Is crime predictable?

The ultimate goal of crime prevention is to develop a highly reliable method for forecasting future crime trends and problems. If we can predict crime, we can develop prevention and reduction measures. But like reliably forecasting the weather, there are many errors in our methods and gaps in our skills. It is therefore not surprising that important developments can be very influential. For example, the finding by Wolfgang, Figlio and Sellin (1972) that a small proportion of offenders is responsible for a large proportion of crime has led to significant advances in intelligence-led policing and strategies directed at high-rate offenders.

This sort of finding, and the apparent success of strategies based on it, has encouraged the ongoing development of crime forecasting such that it has now become quite a sophisticated enterprise. Today crime forecasting is used, with greater or lesser success, to predict recidivism amongst offenders, future crime rates or even what future crimes may be. The literature on forecasting future crime rates can be divided into three main methodologies – using demographic and economic factors, using complex statistical modelling based on previous crime rates, and using crime mapping. A fourth category of 'think tanks' are used to predict what future crimes might actually be.

- Demographics: It is clear that demographic factors, such as age, sex and race, do have some effect on crime. Generally, this method involves looking at changes in the crime-prone age categories (adolescents and young adults) and comparing them to changes in the levels of crime committed. Similarly, changes in the economic environment, such as recession or high levels of unemployment may also be compared to changes in crime.

- Statistical modelling: There have been several statistical models developed to assist with predicting crime. These models involve the analysis of time-series data. One example is the autoregressive, integrated, moving average (ARIMA) model. Originally developed for use with economic data, ARIMA has been shown to be useful with crime data. In simple terms, ARIMA shows the changes in a variable over time by describing the relationship between each occurrence and the occurrence one or more time periods previously (Block et al. 1987).

- Crime mapping: As the name suggests, crime mapping involves entering previous offence data onto a map. Concentrations of crime in identifiable places are known as crime 'hot spots'. One of the earlier studies to use this technique showed that crime in a city is highly concentrated in relatively few small areas – in that study, around three per cent of street addresses and intersections in Minneapolis generated around 50 per cent of police call outs (Sherman, Gartin & Buerger 1989, cited in Anselin et al. 2000).

- Future crime 'think tanks': Expert panels such as the UK's Foresight Crime Prevention Panel try to predict what science and technological changes are likely over a period of time and how this may impact on crime, for example, how technology may be used to commit or prevent crime, and what new crimes may emerge.

Whatever method is be applied, it must be remembered that all these techniques are only estimation procedures and are highly dependent on what information goes into the analysis.

Further reading:

Anselin L, Cohen J, Cook D, Gorr W & Tita G 2000. Spatial analyses of crime. In *Measurement and analysis of crime*, vol 4. Washington DC: National Institute of Justice

Block CR, Knight SL, Gould WG & Coldren JD 1987. *Is crime predictable? A test of methodology for forecasting criminal offenses*. Chicago: Illinois Criminal Justice Information Authority

Foresight Crime Prevention Panel 2000. *Turning the corner*. London: Department of Trade and Industry

Wolfgang ME, Figlio RM & Sellin T 1972. *Delinquency in a birth cohort*. Chicago: University of Chicago Press