, etcetera. Recently, some progress has been made in measuring the prevalence of crimes such as homicide, corruption and organized crime at the country level. These types of crime will be labeled 'non-conventional'. We will then explore the correlations between ICVS rates of conventional crimes and the indices of non-conventional crimes based on data collected from other sources. In a final paragraph, we will discuss the implications of our findings for descriptive and theoretical criminology.

Correlations between offence specific victimization rates and overall victimization rates of conventional crime

The key results of the ICVS are often expressed as the percentage of national populations victimized by any of the crimes covered by the questionnaire (overall victimization prevalence rate). A more sophisticated measure of over all victimization takes into account the seriousness of the different types of victimization reported (Van Dijk, Van Kesteren, 1996b). Here, we will look at the correlations between the total overall victimization rate, corrected for seriousness, and the offence-specific victimization rates for 17 different types of crime. The analysis is limited to the national rates for 23 industrialized nations (from the EU, North America, East and Central Europe, Australia and Japan). Figure 1 shows results.

The results show that victimization rates for nine of the seventeen types of conventional crime are correlated at a statistically significant level with the overall victimization rate. Eight offence-specific victimization rates are not clearly related to the overall rate.[2]

Figure 1 Correlations between offence-specific victimization rates and overall total victimization prevalence rates, corrected for seriousness (n=23)

Joy riding	.1953
Car theft	.3585
Theft from car	.7583**
Car damage	.4676
Motorcycle theft	.0776
Bicycle theft	.3310
Burglary	.8174**
Attempted burglary	.8441**
Theft from garages etc.	.7274**
Robbery with weapon	.2766
Robbery no weapon	.6744**
Pickpocketing	.3520
Personal thefts	.7461**
Sexual assault	.6166*
Indecent behaviour	.2762
Assault	.6508**
Threat	.7778**

* p<,01
** p<.001
*Source:*ICVS 1989 and 1992

The best predictors of the overall rate are the victimzation rates for attempted and completed household burglaries (Pearson's correlation coefficient is .84 and .82 respectively). Other offence-specific rates that are highly correlated with the overall rate are those for threats, theft from garages, etcetera, theft from cars, street robbery without a weapon, assault and sexual assault. The list includes both property crimes and several types of contact crimes. These crimes seem to make up the hard core of conventional crime. When countries experience high rates of any of these crimes, they are also likely to be burdened by high rates of the other types as well. One possible explanation for this could be that these crimes are typically committed by young males exhibiting a criminal lifestyle such as drugs addicts and petty drugs dealers. Societies with relatively large pools of such 'motivated offenders' are likely to experience high rates of some of the most common property crimes (burglaries, thefts from cars) and the most common contact crimes (robbery, assaults and sexual assaults). These highly intercorrelated types of crime should perhaps be understood as manifestations of career or lifestyle criminality.

Offence-specific victimization rates that are not clearly related to overall levels of victimization by conventional crime include motorcycle theft,

2. Previous analyses of multi-source indices of crime in North America and Europe have shown moderately strong correlations between indices for burglary, petty crime and violent crime (Kangaspunta, Joutsen and Ollus (1998). For a non-technical overview of main findings see Van Dijk and Kangaspunta (2000).

joyriding, robbery with a weapon, indecent behavior, bicycle theft, car theft, pickpocketing and car vandalism. At first blush, these types of crime appear to have nothing in common. However, most of them seem to be precipitated by crime-specific opportunity structures. For example, national ownership rates of vehicles (cars, motorcycles and bicycles) are important determinants of vehicle-related crime.[3] When the prevalence of vehicles is high, theft rates tend be high. Pickpocketing seems to be related to transportation structures, particularly the availability and use of public transportation. In countries with less developed public transportation, such as the USA and Australia, pickpocketing is less prevalent. Ready availability of hand guns tends to account for higher robbery rates in countries where possession of handguns is more common. On the other hand, prevalence rates for indecent behavior are particularly difficult to connect. This rate has been found to be very sensitive to differences in perceptions and attitudes across countries. Higher rates probably reflect a higher sensitivity for this type of behavior rather than a higher prevalence of such behavior. If that is the case, no correlations with other types of criminal behavior can be expected.[4]

The analysis of the correlations between offence-specific victimization rates and overall victimization shows mixed results. The majority of the various types of conventional crime seems to be clearly interlinked at the macro level. Their patterns of distribution across countries are very similar. There are several types of conventional crime, though, that do not follow the general epidemiological pattern.

3. Theft from a car rates are less clearly related to car ownership rates than the other vehicle-related crimes (Van Dijk, Mayhew, Killias, 1991). The theft of car radio's or car parts seems to be a common outlet for criminal inclinations in most countries, regardless of the prevalence of car ownership. The sale of such stolen goods might be relatively easy in all countries. Theft of vehicles is more strongly determined by the size of the available pools of targets, possibly due to the role played by markets for stolen vehicles. In countries where certain types of vehicles are less common, there might be less organized demand for stolen items (Mayhew, 1990).
4. In a previous analysis of multi- source indices of crime, an index of violence against women, composed of ICVS rates for sexual violence and non-sexual violence against women and police figures on rapes, was found to be unrelated to other indices of violence (Kangaspunta, Joutsen and Ollus, 1998). The index of violence against women was, paradoxically, related to indices for gender equality (eg Scandinavian countries and the USA showed relatively high scores). These findings must probably be seen as an artefact of underreporting and underrecording of such crimes in countries where gender inequality is most pronounced (Kangaspounta, 2000). With regard to sexual offences reservations about the existence of universal definitions of crime seem to be well founded and the usefullness of the ICVS data on sexual incidents and sexual violence can be questioned.

Indices of non-conventional crime

In Kangaspunta, Joutsen and Ollus (1998), ground-breaking work is presented on multi-source indices of non-conventional crimes such as homicides and corruption. Indicators taken from four different sources were used for the construction of a composite index of homicide. An index of corruption was based on data from the ICVS, Transparancy International and the World Economic Forum.[5] As reported elsewhere, these indicators of corruption from various sources show remarkably high intercorrelations (Alvazzi del Frate, 1998; Van Dijk, 2001). Following the same methodology, a third index was constructed using data on the perceived impact of organized crime on business, collected through the World Economic Forum studies of 1997, 1998 and 1999. Data have been included from more than eighty countries spanning all world regions.

These three composite indices were strongly intercorrelated.[6] This result reinforces the interconnectedness of organized crime activity, grand corruption and (mob-related) homicide.[7] We have referred elsewhere to the emergence of this cluster of non-conventional criminal activities as the "organized crime-corruption complex" (Van Dijk, 2001).

For the purpose of the present analysis, the composite indices for homicides and corruption were combined with the index for 'organized crime'. This new composite index, covering scores on composite indices of homicide, corruption and perceived organized crime costs, was labeled 'non-conventional crime index'. In the next paragraph, we will look at the correlations between this newly constructed index for non-conventional crime and an index for conventional crime.

Correlations between Indices of conventional and non-conventional crime

In our analysis, we have first looked at the correlation between the composite index for non-conventional crime with a composite index for conventional

5. The corruption index used here is composed of data from ICVS 1991,1995, 1999 and data from World Economic Forum 1999. The homicide index is composed of data from UN Crime Survey 1995, 1997, Interpol 1998 and WHO 1995 and 1997.
6. The correlations are .58 for corruption index by homicide index, .64 for corruption index by WEF organized crime index and .74 for homicide index by WEF organized crime index. All correlations are significant at the 0.01 level (2-tailed)
7. Homicide rates from Interpol and the WHO do include various categories of homicides, such as family-related homicides and mob-related homicides. Ideally these data should be disaggregated. The strong correlation between the homicide index and costs of organized crime index (r+.74) suggests, that differences in rates across countries are predominantly caused by differences in mob-related violence. This hypothesis should be tested through further research.

property crime, predominantly based on ICVS data.[8] For a better understanding, we have included in the analysis the Human Development index of UNDP and an index for urbanization (percentage living in urban area).[9] Results are shown in figure 2.

Figure 2 Correlations between indices of non-conventional crime (corruption, homicide and organized crime), conventional property crime, human development and urbanization

		Non-conventional crime index	Conventional property crime index	Human development index, 1998	Urban population (as % of total)
Non-conventional crime index	Pearson correlation sig. (2-tailed) N	1 74			
Conventional property crime index	Pearson correlation sig. (2-tailed) N	-0.117 0.356 64	1 85		
Human development index, 1998	Pearson correlation sig. (2-tailed) N	-0.668* 0.000 72	0.317* 0.005 77	1 173	
Urban population (as % of total)	Pearson correlation sig. (2-tailed) N	-0.418* 0.000 72	0.420* 0.000 77	0.720* 0.000 173	1 173

* Correlation is significant at the 0.01 level (2-tailed).

The key finding is that conventional and non-conventional crimes, as we have defined them here, are totally unrelated to each other at the macro level.[10] The hypothesis that these two categories of crime are somehow interconnected is clearly refuted. If a country experiences high levels of conventional crimes such as household burglaries and car thefts, it is not more likely to be exposed to high levels of organized crime and corruption as well. Prevalence rates for conventional crimes are in no way indicative of non-conventional crime.

8. The index of conventional crime is a composite index of the indices for six of the least serious ICVS property offences, burglary (ICVS rates and rates of recorded burglaries) and motor vehicle crime (ICVS rates and data on recorded car thefts). For a detailed description of these indices refer to Kangaspunta, Joutsen and Ollus (1990).
9. Percentage of population living in cities of 100,000 inhabitants or more (ICVS).
10. The ICVS over all victimization rates are unrelated to homicide rates. Rates of victimization by assaults, sexual assaults and robberies – so called contact crimes – are weakly related to homicide rates (see also Van Dijk, 2001).

Conventional and non-conventional crime seem to be determined by different social factors. Conventional crime does not seem to be a stepping stone towards non-conventional crime. The results of our subsequent analyses of the correlates of crime shed some light on this finding. Conventional crime is positively linked to human development (composed of indicators of affluence, educational attainment and health)) and urbanization. Non-conventional crime is strongly *inversely* correlated with human development and urbanization.

Conventional property crime affects developed countries as much or even stronger than developing countries. Non-conventional crime, on the contrary, is much more prevalent in the developing world and in countries with economies in transition. The organized crime-corruption complex is clearly linked to underdevelopment.

Discussion

The findings show that several types of conventional crime, as measured by the ICVS, are strongly correlated with each other at the aggregate level. Crimes such as burglaries, thefts from cars, robberies and assaults make up the hard core of ordinary crime. Their statistical interconnectedness at the macro level suggests the impact of common determinants. It is possible that the prevalence of this core of conventional crime is determined by the presence, or absence, of a pool of "motivated offenders' recruited from socially excluded groups, such as drugs addicts. Such pools of 'motivated offenders' are apparently more likely to emerge in urbanized areas. In large cities, socially marginalized adolescents are exposed to a higher concentration of targets of crime and to relatively weak informal social controls (Van Dijk and Van Kesteren, 1996). Thus, in areas where criminally active persons are more concentrated, rates for serious types of crime tend to be relatively high.

Some types of conventional crime fall outside this core category. Their rates deviate from the general pattern of distribution. Apparently, different determinants are at play. Vehicle-related crimes and pickpocketing seem to be determined by offence-specific opportunity structures. These types of crimes occur more frequently in countries where opportunities for committing them are more common and regardless of the overall rates of conventional crime. Some of these crimes may be committed by the pool of 'motivated offenders' mentioned earlier. However, these crimes are also committed by people who would not normally consider committing any offence.Their criminality is generated by the abundant presence of opportunities of specific types of crime. Prime examples are perpetrators of bicycle thefts and Western European adolescents vandalising cars while under the influence of alcohol. These perpetrators can be viewed as 'opportunistic offenders'.

The analysis has confirmed the positive linkage between human development and conventional crime. At the indivual level, social exclusion and poverty are important root causes of crime in all societies, but conventional crime cannot be attributed solely to these social problems. A significant amount of conventional crime seems to be clearly driven by affluence-related opportunity structures and affluence-related youth subcultures. Conventional crime must be seen, at least partly, as the downside of modernization. This counter-intuitive conclusion is once again confirmed by our epidemiological data.

Particularly in affluent societies, high levels of property crime are bound to trigger economic and political counter forces. Public and private investment in anti-crime measures has increased significantly in developed countries, presumably in response to the increase in conventional property crime during the seventies and eighties. The subsequent levelling off of conventional crime rates during the late nineties (Van Kesteren, Mayhew, Nieuwbeerta, 2000) can be seen as the delayed effect of those countermeasures. These trend data confirm the relevance for criminological theory-formation of market equilibrium theory proposed by Van Dijk (1994).

Non-conventional crime appears to be determined by different sets of social factors from conventional crime. Organized crime and corruption are unrelated to urbanization. Urbanization does not seem to foster non-conventional crime, possibly because urban environments do not present greater opportunities for such crimes and/or exert less social control than non-urban ones. The extent of non-conventional crime may be more determined by the strength of formal institutional controls than by the strength of informal social control. This may be one of the reasons why rates of non-conventional crimes do not coincide with rates of conventional crime.

Non-conventional crime is strongly linked to underdevelopment. The strong link between the organized crime-corruption complex and underdevelopment does not necessarily imply that these types of crimes are poverty-driven. The causal effects may be circular or go largely in the other direction in the sense that poverty is governance-driven. Several studies have highlighted the negative impact of corruption on investment and economic growth (Kaufmann, D., A. Kraai, Zoido-Lobaton 2000). It is now generally assumed that 'good governance', including effective anti-corrruption policies, are key to economic development and poverty reduction. Underdevelopment, ineffective government and the organized crime-corruption complex are mutually reinforcing evils. Many developing countries are caught in a double bind. They remain poor because inadequate state institutions cannot cope with organized crime-corruption. To the extent that the organized crime-corruption complex manages to 'capture' state functions, the prospects for economic growth are further reduced.

Non-conventional crime, then, does not exhibit the same tendency towards spontaneous stabilization as conventional crime. Unlike conventional crime, organized crime and corruption do not mobilize but undermine effective counterforces in society. Countries with severe problems of organized crime and corruption are caught in a vicious circle of stagnant development and 'bad governance' (Van Dijk, 2001). The organized crime-corruption complex is akin to the disease that effectively weakens its own anti-bodies.

For criminology, these epidemiological findings suggest some important conclusions. General statements about the overall level or trend of conventional crime in a country seem to be perfectly justifiable from a scientific point of view. Comparable information on the household burglary rate of a country would normally provide a good estimate of the relative state of conventional crime in general.[11] Because of the possibility of several significant 'outliers' due caution, however, is to be recommended. Some types of conventional crime may clearly deviate from the general pattern.

Using data on the levels of conventional crime, no inferences can reliably be made about the levels of non-conventional crime. In order to develop a comprehensive view of the crime situation in a country, ICVS data on conventional crime should be supplemented by data from other sources related to organized crime, homicides and corruption.[12]

Many developed countries have witnessed a decrease in a wide range of different types of conventional property crimes over the recent past. This general decline seems to call for a general explanation. There is scope for a generalist theory of conventional crime. It seems unlikely, though, that a unified theory can be developed that accounts for levels and trends of both conventional and non-conventional crime.[13] Even though some basic concepts can probably be usefully applied across the board, the key determinants and dynamics of the organized crime-corruption complex appear to be highly specific. A differential approach seems to be called for.

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11. For this reason the Commission of the European Union was advised by the author to focus on household burglary victimizations in a pilot study for a future Eurobarometer of crime.
12. The ICVS provides comparative data on the prevalence of street level corruption. The ICVS corruption rates are strongly correlated to other indicators of corruption, including of grand corruption (Alvazzi del Frate, 1990; Van Dijk, 2001). The ICVS data are used as one the sources for the composite corruption index of Transparancy International (Lambsdorff, 2000).
13. In countries little affected by organized crime and corruption such as the Scandinavian countries the discourse on crime and criminal justice is naturally dominated by conventional crime issues. In other countries such as Italy the crime and criminal justice discourse has for many years been dominated by concerns about the maffia and grand corruption. In international fora the use of such different crime agendas or paradigms can easily give rise to fundamental misunderstandings about policy matters. In Italy the preoccupation with maffia-related crimes seems to have slowed down the development of community-based policing, crime prevention and victim assistance.

References

Alvazzi del Frate, A. (1998), *Victims of Crime in the Developing World,* Rome UNICRI, no. 57

Buikhuisen, W., & Mednick, S.A. ((1988), Explaining Criminal behavior, Leiden,: Brill

Currie, E. (1985), *Confronting Crime,* New York, Pantheon Books.

Dijk, J.J.M. van (1994), Understanding Crime Rates; on the interactions between rational choices of victims and offenders,. In: *British Journal of Criminology, vol 34,* pp 105-121

Dijk, J.J.M. van (1999), The Experience of Crime and Justice, In: G. Newman (ed), *Global Report on Crime and Justice,* United Nations Office for Drug Control and Crime Prevention, Oxford University Press, pp 25-43

Dijk, J.J.M. van (2001), Does Crime Pay?, in: *FORUM on Crime and Society, Vol 1,* nr 1, Feb 2001, pp 1-16, Vienna, United Nations Office for Drugs Control and Crime Prevention

Dijk, J.J.M. van, & Kesteren, J. van (1996), Criminal victimization in European cities; some results of the International Crime Victims Survey. In: *European Journal on Criminal Policy and Research, Vol 4,* no 1, pp 9-21

Dijk, J.J.M. van, & Kesteren, J. van (1996b), The prevalence and perceived seriousness of victimizations by crime. In: *European Journal of Crime, Criminal Law and Criminal Justice, Vol 4,* pp 48-70

Dijk, J.J.M. van, Mayhew, P., & Killias, M. (1990), *Experiences of Crime across the World; Key findings of the 1989 International Crime Survey,* Deventer: Kluwer.

Van Dijk, J.J.M. van, & Kangaspunta, K. (2000), Comparing Crimes across Countries, In: *National Institue of Justice Journal,* Washington, January 2000, p 34-41.

Felson, M., & Clarke, R.V. (1998), *Opportunity Makes the Thief: Practical Theory for Crime Prevention.* Police Research Series, Paper 98. London, Home Office

Gottfredson, M., & Hirschi, T. (1990), *A General Theory of Crime,* Stanford, Stanford University Press

Kangaspunta, K., Joutsen, M., & Ollus, N. (eds) (1998), *Crime and Criminal Justice in Europe and North America, 1990-1994,* Helsinki, HEUNI, no 32

Kangaspunta, K. (2000), Secondary Analysis of Integrated Sources of Data,. In: Alvazzi del Frate, A., Hatalak, O., & Svekic, U. *Surveying Crime: a Global Perspective,* Rome, ISTAT/UNICRI, Essays, no 7.

Kaufmann, D.A., Kraai, P., & Zoido-Lobaton, P. (2000), *Governance Matters,* Washington D.C. The World Bank

Kesteren, J. van, Mayhew, P., & Nieuwbeerta, P. (2000), *Criminal victimization in Seventeen industrialized Countries,* The Hague, WODC, nr 187

Lambsdorff, J. (2000), Transparancy International Corruption Index, in: Alvazzi del Frate, A.,Pasqua, G. (eds), *Responding to the Challenges of Corruption,* Rome, UNICRI, nr 63.

Mayhew, P. (1990), Opportunity and Vehicle Crime. In: Gottfredson, D.M., & Clarke, R.V. (eds), *Policy and Theory in Criminal Justice; Contributions in Honour of Leslie Wilkins,* Andershot, Cambridge Study in Criminology.