

Understanding the crime drop in Scotland - comparing and contrasting different crime types at the national level

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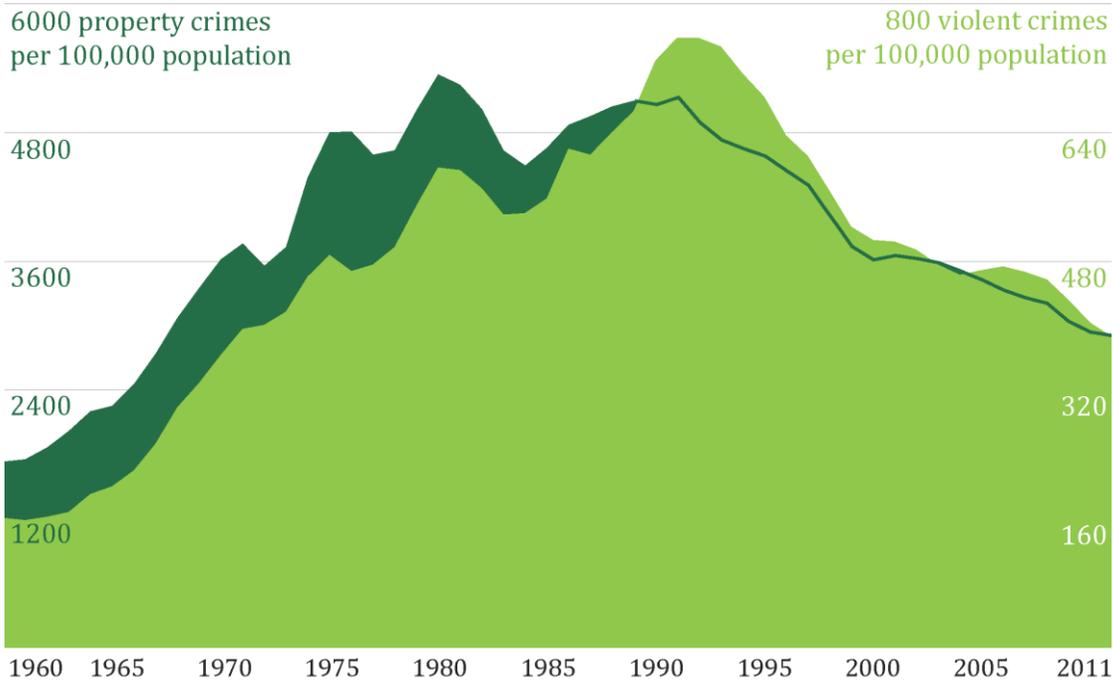
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The global crime drop

The Rise and Fall of Crime Rates According to Police



Source: UCR Data Tool, 1960-2010; Crime in the United States, 2011

From the early 1990's North America and many European countries have experienced a drop in both police recorded crime and in victim incidents measured by surveys.

So, for example, US FBI police reports give the graph on the left.. both property and violent crime has been declining.



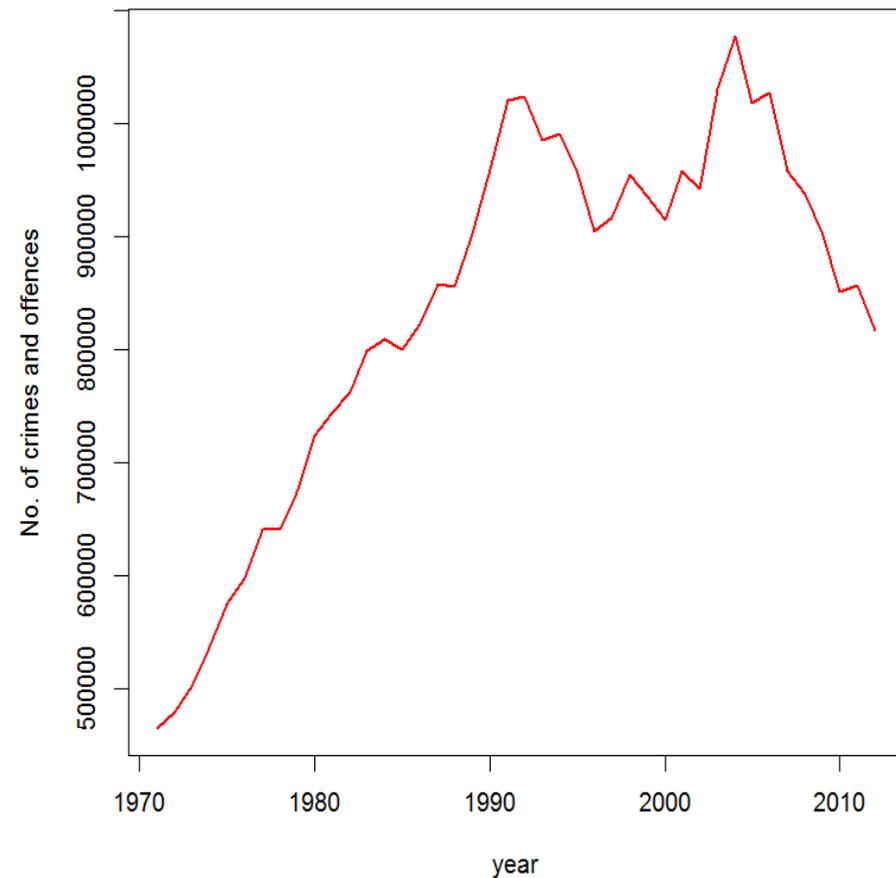
What is the picture in Scotland?

For **overall crime**, the picture is more complex.

Peculiar to Scotland, recorded crime is separated (mainly for statistical purposes) into "crimes" - which tend to be more serious criminal acts - and "offences"- which are generally less serious legal infractions.

There have been two peaks in crime, one in the 1990s, and another more recent peak in the early year of the 21st century.

All crimes and offences recorded by police 1971 to 2012-13

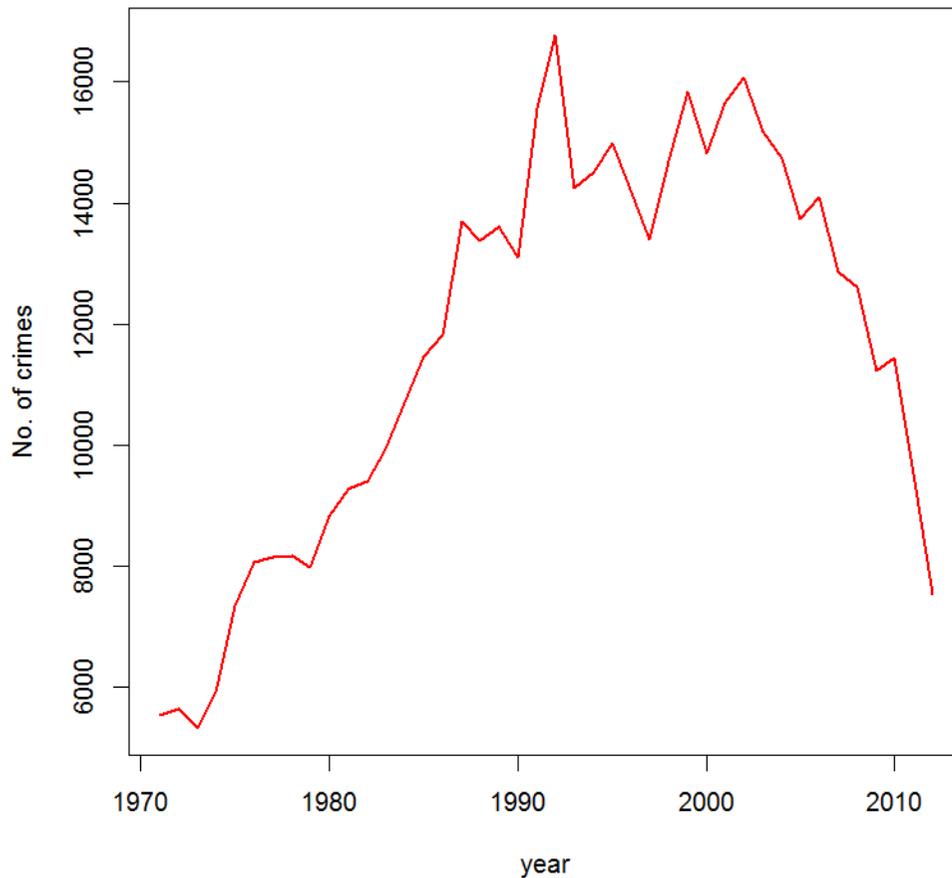


Scottish crime and offence groups

- Group 1 - Crimes of Violence:** includes murder, attempted murder, serious assault, robbery and assault with intent to rob, threats and extortion and cruelty to children
- Group 2 - Sexual Offences:** includes rape, assault with intent to rape; indecent assault and sexual offences against children.
- Group 3 - Crimes of Dishonesty:** includes thefts including housebreaking or opening lockfast places (OLP), thefts of and from motor vehicles and fraud
- Group 4 - Fire-raising, vandalism, etc.:** Includes vandalism, malicious mischief, fire-raising and reckless conduct
- Group 5 - Other Crimes:** The crime types included in this group are often **crimes against society** rather than individuals, such as handling offensive weapons, drug-related crimes and crimes against public justice (including contempt of court, perjury and bail offences).
- Group 6 - Offences (Miscellaneous):** Includes 'antisocial behaviour' offences such as breach of the peace, common assault and alcohol-related offences
- Group 7 - Offences (Road Traffic):** Includes speeding, seat belt offences and motor vehicle defects

There are different trajectories for each crime type

Violent non-sexual crimes recorded by police 1971 to 2012-13

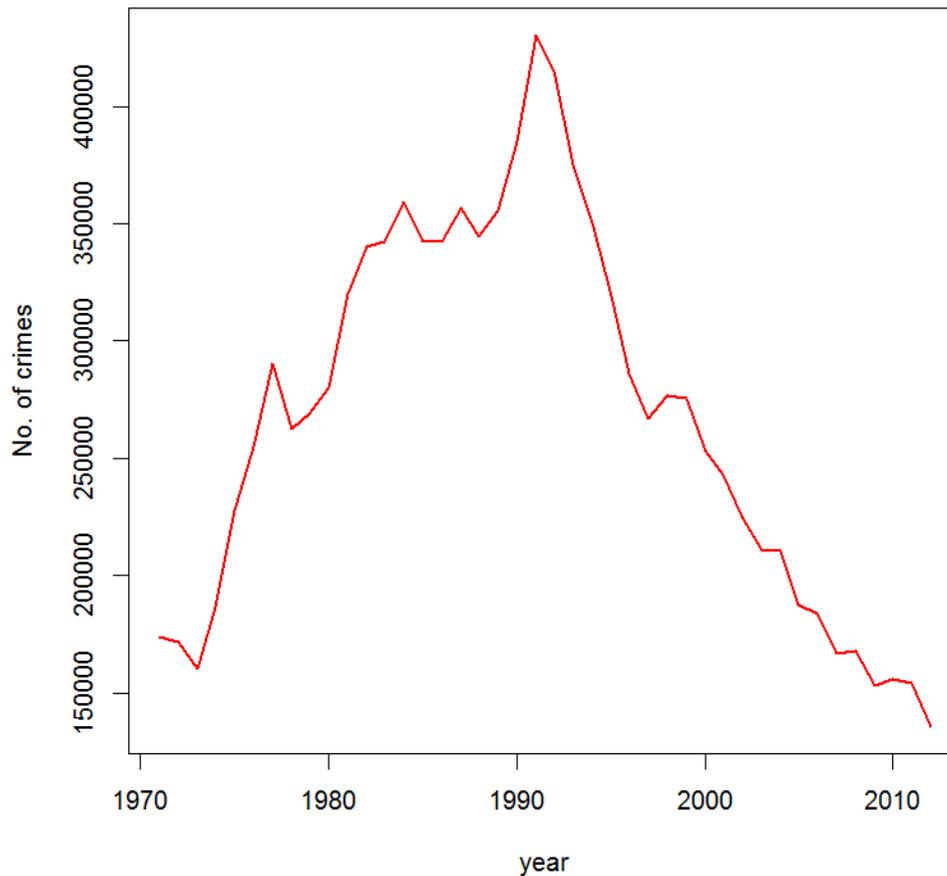


WE examine police recorded crime for five of the seven types.

Violent non sexual crimes peaked in 1991, with a lower secondary peak and a dramatic decline after 2001.

There are different trajectories for each crime type

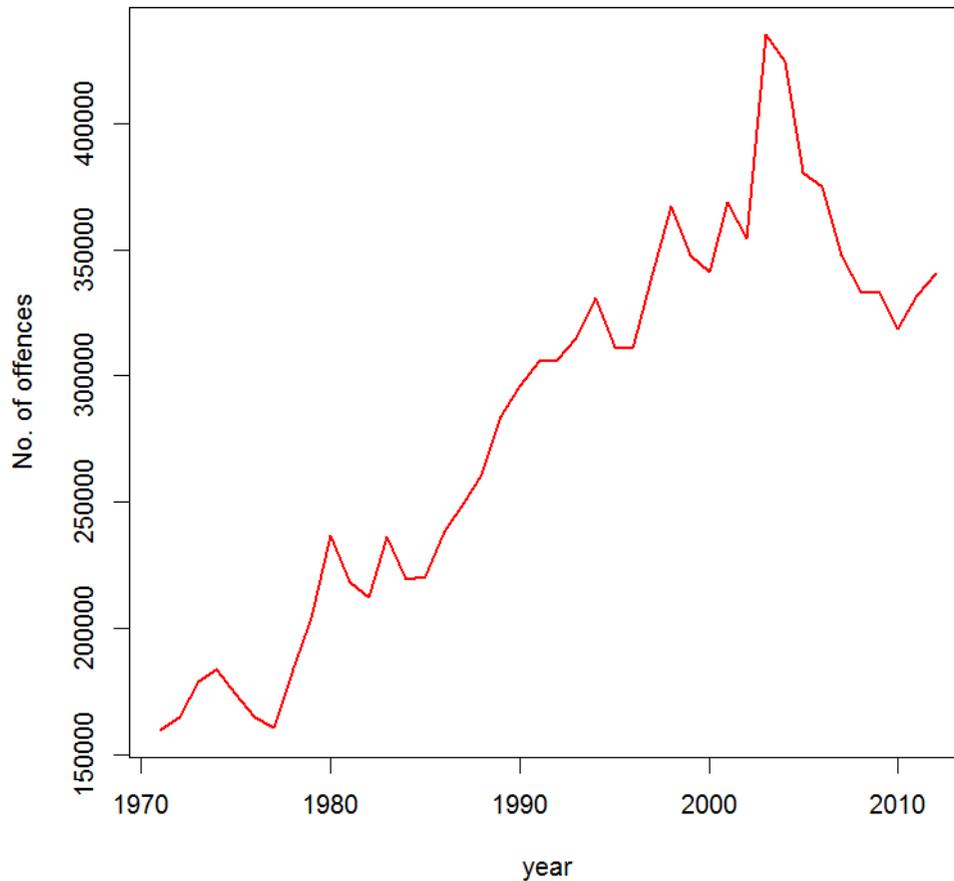
Total dishonest crimes recorded by police 1971 to 2012-13



For dishonest crimes, we see a single peak, with the number of crimes more than halving after the peak in 1990.

There are different trajectories for each crime type

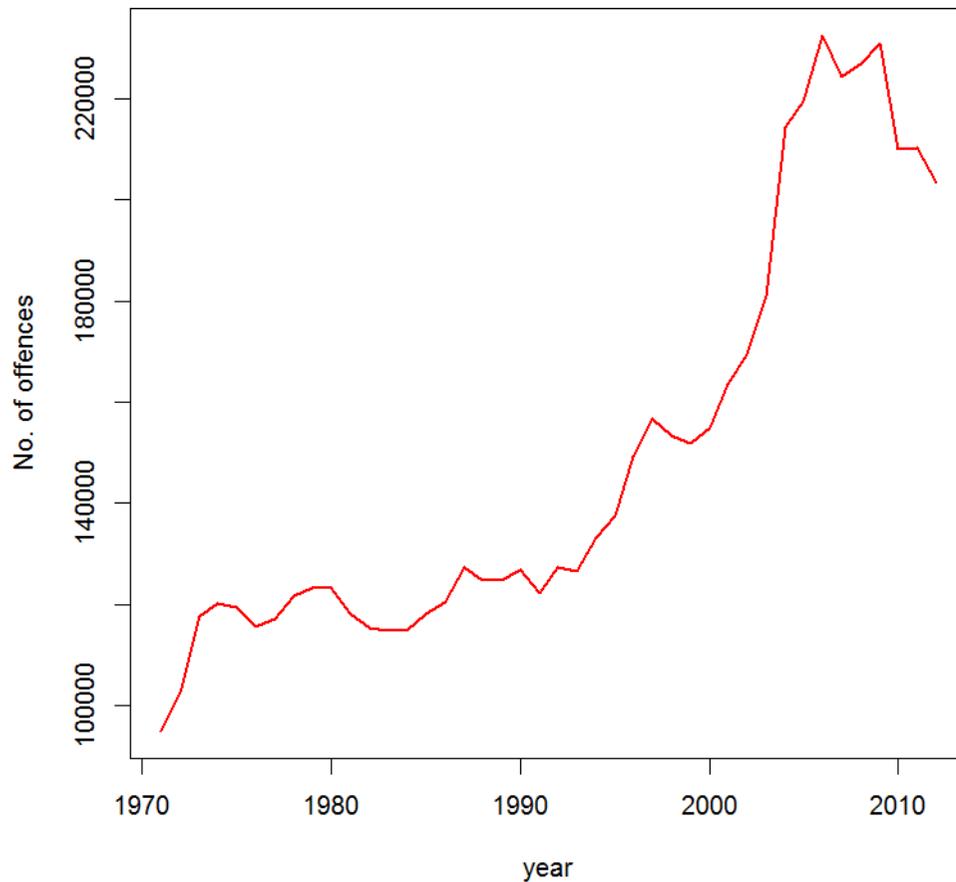
Total motoring offences recorded by police 1971 to 2012-13



For offences, both series peak later. **Motoring offences** increased until 2005, and a declining trajectory after 2005 has shown a small recent increase.

There are different trajectories for each crime type

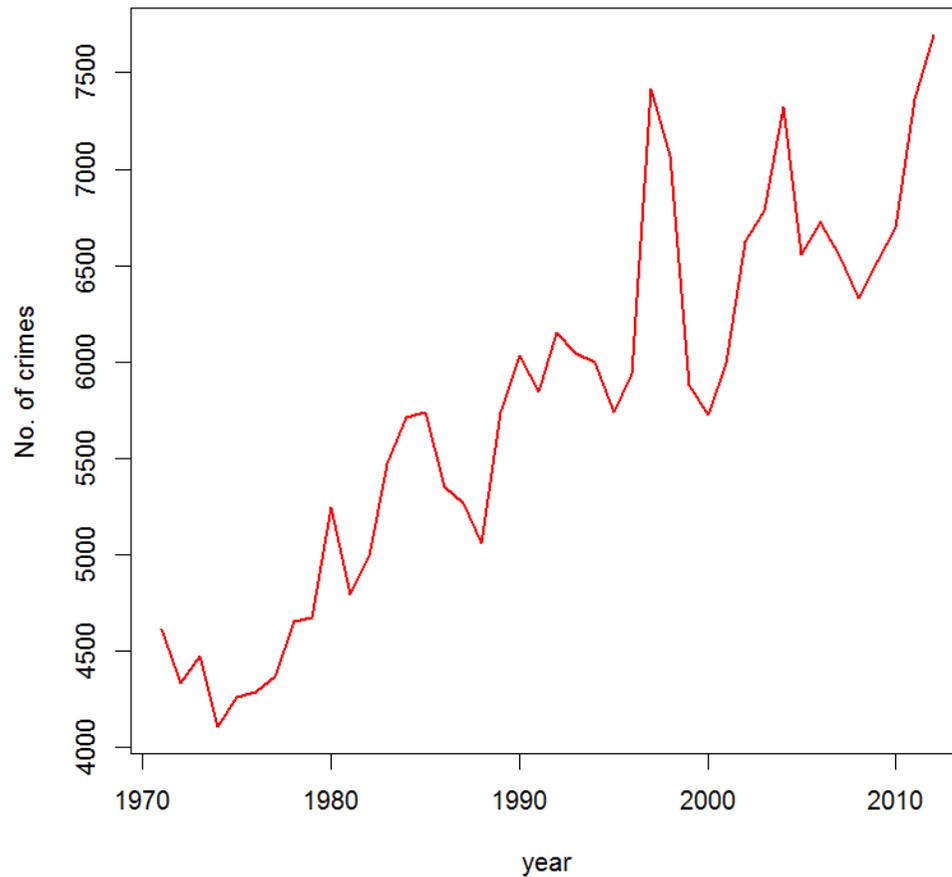
Total miscellaneous offences recorded by police 1971 to 2012-13



Miscellaneous offences have only recently started declining - since 2009.

Sexual crimes are the exception

Total sexual crimes recorded by police 1971 to 2012-13



..and still increasing



More people reporting rape and sexual crimes in Scotland



In the first full year of Scotland's single police force the number of alleged rapes being reported to the authorities increased by more than a fifth to almost 1,700 while the level of sexual crimes recorded rose by 11.8%.

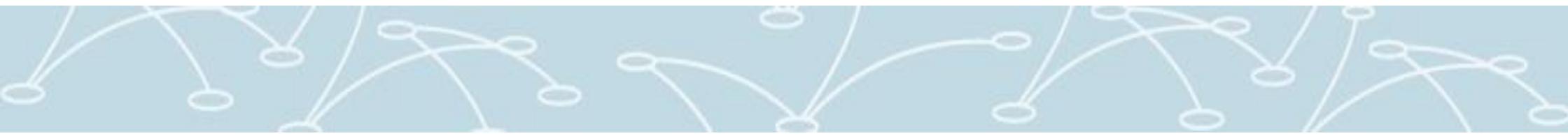
Analysis of Scottish recorded crime trends

Both academics and policy makers are interested in what factors are associated with increases and decreases in crime.

Early academic work examined total crime figures, but it is clear that disaggregation into specific crimes usually leads to completely different trend patterns, and therefore examination of total crime is not a productive or useful task.

Can we find explanatory factors which are associated with specific crime trends?

Note that association is not causality.....



What factors have researchers suggested?

Economic

Unemployment
Inflation
Lack of housing

Behavioural

Crack cocaine use
Alcohol use
Civic engagement
Computer games

Criminal Justice and state control

Custodial rates
Number of police
Clear up rates

Government policy

Legislation as deterrent

Environmental

Lead in petrol
Broken windows/neighbourhood quality

Population structure

Proportion of young males
Abortion
Cohort size - competition argument

Target hardening

Car security
Burglar alarms

Displacement

Crime is moving online and not measured there



But what is the mechanism?

- Are these factors meant to act on victims or offenders? For example does alcohol consumption increase the vulnerability of victims, or reduce self control of offenders? Victim blaming debate in feminist criminology.
- Victims, not offenders, report crime to the police, so is it reasonable to model victimisation rates through offender mechanisms? Factors affecting **victim reporting rates** are rarely considered.
- **Hypothesised direction of effect.** Often this is left unstated. For example, do more police reduce crime or increase crime? Perhaps increasing the number of police acts as a deterrent. However, the police also report crime themselves, especially the motoring and public order categories. As another example, CCTV may deter crime, or allow CCTV operators to view and report more crime.

Our study

We examine four distinct types of crime. Violent crime, dishonest crime, motoring offences, and miscellaneous offences

These crimes types account for about 80-85% of all crimes and offences and can be assumed to be driving the trend in total crime

We consider relationships between available covariates and crime over the long-term. Difficult to obtain suitable covariates over an extended period

1985 - 2012 - a 27 year period.

The analysis provides an 'average' measure of the effect of factors on crime types.

We use **Poisson regression models allowing for overdispersion** to model crime rates as a function of a set of explanatory factors. (Osgood,2000).



The explanatory factors in our study

- criminal justice factors (average daily prison population, certainty of sanction, number of offenders in custody, average sentence length and police officer numbers);
- economic factors (number of benefit claimants, change in GDP and number of bankruptcies);
- drinking behaviour (number of alcohol related deaths and average alcohol consumption);
- civic participation (measured by voter turnout).
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Demographic factors were accounted for by modelling crime rates taking account of the adult male population (age 16-50).

This is thus an offender model of crime rates.



Stability of effects over time

We test whether the effect of covariates on crime change according to the time period being studied. We divide the dataset into two year groups - before 1999, and 1999 and after.

It might be reasonable to expect the effects to be stable over time - that pre-1999 relationships would also continue into the 21st century.



Results full data series 1985-2012

	Crimes of violence	Crimes of dishonesty	Motor vehicle offences	Miscellaneous offences
Mean daily prison population			5% ↓	
Conviction rate*	3% ↓	8% ↓	4% ↓	
Number of offenders in custody*	8% ↑	1% ↑		1% ↑
Average sentence length*		6% ↓		3% ↓
Police headcount	2% ↓			
Change in GDP				4% ↓
Number of sequestrations		0.1% ↓		
Average alcohol consumption	12% ↑	4% ↓	11% ↑	14% ↑
Voter turnout		5% ↑		

Note: Only significant variables shown; * refers to within crime/offence type.

Results: Before and after 1999

Time dependency found in the relationship between three covariates and dishonest crime

	1985-1998	1999 and after
Sequestrations	.05% decrease	.04% increase
Voting	11% increase	12% decrease
Alcohol Consumption	11% decrease	4% increase

Other time dependencies found for other forms of crime. These findings indicated that there was likely to be a high degree of volatility in the association between crime change and other aspects of criminal justice, economic and social change over time.

Conclusions -crime trends

There have been important change between 1985 and 2012/13 in trends for all recorded crimes and offences in Scotland.

When broken down by crime and offence group, the aggregate pattern conceals important differences, both in terms of the timing of rising and falling trends and in terms of the extent of any rise and fall.

Generally speaking, there has been a sustained decline over time in serious crimes, while less serious offences have risen and remained relatively high. Sexual offences are the exception.



Explanatory factors

Different explanatory models are needed for different types of crime.

Alcohol: There was a strong association between increasing alcohol consumption and most (but not all) crime and offence groups. This would suggest that current policies aimed at cutting alcohol consumption are well placed.

Probability of sanction. There was also a strong association with reducing crime for 3 of the 4 crime and offence groups. This would suggest that improved successful prosecution rates and falling crime levels may have some connection, although the mechanisms would have to be explored.

Custodial sentencing. There was a negative association between custodial sentencing and crime rates for some crime types, particularly crimes of violence. This would fit with international evidence that suggests that conviction rates rather than severity of punishment is more likely to have a desirable deterrent effect (Durlauf and Nagin 2011).

Robustness of analysis

When shorter non-overlapping time periods were examined, the list of significant variables changed according to the time period. This indicates a degree of instability in the potential drivers of crime which is very concerning. It suggests that this type of crime trend analysis which aims to identify the causal nature of potential explanatory factors is weakened if researchers do not take account of the volatility of these relationships over time.

This study suggests that researchers need to replicate crime change models, both across different jurisdictions and across different time periods to be sure that the relationships found are robust. Additionally, researchers need to be critical about many of the models developed and search for data that enables other potential explanations to be tested. For example, intermediate variables may exist that will affect both the level of crime and the explanatory factors.

To find out more about our research:

<http://www.aqmen.ac.uk/>

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