Modelling and predicting recorded property crime trends in England and Wales—a retrospective

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Abstract

In 1999 the Home Office published, for the first time ever, 3-year ahead projections of property crime in England and Wales. The projections covered the period 1999–2001 and indicated strong upward pressure after five full years of falling crime. This pressure was generated by three factors: the number of young men in the general population, the state of the economy and the fact that property crime appeared to be well below its underlying trend level. The projections received a mixed response, with some agreeing that crime was set to rise while questioning the scale of any increase, to others who doubted the value of this type of econometric modelling. In fact, property crime did increase in 1999, although not at the rate suggested by the models—and indeed levels of burglary continued to fall. This paper addresses some of the reasons for this disparity as well as considering various criticisms of the Home Office approach.

Keywords: Cointegration; Error-correction models; Routine activities theory; Crime forecasting

1. Introduction

Dhiri, Brand, Harries, and Price (1999), published by the Home Office (1999), presented for the first time ever projections of property crime in England and Wales. The projections were developed at the same time that police forces and local authorities in the two countries were being asked to set challenging crime reduction targets. The publication sought to address the debate about whether recent downward trends in property crime might continue and was deliberately discursive in an attempt to raise the quality of this debate.

Despite the fact that these projections were the culmination of 10 years research and development, some commentators chose to interpret them as an attempt by the current government to soften up public opinion in advance of the annual publication of crime statistics. Others questioned the validity of models that attempted to explain crime using only a handful of economic and demographic variables. This paper addresses these and other issues. After a short introduction to the criminological and economic history of crime modelling, it turns to the pioneering work done by Simon Field at the Home Office modelling crime in England and Wales. The paper then presents—and updates—the projections made by Dhiri et al. (1999) and considers some of the criticisms, misunderstandings and alternate approaches that arose following publication. Finally,
the paper considers some of the reasons the Home Office projections appear to be diverging from reality.

2. Understanding crime and its causes

Between 1918 and 1999, total recorded crime rose from 88,000 to 4,615,000—an annual rate of about 5.5%. To emphasise the phenomenal scale of this growth, Hale (1997) notes that “the increases in recorded levels in 1990 and 1991 were greater than the total level of crime in any of the years from 1946 to 1956” (emphasis in original). Such dramatic growth has had a major impact on public perceptions of personal safety and has helped to ensure that law and order remains high on the political agenda—especially in recent decades. For example, both the previous Conservative government and the current Labour government have made much of the recent dramatic reduction in the absolute level of crime between 1992 and 1997. In percentage terms, this 17% drop has only been matched once before, between 1951 and 1954 (see Fig. 1).

It is well established that the number of crimes recorded by the police does not present a true or accurate measure of real crime. Of those recorded crimes that can be compared to crimes experienced by people living in private households (as estimated by the British Crime Survey), less than half were reported to the police—and only about half of those that were reported were recorded (Kershaw et al., 2000). Moreover, in a recent review of police forces’ crime recording practices, Burrows, Tarling, Mackie, Lewis, and Taylor (2000) found that the processes by which crimes are recorded in different parts of England and Wales vary substantially. There appear to be two coexisting approaches: the prima facie model, where details of allegations are accepted without scrutiny, and the evidential model, where details must be substantiated before a crime record is made.

The difficulty of using recorded crime as a basis for modelling cannot be underestimated. For example, recorded violence against the person has only fallen twice in the last half century: once due to a change in the law and once due to a change in the counting rules. It is difficult to see how one could reasonably build a model of violent crime that predicted reductions in this crime category. Nevertheless, for time series analysis, there is no alternative to using recorded time statistics and there is some comfort in the fact that the series appears reasonably well correlated with British Crime Survey estimates (see Fig. 2). In addition, recent work by Pudney, Deadman, and Pyle (1999) appears to establish that the bias caused by the under-recording of property crime might not be too serious.

There are many theories of crime and criminal behaviour, ranging from the biological and psychological to theories of social disorganisation, conflict and strain (Akers, 1997). However, by far the most common recent approaches to the empirical modelling of crime have their basis in the classical criminology of the 18th century—and the utilitarian social philosophy of Cesare Beccaria and Jeremy Bentham. The basic premise is that, because actions are taken and decisions made by individuals in the rational exercise of free will, the execution of a criminal act will depend on whether the expected

Fig. 1. Recorded crime vs. comparable BCS crime.

Fig. 2. Recorded crime in the 20th century.
gains exceed the potential costs. This calculation is based on three factors: the probability of being caught, the severity of the punishment and the time interval between the two. To successfully deter individuals from crime a criminal justice system must exhibit:

- certainty: there must be a high probability of apprehension and punishment;
- proportionality: the punishment should fit the crime—it should be sufficiently severe to exceed the gain offered by the crime but no more;
- celerity: it should be swift—justice delayed is justice denied.

More recently, Becker (1968) re-cast deterrence theory as so-called rational choice theory. Instead of gains and losses to one’s utility, rational choice theory assumes individuals face an economic choice between legitimate and illegitimate employment and will switch between the two based on expected effort and reward—as measured by the expected financial return. By definition, this approach has no applicability to crimes where there is no monetary gain, such as homicide, domestic violence and common assault. It is also a frequent subject of ridicule, even within the economics profession. For example, Ormerod (1998) describes it thus:

In the standard economic view of the world, crime can be thought of as a market, just like the market for baked beans... the behaviour of those involved in crime, whether criminals, law enforcers, purchasers of stolen goods or victims, is co-ordinated through adjustments in relative prices, through the perception of the likely benefits compared to the likely costs.

A more substantial critique, by Farrington et al. (1990), is that a large proportion of criminals are too young to compete in the formal labour market—hence there is no ‘choice’ to be made, rational or otherwise. Of course, the factors that influence the onset of a criminal career may not be the same as those that perpetuate it, and it is possible that older offenders may indeed be influenced by opportunities in the legitimate sector of the economy.

Another, more recent, extension to deterrence theory is routine activities theory, introduced by Cohen and Felson (1979). This requires, in their words, “a convergence in space and time of the three minimal elements” required for a crime to be committed: motivated offenders, suitable targets and capable guardians. They hypothesize that changes in daily activities related to work, school and leisure since World War II have placed more people in particular places at particular times which both increase their accessibility as targets of crime and keep them away from home as guardians of their own possessions and property. The Home Office crime models are unequivocally based on routine activities theory.

3. The recent history of the Home Office property crime models

In 1990, the Home Office published ‘Trends in crime and their interpretation: A study of recorded crime in post-war England and Wales’ (Field, 1990). This seminal report established that a large part of the annual volatility in recorded property crime could be attributed to cycles in the national economy. Nine years later, Field refined this analysis in ‘Trends in crime revisited’ (Field, 1998). Whereas the original publication dealt only with year-on-year growth in various crime categories, the 1998 publication was restricted to two categories: burglary and theft and handling stolen goods. More importantly, along with the short-run factors that drive annual fluctuations, the second article considered the long-run factors that determine the absolute level of these crimes.

When choosing an appropriate economic variable, Field considered two candidates: unemployment and consumption. The former has long been considered a prime candidate for explaining crime. However, Field demonstrated unambiguously that changes in property crime generally precede changes in unemployment, clearly ruling out a causal relationship.\(^1\)

\(^1\)Measuring unemployment is difficult. Just as recorded crime is a poor measure of ‘real’ crime, claimant count unemployment (or registrant count as it was before 1982) is a poor measure of ‘real’ unemployment. Moreover, it seems more likely that certain subgroups, such as young men or the long-term unemployed, might be motivated to commit crime.
By contrast, he found that changes in personal spending, as measured by annual household consumption, appear coincident with changes in property crime.

Field explained this by linking the motivation factor from routine activities theory with the permanent income hypothesis of orthodox economic theory. This posits that changes in consumption reflect changes in individuals’ expectations of lifetime wealth. As Field (1990) explains:

The idea behind this is that people do not have to match current consumption to current income… A person expecting a legacy may happily run up debts, while someone approaching retirement without a pension may save heavily.

Thus consumption growth indicates increased expectations of lifetime income. These increased expectations of (generally) lawful income will reduce the temptation of illegitimate activity.

As well as the motivational effects of consumption, Field (1990) also argued that changes in this variable were linked to changes in the number of capable guardians. At times of increasing consumption, individuals are more likely to be out and about and away from their property—thereby increasing the number of potential targets. Field (1998) completed this typology by introducing a new economic variable: the stock of crime opportunities. This is an aggregate of the previous four years household consumption and is intended to represent a proxy for the number of stealable goods. It is not an indefinite history, because after some years goods are discarded or replaced. While this measure has some conceptual value, its practical significance is somewhat limited because it is 99.8% correlated with current year consumption over the period under consideration.

In addition to this relationship between the economy and recorded property crime, Field also found a positive relationship between with the number of young men. This is unsurprising because it has long been accepted that young men are disproportionately involved in crime. The variable Field (1998) chose to establish this relationship was a peculiar construction of the number of males aged 15 plus the number of males aged 20. While this formulation meets the necessary statistical prerequisites, it has no clear grounding in theory—as Field (1998) himself notes, the variable is “somewhat artificial”. His justification for using it was that more sensible alternatives, such as the number of males aged 12–24, were order of integration I(2).

Dhiri et al. were not convinced by this and considered a range of alternatives. Two sources of information were used to construct a list of theoretically sound variables. The first was data on the age distribution of the number of young males cautioned and found guilty of theft and burglary offences. The second was a study by Graham and Bowling (1995) which used a survey approach to investigating relationships between young people and crime. The level of integration of these variables was tested, and those found to be I(1) were retained. These variables were then tested in Field’s models in place of the existing young males variable. The results were mixed. The burglary model was only marginally affected by the introduction of a new variable whereas the theft model appeared more sensitive. On balance, Dhiri et al. decided to retain the original young males variable used by Field.

To summarise, Field (1998) built on his earlier work to develop two models of property crime: one for burglary and one for theft and handling stolen goods. The models are based on routine activities theory with stock of crime opportunities representing suitable targets, young men representing the pool of potential offenders and household consumption having a dual role: partly motivating/demotivating offenders and partly increasing/decreasing levels of guardianship.

4. Three-year ahead projections for burglary and theft

The Dhiri et al. models are based on data for the period 1951–1998 (the variables considered are listed in Table 1). In common with most economic
that any relationship among the variables is spurious. Regressions with cointegrating variables can be parameterised in a number of ways, but a particularly informative approach is to split the equation into an error-correction mechanism, which represents the deviation from the long-run equilibrium, with the remaining variables representing dynamic short-run changes. For example, suppose the following relationship holds:

\[ y_t = \alpha_0 + \alpha_1 y_{t-1} + \alpha_2 y_{t-2} + \alpha_3 x_{t-1} + \alpha_4 x_{t-2} + \epsilon_t \quad \epsilon_t \sim N(0, \sigma^2) \]  

(1)

where \( x_t \) and \( y_t \) are cointegrated with \( \lambda x_t \). This can be re-written as:

\[ \Delta y_t = \beta_0 + \beta_1 (y_{t-1} - \lambda x_{t-1}) + \beta_2 \Delta y_{t-1} + \beta_3 \Delta x_{t-1} + \epsilon_t \]

(2)

where the second term on the right-hand side is the error-correction mechanism. Note that the sign of the associated coefficient, \( \beta_1 \), which measures the speed of error correction, should always be negative. A positive coefficient would reinforce any deviation from the long-run equilibrium. Note also that any number of additional short-run, I(0), variables can be added to the right-hand side of Eq. (2).

Field (1998) used the Engle–Granger procedure to test for cointegration. To do this, the undifferenced dependent variable (either burglary or theft and handling) was first regressed on the undifferenced explanatory variables (stock of opportunities and number of young males). The residuals from this regression were then tested to see if they contained a unit root, using an ADF test with modified critical values. For both models, the preferred test statistic was larger than the critical value, indicating that the residuals were I(0), and therefore that the variables in the two regression models were indeed cointegrated.

Having established cointegration, Field (1998) went on to estimate the full dynamic models by substituting the residuals from the Engle–Granger procedure into the \((y_t - \lambda x_t)\) term in Eq. (2) above. This approach has been criticised because of the effect of small sample bias on the parameter estimates. Instead of this, Dhiri et al. (1999) specified the models using the approach developed by Sims.
Table 2
Full dynamic model for theft and handling stolen goods

Sample: 1952–1998 (47 observations)

\[ \Delta \log \text{(Theft and handling),}_t = +0.634 \log \text{(Stock of opportunities),}_t + 0.468 \log \text{(Young Males),}_t - 1.413 \Delta \log \text{(Consumption),}_t + 0.792 \Delta \log \text{(Theft and handling),}_t - 12.371 \]

\[ \text{t-statistics in parentheses} \]

| R-squared | 0.698 | Mean dependent variable | 0.037 |
| Adjusted R-squared | 0.652 | S.D. dependent variable | 0.068 |
| S.E. equation | 0.040 | Akaike Info | −3.445 |
| Sum sq. resid. | 0.065 | Schwarz Bayesian Criterion | −3.170 |
| Log likelihood | 87.96 | F-statistic | 15.386 |

This involves expanding out Eq. (2) as follows:

\[ \Delta y_t = \delta_0 + \delta_1 y_{t-1} + \delta_2 \Delta x_{t-1} + \delta_3 \Delta y_{t-1} + \delta_4 \Delta x_{t-1} + \epsilon_t \]

(3)

This produces an equation that is I(0) on the left-hand side but has two I(1) variables on the right-hand side. This is valid because cointegration has already been established. The full dynamic models estimated by Dhiri et al. are detailed in Tables 2 and 3.

Note that both models include \( \Delta \log \text{(Consumption)} \) as an additional exogenous variable. This is valid because it does not unbalance the equations however it is important to check that \( \Delta \log \text{(Consumption)} \) is not contemporaneously correlated with the error term and this was done using the Wu–Hausman test.

The projections were made using the two full dynamic models in conjunction with official government forecasts for household consumption and population levels provided by Her Majesty’s Treasury and the Government Actuaries Department (GAD). The projections for 1999 were based on actual recorded crime for 1998. Projections for subsequent years were based on projected crime levels in the preceding year. For theft and handling stolen goods, Dhiri et al. judged that the level, which was close the lower bound in 1999, would only rise to midway between the lower and central projection by 2001 (Table 4).

Table 3
Full dynamic model for burglary

Sample: 1952–1998 (47 observations)

\[ \Delta \log \text{(Burglary),}_t = -0.317 \log \text{(Burglary),}_t + 0.545 \log \text{(Stock of opportunities),}_t - 3.794 \]

\[ \text{t-statistics in parentheses} \]

| R-squared | 0.631 | Mean dependent variable | 0.042 |
| Adjusted R-squared | 0.586 | S.D. dependent variable | 0.099 |
| S.E. equation | 0.064 | Akaike Info | −2.556 |
| Sum sq. resid. | 0.166 | Schwarz Bayesian Criterion | −2.319 |
| Log likelihood | 66.055 | F-statistic | 14.047 |

Table 4
Original Home Office property crime projections

<table>
<thead>
<tr>
<th>Year</th>
<th>Theft and handling stolen goods (annual change in brackets)</th>
<th>Burglary (annual change in brackets)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Central projection</td>
</tr>
<tr>
<td>1997</td>
<td>2.17 m</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>2.14 m</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>2.22 m</td>
<td>2.33 m</td>
</tr>
<tr>
<td>2000</td>
<td>2.65 m</td>
<td>2.49 m</td>
</tr>
<tr>
<td>2001</td>
<td>3.05 m</td>
<td>2.84 m</td>
</tr>
</tbody>
</table>
The projections took account of the fact that:

- the number of young men, which had been falling since the early 1980s, was expected to rise over coming years;
- following a period of healthy economic growth and rapid consumer spending, the stock of crime opportunities was relatively high; and
- both burglary and theft appeared to be well below the underlying trend level.

Dhiri et al. identified four potential sources of error: sampling error, random error, specification error and conditioning error. Of these, nothing can be done to ameliorate the effects of first two. The parameter estimates are based on the sample period 1951–1998 and will not be the same as the true parameter values. Similarly, there is no choice but to assume the error terms \( \epsilon_{1998-1} \) all equal zero. On misspecification, the models were subjected to—and passed—the usual battery of specification tests.

The effect of conditioning error is determined by the accuracy of the GAD demographic projections, which are generally robust, and the Treasury economic forecasts, which are notoriously variable. Household consumption was forecast to grow by \( 2\frac{1}{4} \) % in 1999, \( 2\frac{1}{4} \) % in 2000 and 3% in 2001. In fact, it grew considerably faster: by 4.6% in 1999, 5.1% in 2000 and 4.1% in 2001. The consequence of these revised estimates is twofold. In the short run, greater consumption reduces both motivation and guardianship. The aggregate impact of these changes is to drive down the property crime projections for 1999. On the other hand, the increase in the long-run stock of crime opportunities means that the projections for 2001 are even higher than previously published (see Table 5).

5. Alternative specifications

The Home Office property crime models have been the subject of considerable criticism. These vary from constructive contributions on issues of methodology, form and function to more colourful views. A typical example of the latter occurred in the London Times (Miles, 2000), which reported that “the Home Office thinks the level of property crime in particular is abnormally low and predicts an explosion in crime figures” (emphasis added). Based on this remarkable distortion of Dhiri et al., the article goes on to suggest that an alternative, unpublished model known to the journalist indicates “at most a small rise” over an unspecified period of time.

Whereas the Times journalist was at least willing to consider the possibility of alternative econometric models, some commentators deny the existence of any meaningful relationship between crime and socio-economic factors. In a speech to the police service in May 2000, the leader of the main UK opposition party had this to say:

...let me start by utterly rejecting the defeatist nonsense that says crime is just a function of economic and social trends. For that is the constant excuse of a complacent establishment. They talk of crime as an abstract, dismiss victims as mere statistics on a page of a sociology thesis, and are always looking for someone other than criminals to blame for crime... But criminals are not moral zombies sliding down a trend line on a graph. They make their choices and we should make them pay for those choices.4

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Table 5 Revised Home Office property crime projections

<table>
<thead>
<tr>
<th>Year</th>
<th>Theft and handling stolen goods (annual change in brackets)</th>
<th>Burglary (annual change in brackets)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Central projection</td>
</tr>
<tr>
<td>1997</td>
<td>2.17 m</td>
<td>1.02 m</td>
</tr>
<tr>
<td>1998</td>
<td>2.14 m</td>
<td>0.97 m</td>
</tr>
<tr>
<td>1999</td>
<td>2.22 m</td>
<td>(−4%)</td>
</tr>
<tr>
<td></td>
<td>(−18%)</td>
<td>(−13%)</td>
</tr>
<tr>
<td>2000</td>
<td>2.66 m</td>
<td>2.50 m</td>
</tr>
<tr>
<td></td>
<td>(−18%)</td>
<td>(−13%)</td>
</tr>
<tr>
<td>2001</td>
<td>3.14 m</td>
<td>2.93 m</td>
</tr>
<tr>
<td></td>
<td>(−17%)</td>
<td>(−13%)</td>
</tr>
</tbody>
</table>

4The speaker chose not to mention that the Home Office models were largely developed—and regularly cited—when his party was previously in power.
It is perhaps unreasonable to expect sensible debate from the press and politicians. A more serious criticism from academic colleagues is that the Home Office models should include more, or different, variables. For example, there is some evidence that property crime might be driven by the need to feed drug habits. Another commonly cited factor is relative income inequality—and there is no doubt this has increased in recent decades. In both cases, however, the relevant time series are too short to allow proper analysis.

Two other variables that have proved popular—particularly in rational choice models—are the crime clear up rate and the average prison sentence length. Field (1998) does not explain why he did not consider these variables although they do have some obvious shortcomings. For example, the clear up rate, using crime as the denominator, introduces a nonlinearity that violates a fundamental assumption of standard regression models. And while sentence length might be a suitable proxy for general punitiveness (although the majority of burglars and thieves are not sent to prison), the raw variable does not take into consideration the impact of administrative release rules on the actual time served. These have changed dramatically over the last 50 years.

One final variable that has been suggested, with some merit, is the number of police officers employed. Besides the obvious point that a greater police presence may deter crime, the argument is that, as the number grows over time, so too does the ability of the police to record offences. This must be an important consideration for a time series—recorded property crime—that is known to be hugely underestimated. If police strength has a systemic effect on recording this should be incorporated. Unfortunately, there is a third possible link between police numbers and recorded crime—that politicians might increase police numbers in response to rising crime. Setting the recording issue to one side the question is: do more police officers reduce crime through deterrence or does more crime lead to more police officers? A survey of 36 papers covering 78 crime regressions by Marvell and Moody (1996) found 14 with significant negative coefficients on police variables and 17 with significant positive coefficients. This problem might be circumvented if the models were re-cast as vector error-correction models.

As well as variable misspecification, another serious criticism of the Home Office models (Marris, 1999) is that the long-run elasticities are greater than 1—suggesting possibly exponential growth in levels of property crime. In fact, this criticism can be applied to many, if not all, recent econometric crime models (see Table 6).

As Fig. 1 clearly demonstrated, recorded crime has indeed grown exponentially over the course of the 20th century. There are a number of mechanisms that might explain this. It might be due to incremental changes in reporting and recording crime. Over the last 40 or 50 years (the span of most models for

<table>
<thead>
<tr>
<th>Source</th>
<th>Offence</th>
<th>Factor</th>
<th>Elasticity</th>
<th>Speed of error correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhiri et al. (1999)</td>
<td>burglary</td>
<td>stock of crime opportunities</td>
<td>1.7</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>males aged 15 and 20</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Hale (1998)</td>
<td>burglary</td>
<td>consumption</td>
<td>9.8</td>
<td>0.12</td>
</tr>
<tr>
<td>Deadman (2003)</td>
<td>residential burglary</td>
<td>consumption</td>
<td>3.9</td>
<td>0.24</td>
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<td></td>
<td></td>
<td>males aged 15 to 24</td>
<td>3.3</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>sentence length</td>
<td>2.5</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>police strength</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td>Diez-Ticio (2000)</td>
<td>burglary (US)</td>
<td>unemployment</td>
<td>0.3</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>males aged 15 to 24</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>Dhiri et al. (1999)</td>
<td>theft and handling stolen goods</td>
<td>stock of</td>
<td>1.7</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>opportunities</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Hale (1998)</td>
<td>theft and</td>
<td>stolen goods consumption</td>
<td>17.0</td>
<td>0.19</td>
</tr>
<tr>
<td></td>
<td>handling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>vehicle</td>
<td></td>
<td></td>
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<tr>
<td>Diez-Ticio (2000)</td>
<td>theft (US)</td>
<td>unemployment</td>
<td>−1.2</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Table excludes nonsignificant variables. All models were estimated using the Sims–Stock–Watson procedure. UK models all based on similar time spans. Long-run elasticities were calculated by deleting variables expressed in differences and solving for crime.

Long-run elasticities can be estimated by reference to the full dynamic models in Tables 2 and 3. First, all terms expressed in differences (e.g. $\Delta y_t$) are deleted. The model is then re-arranged algebraically, with the property crime variable moved to the left-hand side and its coefficient used as a divisor for the coefficients of the remaining right-hand side variables.
England and Wales), it might also reflect the gradual introduction of smaller, more portable goods. It might even reflect increasing criminal productivity through innovation—by comparison, productivity in the legitimate economy (since 1960) has grown by around 2% a year.

Of all the contributions to the debate generated by the publication of the Home Office models, possibly the most bizarre, made by Kershaw et al. (2000), was that reductions in British Crime Survey estimates (for broadly similar crime categories) between 1997 and 1999 were “somewhat at odds” with the upward projections in Dhiri et al. for the period 1999–2001. The authors do not make clear why they would expect falling crime in the past to preclude rising crime in the future. In a curious reversal of the usual logic, their argument seems to be what comes down cannot go up.

6. Conclusion

Econometrics has been described as “the search, in a dark room, for a black cat which isn’t there.” The large array of alternative theoretical models for acquisitive crime, combined with the even greater number of proxy variables and econometric techniques available to construct those models—while at the same time constrained by fundamental data limitations—together raise the possibility that no valid model is achievable.

Of course, the question is not whether the Home Office models are perfect—by definition any model is a simplified representation of reality. The question is whether they are sufficiently good to provide meaningful projections. As Field (1998) notes, “the linkage [between crime and economic growth] is neither simple, nor inevitable, nor mechanical... Many factors affect crime. They may include, for example, criminal justice policy and practices, the features of parenting and childhood deprivation which precipitate delinquency, and crime prevention measures and programmes.” It is unlikely that all of this could ever be captured in a single model or set of models.

Although theft and handling did increase in 1999 to the level anticipated by Dhiri et al., it did not increase by the full amount suggested by the central projection. And although the projected increase in burglary for 1999 fell from 6% to 2% when proper account was taken of economic growth that year, the actual level of burglary fell by 5%. There are several possible reasons for the divergence between actual and expected crime levels. A purely technical explanation might be because the models are based on recorded crime figures—which can be affected by changes in reporting and recording practices—rather than trends in actual crime. This is supported by the British Crime Survey, which indicates that, over the course of the 1990s, there has been a trend decline in recording rates for domestic burglary.

The relatively recent introduction and adoption of better security measures and devices may also be starting to have an effect. New technology in vehicle security, for example, has reduced the risk of theft of vehicles considerably. Because vehicle theft represents around half of all recorded theft and handling, such advances would be expected to have a substantial impact. Of course, if it is indeed more difficult to burgle a house or steal a car, it is possible that offenders might be diverted into other sorts of acquisitive crime. For example, between 1988 and 1999, recorded levels of robbery increased by 24% while fraud and forgery rose by 26%. There might also have been a shift to other, newer types of acquisitive crime, such as computer fraud, which are less well reported.

The most positive conclusion to be drawn is that recent government policy has been successful in reducing crime below the level it might otherwise have reached. Publishing the projections at the same time that police forces and local authorities were being asked to set challenging crime reduction targets might have helped those responsible to redouble their efforts against the criminal element. Paradoxically, if this success is maintained, it would signal a structural break in the long-run equilibrium, thereby preventing the use of error-correction models until such time as a new equilibrium emerges. The fact that a number of other researchers have produced similar, well-specified models suggests this is not the case.

The stated aim of Dhiri et al. was to move forward the debate on crime modelling. The publication certainly generated a wider interest in the factors that determine crime trends in England and Wales. Despite some negative comment, many researchers have taken up the challenge and produced their own
models and, occasionally, their own projections. A wealth of approaches is being developed, from alternative longitudinal models (with and without error-correction terms) to cross-sectional models split by police force area to nonlinear epidemiological models. The results of this programme of work, when published, will represent a significant contribution to the ongoing battle against crime.

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References


In 2000 Richard moved from research into policy, joining the Home Secretary’s Strategic Policy Team, where he contributed to a wide range of Home Office business including two major government publications. *Criminal Justice: The Way Ahead and Justice for All*. In January this year Richard joined the Home Office Active Communities Directorate as Assistant Director for Policy & Strategic Support where he has been leading on new forms of community participation and citizen engagement. Richard has been invited to speak about criminal justice modelling and policy making in a number of countries including Poland, Hungary, Georgia and Australia.