

# Crime and the Economy

Research conducted by the  
Police Federation of England and Wales

May 2009

[www.polfed.org](http://www.polfed.org)



## Crime and the Economy

### Introduction

Previous published research by the Home Office and others has pointed to a clear link between the economy and changes in the level of crime, and property crime in particular.

This report is based upon the Home Office econometric regression model developed in the late 1990s to account for changes in property crime notably theft, burglary and robbery<sup>1</sup> during periods of recession. We have run this model using annual reported crime figures published by the Home Office for April to March each year in their annual *Crime Report in England and Wales*. We have also included an estimate of the last quarterly figures for 2008-09 in order to take account of the most recent trends reported by the Home Office for April to December 2008.

### Factors influencing crime

Household consumption is recognised as the principal economic indicator of economic well-being. However, previous research has noted complexity in the relationship between crime and consumption.<sup>2</sup> In particular, consumption growth has been found to have two principal effects on property crime:

- A growth in consumption increases the number and value of goods available for theft. It is argued that crime increases as the number of opportunities for crime increases. An economic theory of crime suggests that the increase in the stock of goods in society will tend to increase the incentive to commit crime, otherwise known as the 'opportunity effect');
- Consumption growth indicates increased expectations of lifetime income. The increased expectation of lawful income will reduce the temptation of illegitimate activity. This is referred to as the 'motivation effect'.

The opportunity effect is a long-term influence that is positively correlated with crime, while the motivation effect is more short-term and has a negative correlation with crime. Thus, in years when people increase their spending by very small amounts or reduce it altogether, notably when the economy is in recession, property crime tends to grow relatively quickly. In contrast, during years when people rapidly increase their expenditure, property crime tends to grow less rapidly or even fall.

---

<sup>1</sup> Since changes in recording practices in both 1998 and 2002 the new counting rules and coverage introduced have had a significant impact on the recording of both fraud and forgery and criminal damage. This led to a substantial rise in the recording of such crimes thereby introducing problems of data comparability for purposes of any time series analysis.

<sup>2</sup> S Dhiri, S Brand, R Harries and R Price (1999), *Modelling and predicting property crime trends*, London: Home Office; S Field (1999), *Trends in Crime Revisited*, London: Home Office; S Field (1990), *Trends in crime and their interpretation: A study of recorded crime in post war England and Wales*, London: Home Office; D Deadman and D Pyle (1997), *Forecasting recorded property crime using a time-series econometric model*, *British Journal of Criminology*, 37: 437-445.

Although reluctant to use profiling of the population to predict crime, research has reliably concluded that the number of young males in the population influences the level of crime.<sup>3</sup> For this variable we followed the Home Office model of the sum of males in two single year age groups of 15 and 20. Similarly, the practice of including the dependent crime variable as a one-year lagged independent variable has been followed in this report. This is because, all things being equal, the crime rate in any one year has been shown to influence the rate of crime in the following year. In other words, if burglary growth in any one year is high, it is more likely to be high in the following year after taking into account other factors. It takes time for crime to find its 'equilibrium' level.

Building on this analysis, therefore, the following variables are included in this model:

- The total stock of goods based on total household consumption over rolling 4-year periods, lagged by one year
- The annual percentage change in household consumption (*source: UK National Accounts*)
- The total number of males aged 15 and 20 years in the population, lagged by one year (*source: Office for National Statistics/Government Actuary's Department - Population Estimates*)
- The annual percentage change in property crime lagged by one year.

As a result, this model includes both long-term and short-term factors impacting on crime levels. Chart 1 plots actual crime figures against predicted figures based on the model and illustrates the model's goodness of fit. The adjusted R<sup>2</sup> is 0.74, which means the model explains 74% of the variation in property crime.

### **Economic growth, unemployment and population factors**

So as to include the last two major recessions of the early 1980s and 1990s, this model has been applied to crime data since 1982. It is already accepted that the current recession is set to be the worse of the post-war era. It took four quarters for Gross Domestic Product (GDP) to fall by 2.2 percent in the 1990s. In the 1980s GDP fell by 4.1 percent in a year, and took a further quarter to reach a trough of -4.9 percent. In the 1970s GDP fell 3.5 percent over three quarters, but rallied in the fourth quarter to finish only 1.6 percent down by the end of the first year.

However, in the current economic climate, GDP has already fallen 4.2 percent in just three quarters. Overall GDP is predicted to fall by 3.5% in 2009.<sup>4</sup> The level of unemployment has also been regularly linked to rising levels of crime, and is set to reach three million by the end of this year.

The Treasury's own forecasts of private consumption growth have also been used to arrive at projected property crime rates for both 2009-10 and 2010-11.

---

<sup>3</sup> Criminological theory also suggests this demographic group represents the peak age of offending.

<sup>4</sup> Based on City and non-City forecasters as reported in the Treasury's *Forecasts for the UK Economy, April 2009*; also noted in the recent Budget Report).

Private consumption grew by only 0.5 percent to March 2009 and is set to fall by 2.7 percent in 2009-10 and a further 0.4 percent in 2010-11.<sup>5</sup>

Estimations based on GAD projections of the likely number of young males by 2011 were also used in our projections.

### **Property crime projections**

Chart 2 reports both actual levels of theft, burglary and robbery crime since 1978 and projections over the next two years. Current Home Office figures for 2008-09 suggest a marked slow down in the previously falling crime levels. The annual figures for these types of property crime fell by only three percent compared to nine percent in the previous year. Some crimes such as domestic and non-domestic burglary have already been showing a steady upwards trend (four percent in October-December 2008). In the current economic climate the model, however, suggests a surge in such crime with projected increases of 10.9 percent in 2009-10 and 14.1 percent in 2010-11 (central projections)<sup>6</sup>. Although large increases, they are in line with experience in previous recessions, and are accounted for by the shift towards the prominence of short-term influences within the overall model. These types of property crime rose 12 percent in 1981 and 19 percent in 1990, and also followed on from earlier falls of 2.1 and 6.8 percent respectively.

### **Police strength as a deterrent**

There is evidence from previous studies that police strength is *negatively* related to theft of and from vehicles and other forms of property crime. One such Home Office study concluded that police strength has a genuinely deterrent effect on certain types of crime.<sup>7</sup> The rise in police officer numbers between 2001 and 2004 under the then ring-fenced Crime Fighting Fund is likely to have been a factor in keeping crime rates down below trend for so long.

To ascertain whether there will be resilience in police numbers to cope with the expected increase in crime over the coming years, we looked at police strength since 1972 in terms of police officers per 100,000 of the population. This approach provides for comparability over time. So that figures are truly comparable with the period prior to March 2003 we have followed Home Office practice of using officer figures which exclude those on career breaks or maternity/paternity leave for a period exceeding 28 days. Chart 3 shows the relative number of officers per 100,000 of the population during each recession since the 1970s.

Worryingly we enter the current recession with relative officer numbers falling, in marked contrast with previous recessions. In both the 1970s and 1980s recessions the number of officers per 100,000 actually rose. In the 1990s recession officer numbers were maintained. We enter the current economic recession with the relative number of officers having fallen steadily since 2006. The relative number of officers has reduced from 260 to 254, whilst the

---

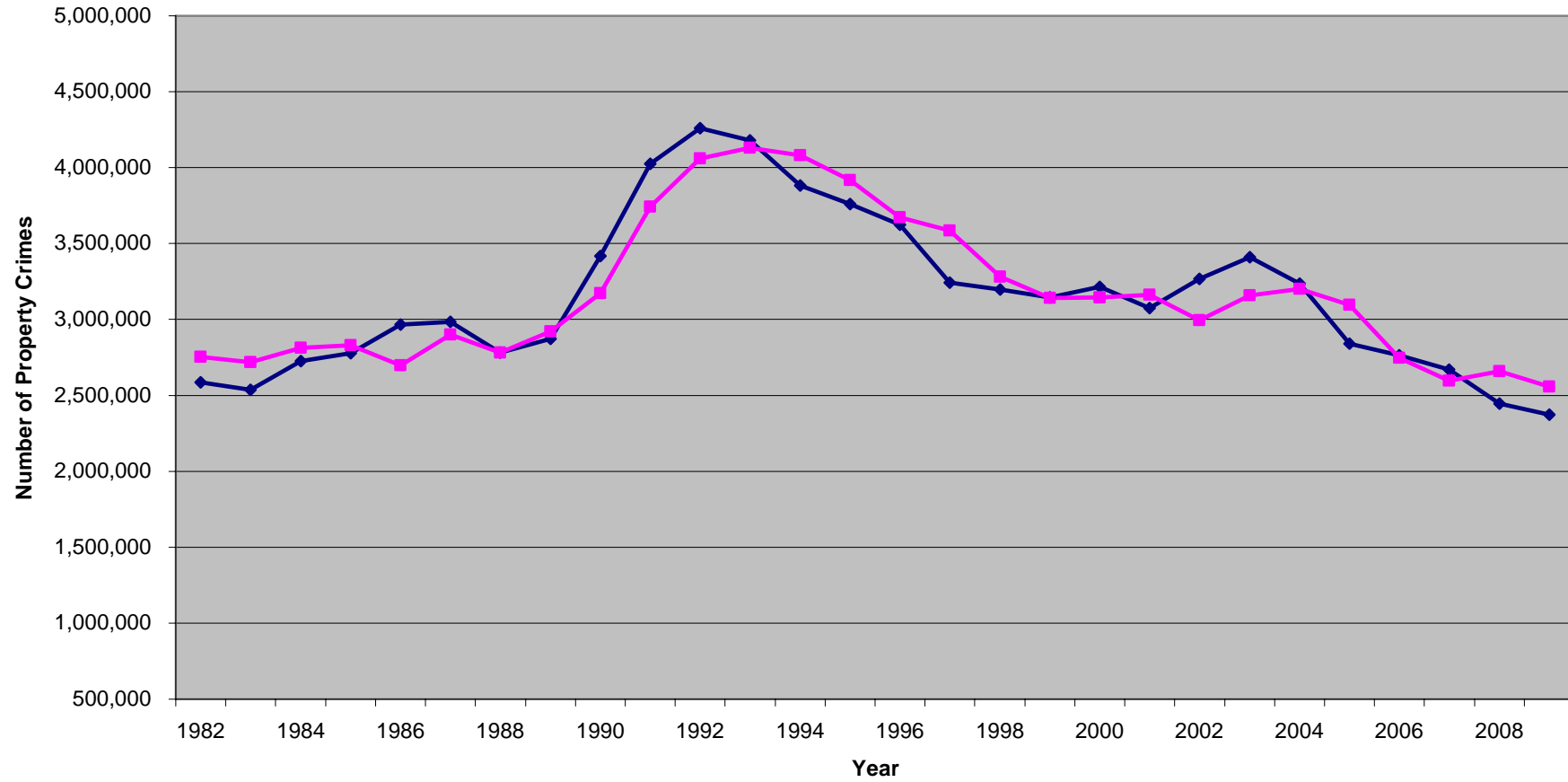
<sup>5</sup> Based on median figure of City and non-City Forecasters.

<sup>6</sup> The range for 2009-10 is 6.1 percent to 15.7 percent

<sup>7</sup> S Field (1990), *Trends in crime and their interpretation*, London: Home Office.

number of constables has fallen from 204 to 198 per 100,000 of the population. The fall has been especially noticeable among frontline officers such as constables. The relative number of police officers is now barely above the level of the early 1990s. Just to maintain this level of resilience would require an additional 2,000 officers over the next three years. On current figures absolute officer numbers have increased by only 136 over the last three years (2006-08), whilst the constable rank has fallen by 972. If this trend is maintained over the next three years, the relative number of officers will decline even further to 251 officers per 100,000 of the population, whilst the relative number of constables would fall to just 193. These projections, however, do not take account of any public expenditure cuts which may impact further on police strength. The lesson of earlier recessions needs to be learned that police numbers need to be maintained not reduced at times of economically motivated crime.

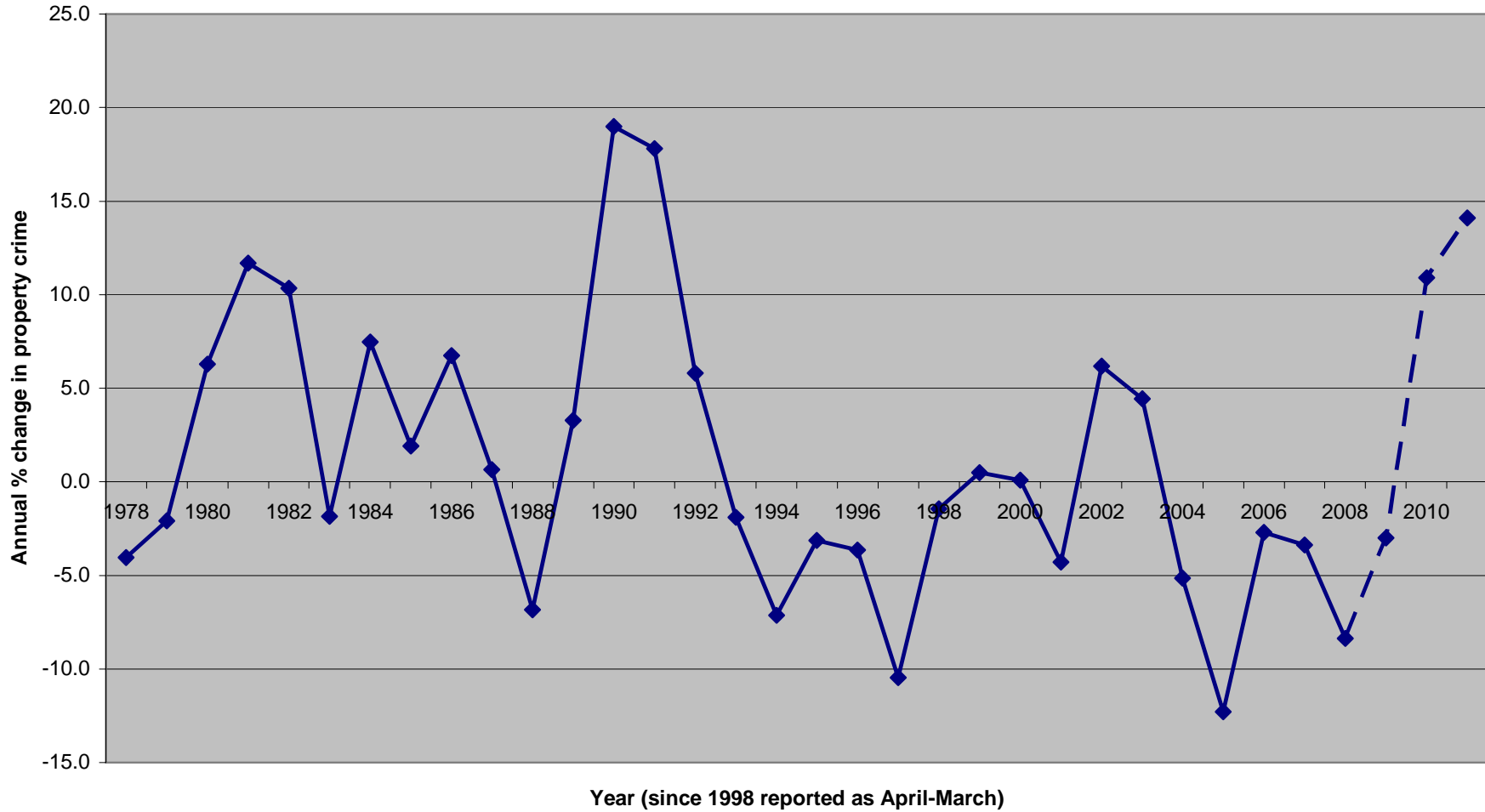
Chart 1: Actual Property Crime and Prediction of Property Crime<sub>(t)</sub> since 1982



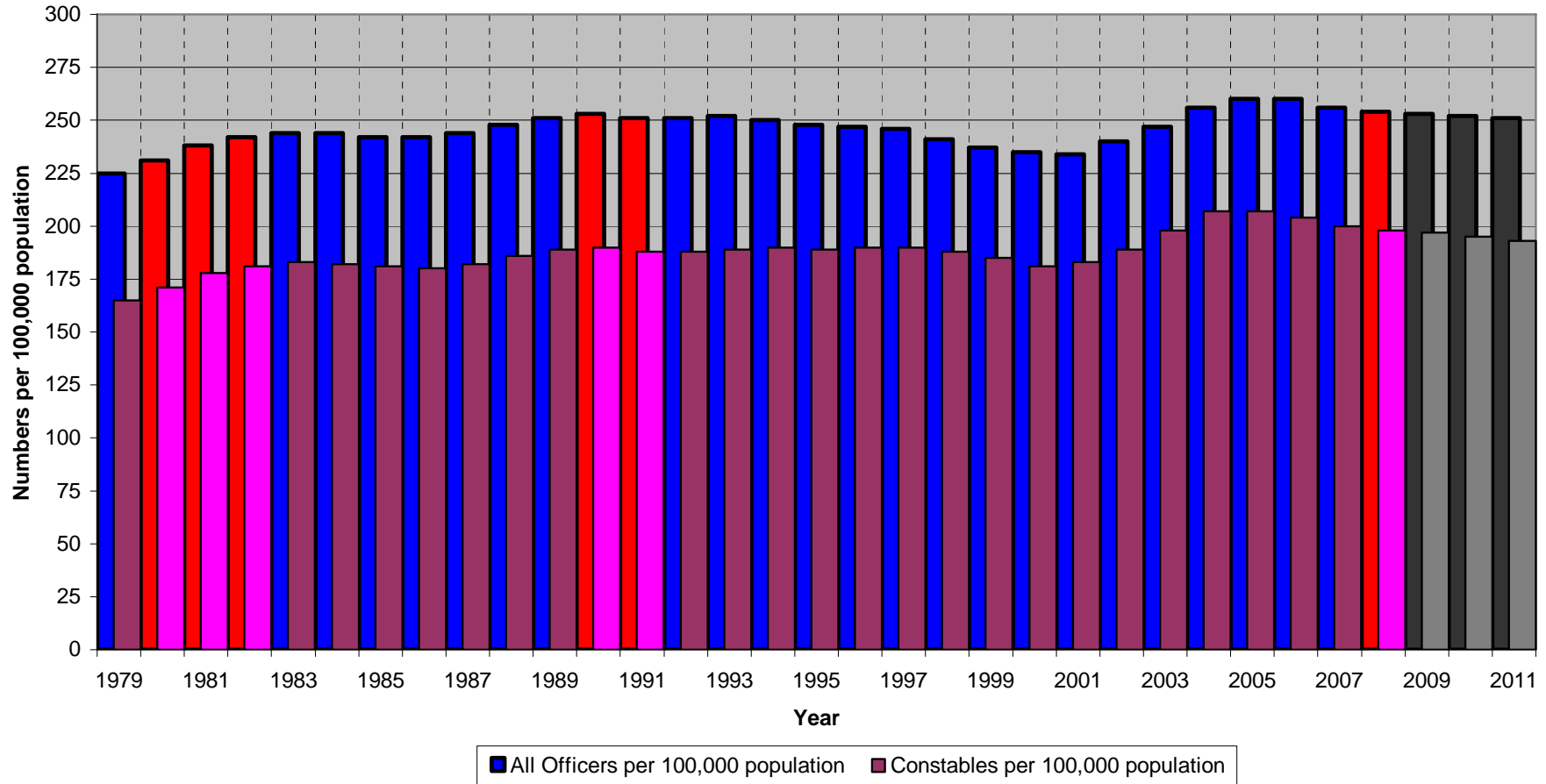
[(1) Property crime defined as theft, burglary and robbery]

◆ Actual Property Crime    ■ Predicted Property Crime based on the model

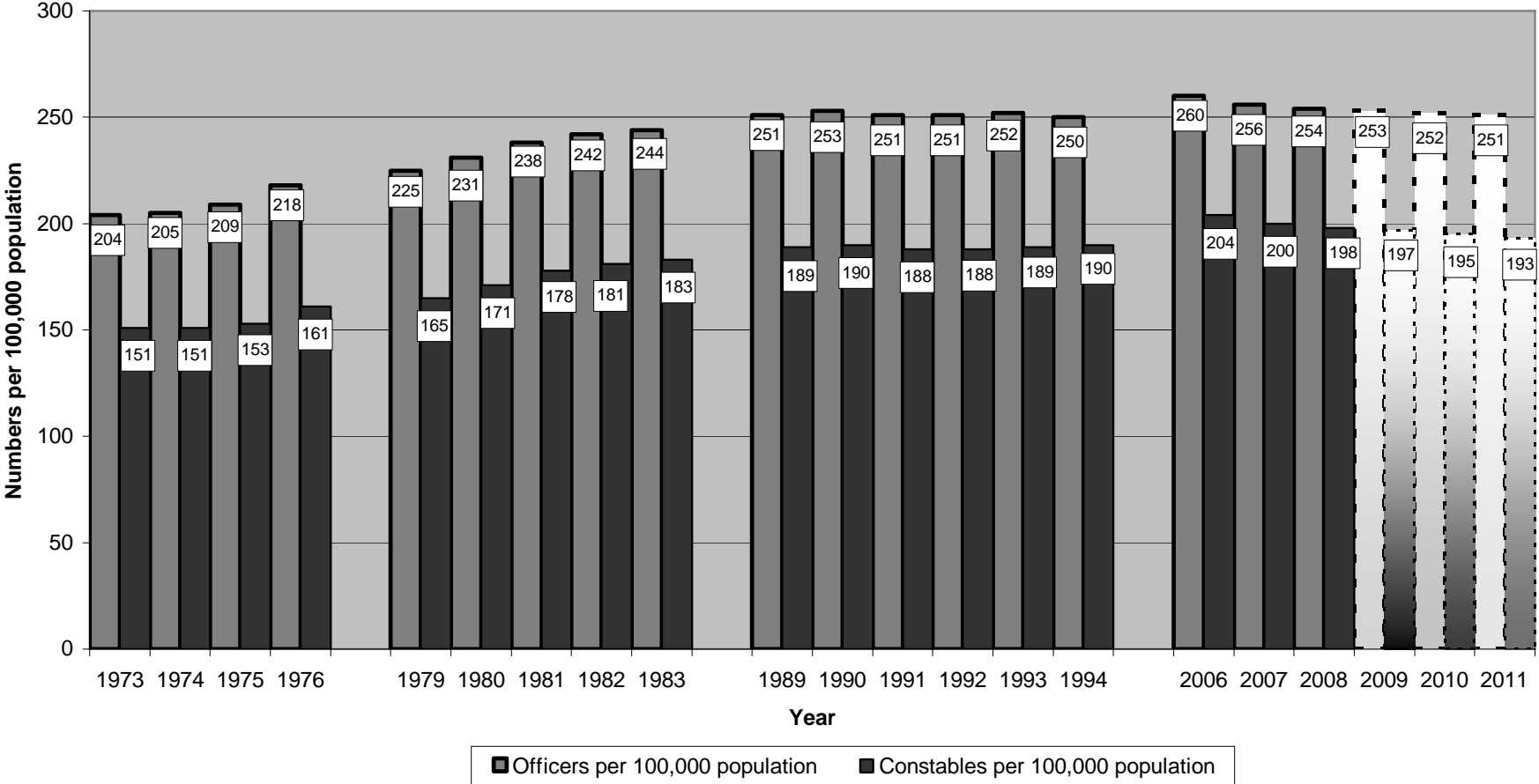
Chart 2: Annual % Change in Property Crime 1978 to 2011 (2009-10 and 2010-11 based on projections)



**Chart 3: Total Number of All Police Officers and Constables per 100,000 population, 1979-2011 (covers rank numbers as of March each year, highlighted periods of economic recession and projections 2009-11)**



**Chart 3: Total Number of All Police Officers and Constables per 100,000 population during periods of economic recession, 1973-2011 (rank numbers 1973-2008 as of March each year; projections for 2009-11)**



Source: Home Office Statistical Bulletins, *Police Service Strength for England and Wales* (prior to 2000, *Police Service Personnel for England and Wales*)