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The heroin epidemic of the 1980s and 1990s and its effect on crime trends - then and now

Research Report 79

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Keywords

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Summary

- A variety of factors have been cited to explain the rise and fall in crime that has occurred in many nations since 1980. But as yet, no definitive explanation has been produced. In the UK context, a rise and fall in illicit drug use has not been especially prominent in this debate, perhaps due to a lack of robust data for the whole period.
- This paper gathers available evidence and conducts new analysis to try to assess the effect that heroin and crack-cocaine¹ use may have had on acquisitive crime (i.e. theft-type offences) in England and Wales since 1980. It also suggests implications for future crime trends.
- Numerous sources of evidence agree that the number of heroin users increased markedly through the 1980s and early 1990s and that many also used crack as their drug-using career developed. This ‘epidemic’ spread from area to area but the national peak probably occurred between 1993 and 2000. Crime peaked between 1993 and 1995.
- Current data, particularly from treatment providers, show that heroin/crack use has declined for at least a decade and that – as with offending – the decline has been most marked amongst younger people. This means those who began using these drugs during the epidemic still dominate the heroin/crack-using population today.
- Studies agree that, in aggregate, heroin/crack users commit a large number of offences; large enough, this paper shows, to be an important driver of overall crime trends.
- Studies disagree about whether it is illicit drug use that causes the criminality. This is because a sizable proportion of heroin/crack users do not resort to theft. And many were offending before taking these drugs. However, evidence suggests that, for at least some users, heroin/crack was the catalyst for offending, and for others it probably accelerated and extended their criminal career. Thus aggregate-level change in numbers of heroin/crack users is likely to affect crime trends.
- An examination of the considerable regional and international variation in crime trends, particularly geographical areas where the crime drop was not marked or the peak occurred at a different time, also points to a possible causal relationship, rather than simple correlation.
- Within England and Wales, the starkest example of regional variation was Merseyside, which had a recorded acquisitive crime peak five years before other police force areas. Evidence also suggests that Merseyside was one of the first areas to be hit by the heroin epidemic and the first to mount a concerted treatment response.

¹ Hereafter crack-cocaine is referred to simply as ‘crack’.

- Acquisitive (and total) recorded crime in Scotland peaked in 1991, which studies suggest is in line with the national peak in heroin/crack use. But in Edinburgh and its surrounding region (Lothian and Borders) recorded acquisitive crime peaked seven years earlier, in 1984. Data show that Lothian and Borders had a severe heroin epidemic at this time, which was not prolonged into the 1990s as in other parts of Scotland.
- Like Merseyside and Edinburgh, the Republic of Ireland suffered a short, sharp heroin epidemic in the early 1980s and crime surged at this time. Northern Ireland did not have a heroin epidemic and its crime trend was much flatter over the period.
- In the US all types of crime fell from 1991 but the US crime survey shows that property crime peaked over a decade earlier, in line with the US heroin epidemic. Likewise, many east European nations had a heroin epidemic about a decade after those in western Europe. Eastern Europe also had a recorded acquisitive crime peak around a decade after western Europe.
- Two approaches were used in this paper to estimate the effect of heroin/crack use on crime. Both suggest that the epidemic may have had a significant impact on acquisitive crime in England and Wales.
- The first approach was a police force area-level comparison of the Addicts Index and police recorded crime data from 1981 to 1996, through the crime turning point. This showed that different types of theft generally peaked together within an area. But the timing and size of these peaks varied across areas and was highly correlated with heroin use. Fixed effects regression analysis suggested that about 40 per cent of the national rise in the highest volume crime types (burglary and vehicle crime), from 1981 to the peak, can be attributed to rises in the number of heroin users.
- The second approach was to model the number of heroin/crack users over time and their offending. Exploratory model results found that heroin/crack use could account for at least one-half of the rise in acquisitive crime in England and Wales to 1995 and between one-quarter and one-third of the fall to 2012, as the epidemic cohort aged, received treatment, quit illicit drug use or died.
- Model results also suggested that the epidemic still affects acquisitive crime today. In the recent recession, crime in England and Wales continued to fall, which correlates with a slowly shrinking heroin/crack user population but not with economic factors. Projecting forwards, a further downward pressure on crime, of a lessening degree, might be expected as the heroin/crack cohort continues to age and get treatment.
- The evidence presented shows that detecting and preventing future drug epidemics is paramount, and this requires local as well as national monitoring. Evidence also suggests that, for volume-crime reduction, it is crucial to maintain a focus on heroin/crack, despite the higher prevalence of other illicit drugs like cannabis, powder cocaine and ecstasy, and the emergence of new psychoactive substances. Specifically, it remains important to identify the minority of heroin/crack users who commit large volumes of crime during addiction periods. If that can be done, and those periods of addiction and offending can be shortened or prevented, the potential for further reductions in crime remains significant. However, many of these individuals will have been using heroin/crack intermittently for a decade or more and will have tried most current forms of treatment, so innovative approaches may be needed.

- Finally, although this paper has drawn together a wide body of evidence, the 'hidden' nature of the group being studied – heroin/crack users – means that robust data remain sparse. Hence, results should be treated cautiously and hopefully built upon in the future.

1. Introduction and methodology

The long-run decline in crime in England and Wales has prompted a variety of analyses and research, but a defining explanation remains elusive (for a review, see Farrell et al., 2010). Improving the understanding of past crime trends is more than just an academic exercise. It has the potential to add considerable value to policy approaches to crime reduction. Only by understanding the factors that have driven crime in the past can these factors be correctly prioritised in the future.

The particular focus of this study is the relationship between illicit drug use and crime. It examines the potential crime impact of the marked changes in the number of users of opiates (primarily heroin) and crack-cocaine (hereafter referred to as 'crack') that have occurred since 1980. This is because, despite a wide literature on the link between opiate/crack use and crime, few, if any, studies have attempted to quantify its effect on overall crime trends.

This study is a first attempt to marshal all the available evidence on this question. It concludes with some quantitative estimates of the proportion of the rise and fall in crime that might be attributable to changes in the number of opiate/crack users (OCUs), but these should be seen as exploratory rather than definitive.

Specifically, the study has the following aims.

- To describe the nature of heroin epidemics, specifically the spread of opiate/crack use in England and Wales since 1980.
- To examine the relationship between changes in the levels of acquisitive crime and opiate/crack use, focusing particularly on how crime changes in police force areas map onto changes in the OCU population.
- To model changes in the OCU population since 1980, and if possible, assess the contribution that changes in the number of OCUs has made to overall acquisitive crime trends.

There are two versions of this paper: this shorter version and a longer, more technical version. The latter provides more methodological details, but also more background material on general crime trends and other explanations for the rise and fall.

Methodology

One of the challenges of analysing the relationship between trends in illicit drug use and offending is the quality of data available. Data on the numbers and trends in OCUs are sparse due to the hidden nature of this population. This creates two significant and related problems.

- Because the most chaotic users tend not to be captured by national-level surveys, much of what is known about OCUs comes from data on treatment or the criminal justice system. As many researchers have pointed out (see, for example, Stevens, 2007) this almost certainly creates a biased sample. As the evidence presented throughout this paper suggests, many OCUs do not get arrested, and many quit without treatment, hence relying on these risks delivering a sample that is more crime-prone than the true population.

- The second problem relates to longitudinal research into illicit drug use. For opiate/crack use, virtually all longitudinal studies are retrospective, due to the fact that only a very small proportion of the general population become OCUs. So prospective cohorts, like, for example, the Cambridge Delinquency Study (Farrington et al, 2006), often fail to pick up enough individuals who go on to become OCUs for any meaningful conclusions to be drawn. But retrospective studies, of the kind drawn upon in this study, may be affected by selection bias if the more recalcitrant users are those easiest to identify in retrospect.

Data on offending are also problematic. Offending rates and trends obtained from surveys may suffer from recall bias and almost invariably involve extrapolation over time. Frustratingly, these two issues balance each other, so researchers can only make one better by making the other worse. A shorter reference period in which to capture offending levels (say, the past four weeks) will improve the chances of accurate recall, but will invariably mean a greater degree of extrapolation. It will require multiplying up by a factor of 13 to get an annual figure, which increases the chance that the measured 4-week period may not be representative. But offending rates and trends obtained from official data, like police recorded crime, provide only a partial picture, as not all crime is reported and an even smaller proportion results in arrest or conviction.

The overall approach has been to exploit the full range of international research evidence and UK datasets, since no single dataset and no single methodology can definitively answer the research questions posed. A key feature of the analysis has therefore been triangulation. Conclusions have, where possible, been tested against a variety of alternative approaches and data sources. A second feature of the analysis is the focus on examining regional trends in crime and OCU populations, rather than focusing solely on the national level. Finally, the study also attempts to assess when and how opiate/crack use might have interacted with other drivers of crime.

For the most part, the paper uses three types of methodology.

- 1) **Reviews of the existing research literature:** For the chapters on general crime trends, theories of crime trends, the history of the heroin epidemic and the possible causal relationship between crime and opiate/crack use (Chapters 2 to 4), the existing UK and international research evidence was reviewed and synthesised. In other words, the focus was on summarising and categorising existing studies rather than conducting new analysis. Although the principles of systematic searching were adhered to, the review does not meet the standards set in formal rapid evidence assessments or systematic reviews. This partly reflected the diverse nature of the subject matter covered. Hence the researchers merely seek to be transparent about the process and to encourage others to add evidence that may have been missed or misrepresented.
- 2) **Statistical analysis of recorded crime and the Addicts Index trends:** Chapter 5 contains a section of new statistical analysis aiming to test whether regional trends in opiate/crack use help to explain the geographic variation in crime that was seen through the 1980s and 1990s. It uses the following datasets:
 - annual police force area level recorded crime volumes for burglary and vehicle crime from 1980/81 to 1997/98;
 - annual police force area level Addicts Index data for volumes of new and total heroin users from 1977 to 1996;
 - annual police force area level claimant count volumes (a proxy for unemployment) from NOMIS for the period 1983 to 1998.

This panel dataset was used to conduct a series of statistical, parametric tests, ranging from standard bivariate correlations and scatter-plots, to multivariate fixed effects regression analyses.

The data sources were selected as the best available, but they have limitations. For crime, recorded crime data were used because they are the only source available at the local level. Victimization surveys like the Crime Survey for England and Wales (CSEW), formerly the British Crime Survey, are generally better measures of trends because they are unaffected by reporting/recording changes. But the CSEW sample sizes were too small throughout the 1980s and early 1990s to conduct meaningful analysis at the sub-national level. To try to mitigate the issues with the recorded crime data, the analysis was restricted to the period before 1998 (recorded crime was affected by recording practice changes from 1998 until around 2004).² Only trends in burglary and vehicle crime were looked at for two reasons.

- It is generally acknowledged that these are the most reliably recorded volume crime types (Chapter 2 shows that for these crimes there is a high degree of similarity between the trends in police recorded crime and those from the CSEW).
- These crimes comprised more than one-half of all offences recorded by the police at that time, so were the ones driving the overall trend.³

For trends in heroin/crack use, the Addicts Index was used as this is the only data source for OCUs available at police force level through the period. It is not a perfect measure as OCUs tended to be notified to the Index once they sought medical attention. Evidence suggests that this usually occurs several years after the onset of regular use, and some users may never seek treatment (Millar et al., 2001). Hence the data probably lag and under-count reality. Various methods are used to mitigate this issue, including specific modelling of lags. The dataset was discontinued after 1996.

- 3) **Modelling offending by the OCU population:** In addition to examining the relationship between OCUs and crime at the aggregate level (a kind of top-down approach), the study also employs a bottom-up method in Chapter 6. This uses evidence from studies measuring the self-reported offending of specific cohorts of OCUs and then extrapolates the results – taking care to avoid potential bias – to the entire OCU population. By also modelling the trend in the OCU population over time, the analysis leads to estimates for the amount of additional acquisitive crime generated by the epidemic, and hence the degree to which opiate/crack use might have contributed to the rise and fall in crime.

Unlike Chapter 4, which uses recorded crime, this chapter uses self-reported offending data. This was partly to provide triangulation and partly because studies have shown that annual offending rates generated from criminal justice system data are likely to under-represent the degree to which total offending is skewed towards a small number of the most prolific offenders (Farrington et al., 2006).

Modelling of this type inevitably involves numerous simplifications and assumptions. These are listed in full in the longer version of this paper, but most relate to the

² The City of London was also excluded from the analysis as it generally has much smaller counts of crime than the other police force areas, which can skew results.

³ Specifically, 57 per cent of the rise in total recorded crime from 1980 to 1992 was due to the increase in burglary and theft of/from vehicle.

weaknesses in the underlying data explained above. For that reason, the results of this modelling process should be viewed as exploratory.

Structure of the paper

The paper is divided into six chapters. Chapter 2 looks at what is known about crime trends in England and Wales from 1980 to the present, including a brief examination of their similarity to trends in other nations. The focus is mainly on acquisitive crime because this has the strongest link to opiate/crack use. A short summary of some of the other theories that have been offered to explain these trends is included.

Chapter 3 pieces together the story of the heroin epidemic in England and Wales with a particular emphasis on the variation in the timing at which the epidemic affected different areas, so that variation in the crime data can be considered against this. Chapter 4 summarises the existing research evidence on whether there is a causal link between opiate/crack use and crime.

Chapter 5 examines the relationship between trends in opiate/crack use and crime at the local, national and international level. The chapter is part descriptive, examining whether the epidemic narrative helps to explain some of the variation in crime trends described in Chapter 2. But it also contains statistical analysis in which these explanations are tested more robustly.

Chapter 6 provides a brief description of the modelling of the OCU population and estimates the potential impact of the heroin epidemic on CSEW acquisitive crime trends.

Finally there is a brief conclusion, summarising the findings and drawing out several policy implications.

2. An overview of crime trends and explanations of the crime drop

Crime trends in England and Wales

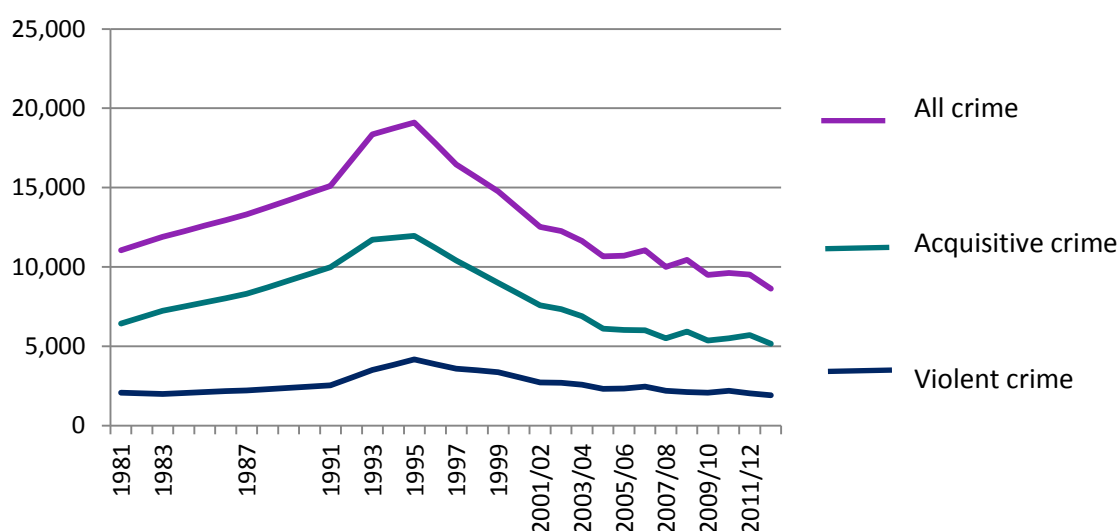
The first section of this chapter provides a short overview of the data on longer term crime trends in England and Wales. It draws out some key facts against which to judge factors that might explain the rise and fall in crime.

There are two primary measures of crime in England and Wales:

- police recorded crime (PRC); and
- the Crime Survey for England and Wales (CSEW), formerly the British Crime Survey.

The CSEW, which asks a large sample of the population about their crime victimisation experiences,⁴ shows a rise in crime through the 1980s, a sharp increase in the early 1990s and a sustained fall from 1995. This fall has continued to the present day (2012/13), albeit at a slightly decreasing rate, despite the financial crisis of 2008 and the subsequent economic downturn, see Figure 1.

Figure 1: Crime incidents, 1981 to 2012/13



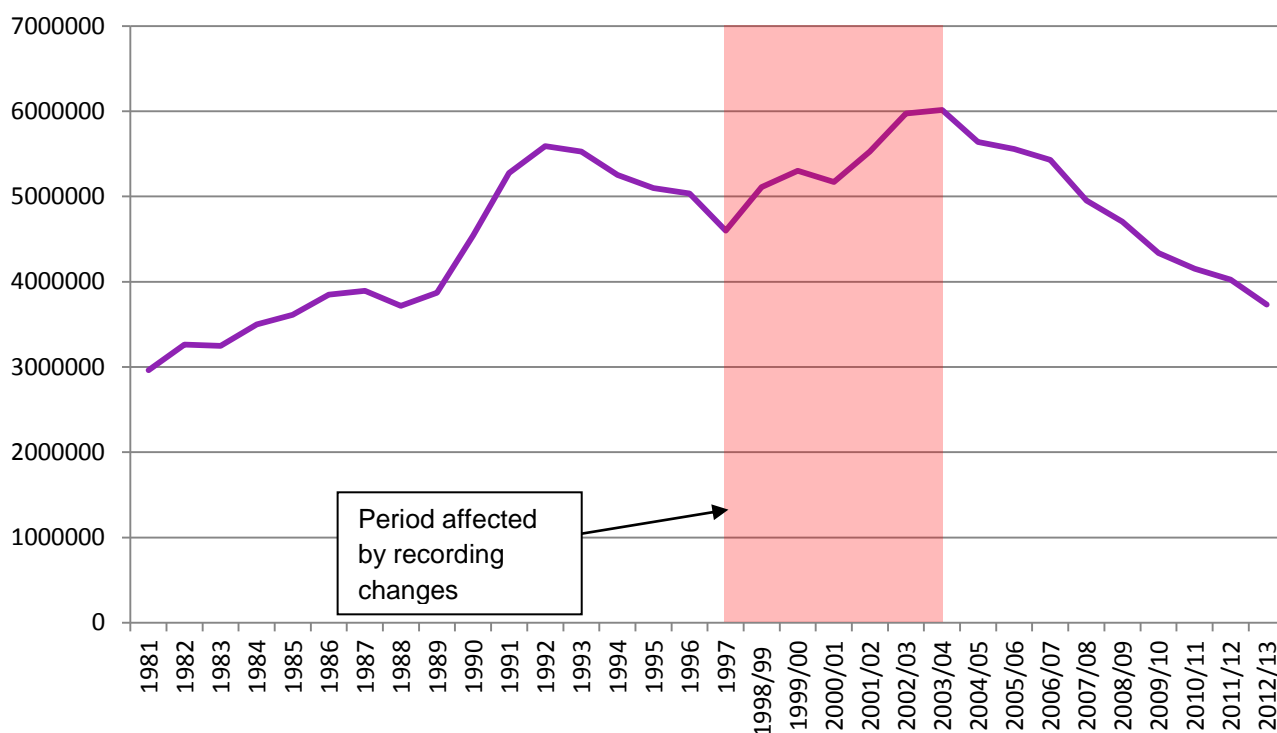
Source: Crime Survey for England and Wales 2012/13

⁴ The BCS/CSEW therefore only includes crimes against individuals and households. It does not include crimes against commercial targets or crimes in which there is no obvious victim, like drug offences. It is also not that reliable for trends in the most serious crimes, like serious violence, because few incidences occur nationally, so sample numbers are small. For the most part though, this paper is concerned with high-volume acquisitive crimes, so the CSEW should be a reliable guide to trends.

Figure 1 also shows that at the peak, acquisitive crime made up over 60 per cent of all offences and has therefore been the driving force behind the overall trend, but violent crime shows a similar pattern.

PRC describes crime that is reported to and recorded by the police. Changes in police recording practice occurred in 1998 and 2002.⁵ These changes resulted in the improved recording of some crimes (particularly minor violence), which is almost certainly the reason that PRC peaks in 2003/04 (see Figure 2). Removing the period during which the recording changes would have biased the trend (1998 to 2004), PRC reveals a reasonably similar picture to the CSEW. It rises gradually in the 1980s, sharply in the early 1990s and then has a prolonged decline.

Figure 2: Total offences, 1981 to 2011/12

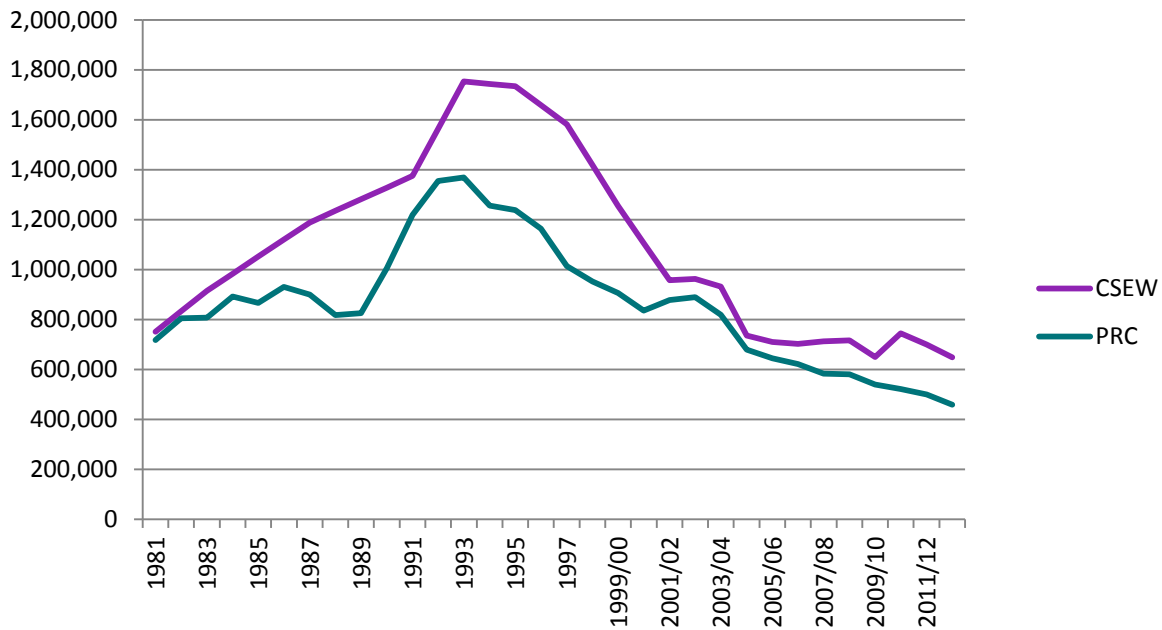


Source: ONS, police recorded crime

Furthermore, there is agreement in the trends between the CSEW and PRC on the high-volume acquisitive crimes that have really driven overall crime – see Figures 3 and 4 below. So for these offences, which provide the focus for much of this paper, there can be confidence that the trend is genuine and worthy of explanation.

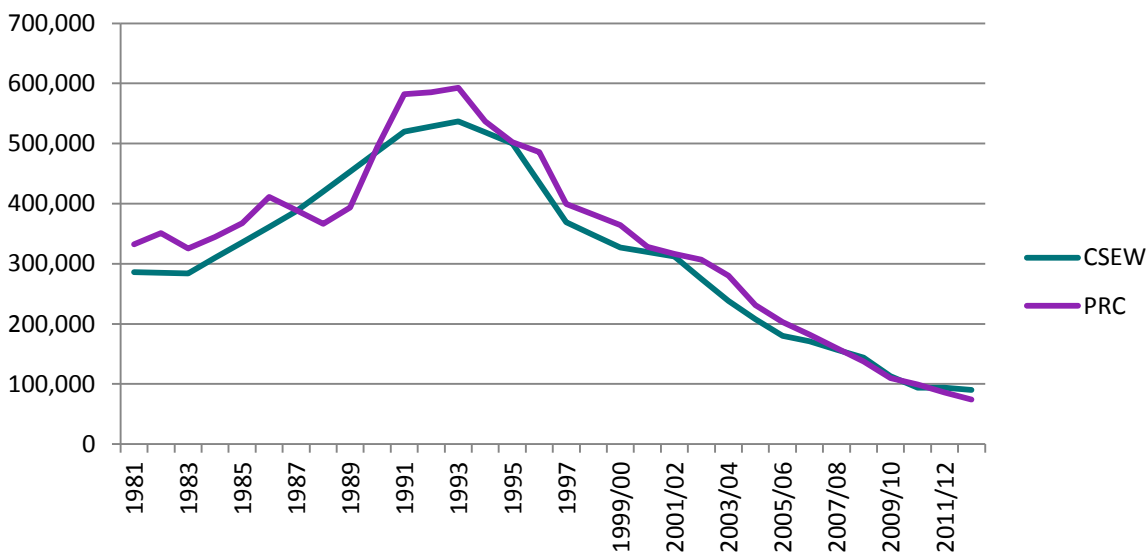
⁵ For full details of these see Berman, 2008.

Figure 3: Comparison of burglary trends, police recorded crime and Crime Survey for England and Wales, 1981 to 2011/12



Sources: ONS, police recorded crime, 2011/12 and Crime Survey for England and Wales 2012/13

Figure 4: Comparison of theft of vehicle trends, police recorded crime and Crime Survey for England and Wales, 1981 to 2011/12



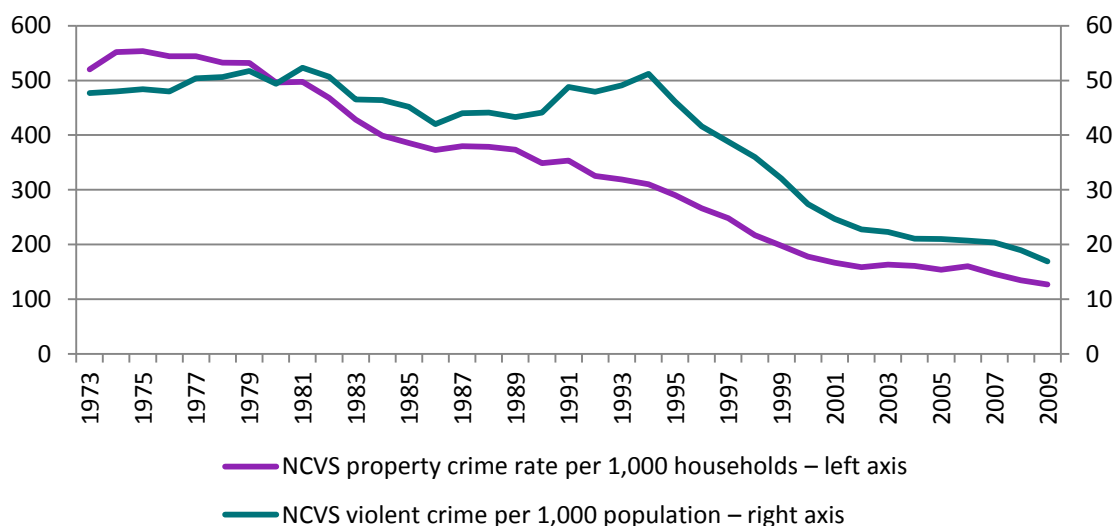
Sources: ONS, police recorded crime, 2011/12 and Crime Survey for England and Wales 2012/13

Figures 3 and 4 also show that, nationally, there was a high degree of consistency across these crime types ('theft from vehicle' has an almost identical trend). They all rose, peaked in the mid-1990s, and then fell together. It is also worth noting that for PRC there was a small fall in the trends in the late 1980s, prior to the sharp rise. The CSEW was not carried out between 1987

and 1991 so would not register this, but the consistency with which it appears in the PRC trends suggest that it was a genuine 'lull' in the rise in crime.

Commentators have noted that the trend in England and Wales has been similar to that in other western nations. This is true to an extent but there are also important differences. According to the National Crime Victimization Survey (NCVS), the equivalent of the CSEW in the US, the rate of property crime, which is mostly theft offences, peaked in the mid-1970s in the US, far earlier than it did in England and Wales.⁶

Figure 5: Crime trends in the US, 1973 to 2011



Source: US Bureau of Justice, National Crime Victimization Survey

Recorded acquisitive crime also peaked earlier than in England and Wales in the Republic of Ireland (1984)⁷, Canada (1991) and Scotland (1991). But other nations had a later peak. For example, Aebi (2004) found that whilst crime started to fall in England and Wales and most western European nations in the mid-1990s, the peak in central and eastern European nations occurred up to a decade later. Overall, it is clear that there are similarities and differences between crime trends across nations and any explanation needs to contend with these.

Moving from the national to the police force area level (there are 44 police force areas in England and Wales⁸) reveals a similar picture – whilst the trends in virtually all areas show an overall rise and fall in acquisitive crime, they do so at different times and to different degrees.

Virtually all forces had large increases in acquisitive crime from 1980 to 1993 and, as at the national level, the rise was particularly concentrated for most areas at the beginning of the 1990s. This is shown for police recorded burglary in Table 1.⁹ Taking a single example, South Yorkshire has a 235 per cent rise in burglary from 1980/81 to 1993/94, but the vast majority of this rise (81%) occurred in the 4-year period from 1989/90.

6 It is important to note that the NCVS property crime peak would be slightly later if measured in volumes rather than rates, probably around 1979 to 1981 by this paper's calculations; and that the property crime peak in US recorded crime is 1991. But, even amongst the recorded crime types, the most reliably recorded offences like burglary show an earlier peak (1981). So, whichever measure is used, the data suggest that the US had a far earlier peak in acquisitive crime than England and Wales.

7 The 1984 peak in the Republic of Ireland refers to total recorded crime involving both indictable and non-indictable offences – http://www.crimecouncil.gov.ie/statistics_cri_crime.html. The trend in indictable offences also shows a 1983/84 peak but reaches its highest level in 2002, although this is likely to be an artefact of recording practice changes.

8 Though there are currently 44 police forces in England and Wales, we exclude British Transport Police from Table 1 as it does not cover a geographical area as such. City of London police is also excluded as it is much lower volumes of offences, so is not really comparable to the other forces.

9 It is necessary to use PRC data at the police force area level, due to the small sample size of the CSEW.

Table 1: Table showing increases in police recorded burglary, by police force area, 1980/81 to 1993/94

	Burglary volume in 1980/81	Burglary volume in 1989/90	Burglary volume in 1993/94	Total burglary increase: 1980/81 to 1993/94 (volume)	Total burglary increase: 1980/81 to 1993/94 (% change)	Percentage of total rise occurring between 1989/90 and 1993/94
Avon and Somerset	11,484	17,572	40,655	29,171	254%	79%
Bedfordshire	5,604	7,610	15,596	9,992	178%	80%
Cambridgeshire	4,859	6,701	15,023	10,164	209%	82%
Cheshire	8,176	10,501	22,034	13,858	170%	83%
Cleveland	8,962	14,395	18,738	9,776	109%	44%
Cumbria	4,064	6,460	10,733	6,669	164%	64%
Derbyshire	9,087	9,390	25,612	16,525	182%	98%
Devon and Cornwall	8,850	15,831	32,578	23,728	268%	71%
Dorset	4,567	5,969	9,625	5,058	111%	72%
Durham	7,711	9,730	13,677	5,966	77%	66%
Dyfed-Powys	1,829	2,721	4,632	2,803	153%	68%
Essex	11,347	15,228	27,149	15,802	139%	75%
Gloucestershire	3,930	8,215	17,294	13,364	340%	68%
Greater Manchester	46,949	73,438	97,850	50,901	108%	48%
Gwent	3,967	3,838	7,091	3,124	79%	104%
Hampshire	13,297	19,578	33,066	19,769	149%	68%
Hertfordshire	5,807	6,360	13,419	7,612	131%	93%
Humberside	12,710	22,111	48,031	35,321	278%	73%
Kent	10,429	14,420	30,743	20,314	195%	80%
Lancashire	12,728	17,017	29,550	16,822	132%	75%
Leicestershire	7,162	11,552	25,210	18,048	252%	76%
Lincolnshire	3,532	6,808	13,008	9,476	268%	65%
Merseyside	34,801	36,871	33,688	-1,113	-3%	0%

Metropolitan	125,944	148,901	174,770	48,826	39%	53%
Norfolk	5,273	10,455	18,178	12,905	245%	60%
North Wales	6,107	7,387	11,990	5,883	96%	78%
North Yorkshire	5,283	8,071	16,275	10,992	208%	75%
Northamptonshire	6,048	6,392	15,944	9,896	164%	97%
Northumbria	31,068	49,585	63,007	31,939	103%	42%
Nottinghamshire	18,161	18,267	40,038	21,877	121%	100%
South Wales	20,437	25,067	38,188	17,751	87%	74%
South Yorkshire	15,641	22,514	52,396	36,755	235%	81%
Staffordshire	8,750	13,406	30,091	21,341	244%	78%
Suffolk	3,223	6,022	9,147	5,924	184%	53%
Surrey	50,84	7,193	12,815	7,731	152%	73%
Sussex	9,970	16,038	26,672	16,702	168%	64%
Thames Valley	15,227	20,280	40,345	25,118	165%	80%
Warwickshire	3,289	5,472	12,554	9,265	282%	76%
West Mercia	7,096	9,566	17,980	10,884	153%	77%
West Midlands	49,783	58,123	100,002	50,219	101%	83%
West Yorkshire	35,303	44,663	94,294	58,991	167%	84%
Wiltshire	3,780	5,301	9,118	5,338	141%	72%
Total	617,319	825,019	1,368,806	751,487	121.70%	72.36%

Source: ONS, police recorded crime, 1980/81 to 1993/94

Table 1 also reveals some variation. Whilst the majority of forces had very marked burglary increases during the period 1980/81 to 1993/94, the size of this rise (both in volume and percentage terms) does vary. In one force, Merseyside, burglary volumes actually fell.

Graphing the trends in each police force area reveals that the reason for Merseyside's overall drop in burglary was simply that it had a far earlier peak. Amongst other forces, though the vast majority had peaks between 1992 and 1994, there is still some variation, as Table 2 demonstrates.¹⁰

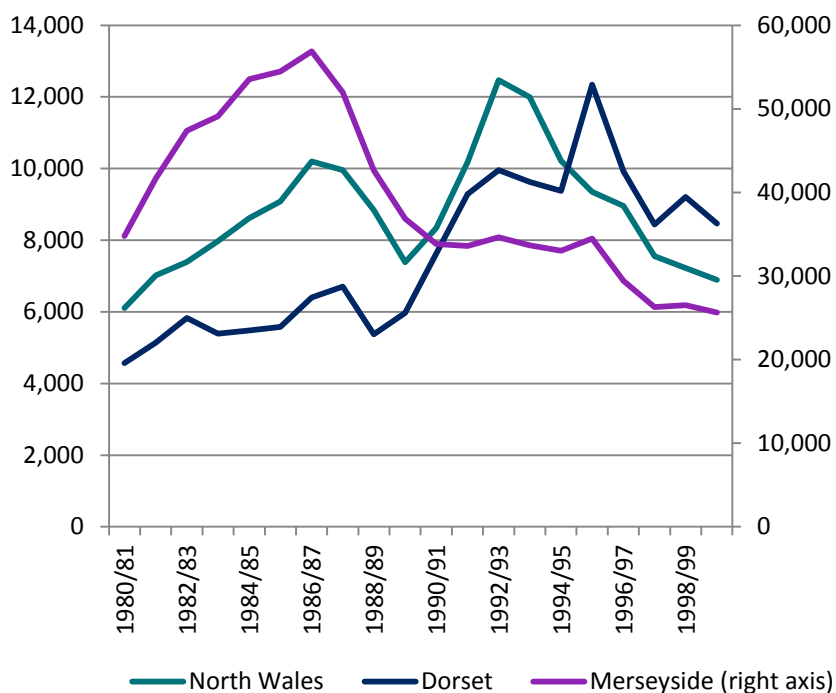
¹⁰ The longer version of this paper shows that a similar variation also exists for the two types of vehicle theft.

Table 2: Peak year for recorded burglary, by police force area

Police force areas	Peak year for recorded burglary
Merseyside	1986/87
Northumbria	1991/92
Metropolitan Police Service, Greater Manchester Police, Avon and Somerset, Bedfordshire, Cumbria, Dyfed-Powys, Hampshire, North Wales, South Wales, Sussex, Warwickshire, West Midlands, Wiltshire	1992/93
Cambridgeshire, Cheshire, Derbyshire, Devon and Cornwall, Essex, Gloucestershire, Hertfordshire, Humberside, Lincolnshire, Norfolk, Northamptonshire, Nottinghamshire, South Yorkshire, Staffordshire, Suffolk, Surrey, Thames Valley, West Mercia, West Yorkshire	1993/94
Leicester, North Yorkshire	1994/95
Cleveland, Dorset, Durham, Kent	1995/96
Lancashire	1996/97
Gwent	1997/98

The variation in the timing of the peaks can also be shown graphically, using the trends in three forces chosen to illustrate this.

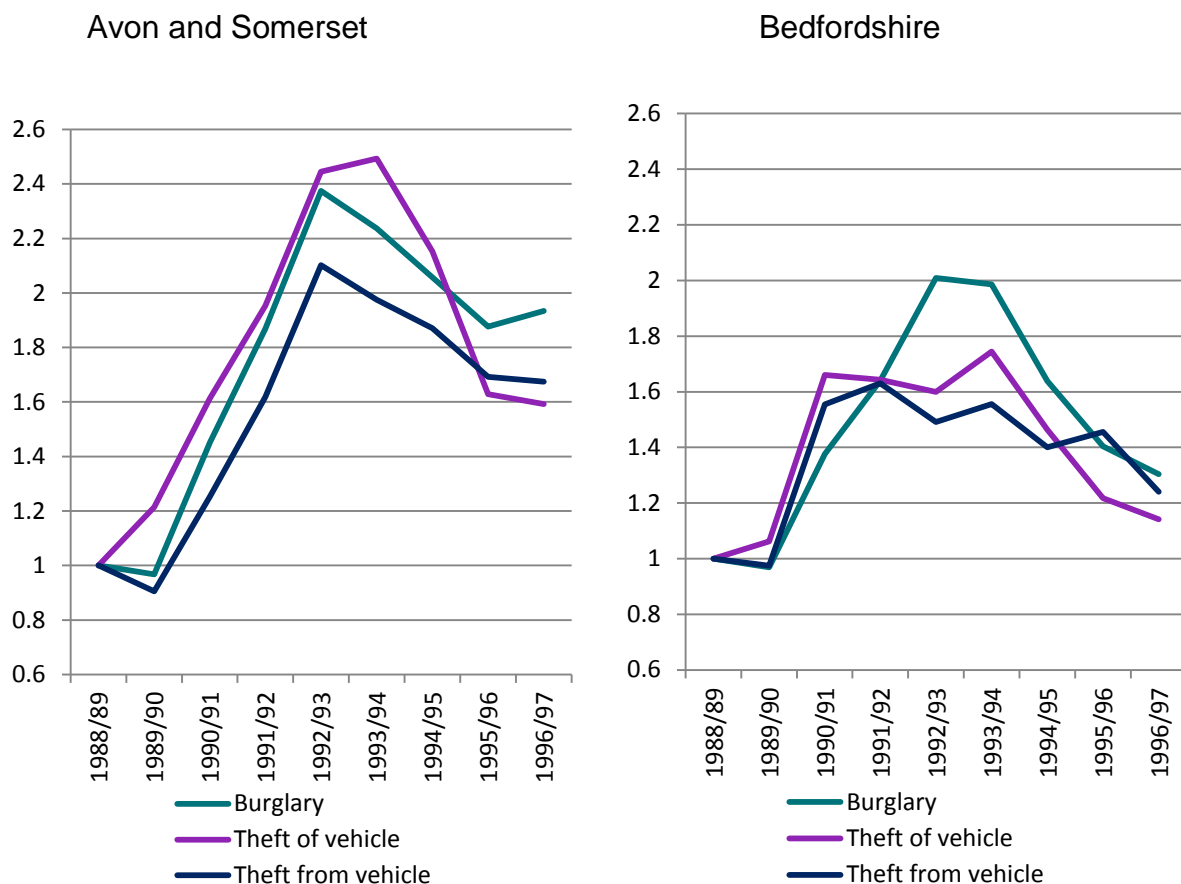
Figure 6: Police recorded burglaries in three police force areas, 1980 to 1999



Source: ONS, police recorded crime

However, within each police force area, as at the national level, different acquisitive crime types tended to rise and fall together. So although Table 1 focused on burglary, the rises in theft of and from a vehicle were of a similar magnitude, and peaks in these offences were also similar. This pattern is clearly evident in Figure 7 (next page), which shows the trends in the first two forces alphabetically, though it is generally true across most forces (see the longer version of this paper for similar charts for all forces).

Figure 7: Trends in burglary and vehicle crime in two police force areas, indexed to 1988/89

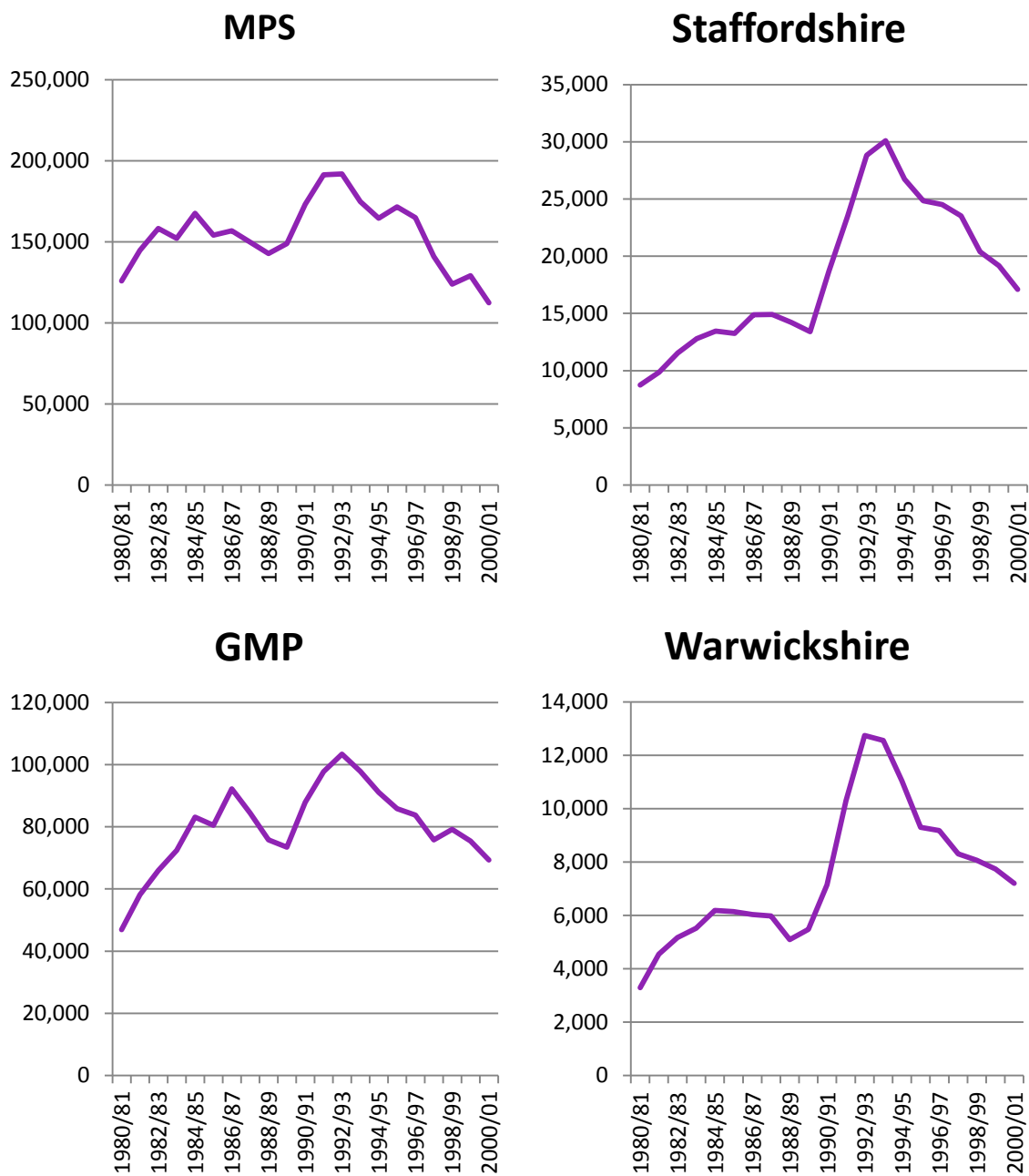


Source: ONS, police recorded crime

In addition, as Figure 7 shows, peaks at the local level were often very sharp during the early 1990s. In other words – a sharp rise was immediately followed by a sharp fall that became more gradual over time. This was particularly true for the less urban forces, which tended to have almost all their increase in crime focused in just a few years. Table 1 showed this, but it is even clearer in Figure 8 below, which compares the slightly more gradual rises in burglary in the larger metropolitan forces with the sharper ‘spikes’ seen in some of the more rural forces.¹¹

¹¹ Again, the picture is generally similar for vehicle crime – see the longer version of this paper.

Figure 8: Burglary trends in selected police forces, 1980/81 to 2000/01¹²



Note: MPS is the Metropolitan Police Force, and GMP is the Greater Manchester Police.

Source: ONS, police recorded crime

In summary, trends in recorded acquisitive crime at the police force area level show a series of ‘spikes’ that varied in time across areas but tended to feature all the main acquisitive offences within areas and which were particularly sharp in the less urban forces. This analysis raises some important questions about the longer term trends in acquisitive crime.

¹² A valid question is whether the apparent discrepancy between urban and rural forces is simply driven by the fact that urban forces had larger crime volumes to start with so rises will look less dramatic in percentage terms. This is explored in more detail in the longer version of the paper, but the point can be made here that even though this is almost certainly a factor, there is also some evidence in Figure 8 that less urban forces had more temporally focused peaks, which may be important for the link to heroin/crack, as explored in chapter 5.

- Why did crime in England and Wales rise steadily in the 1980s (with a slight lull from 1987 to 1989) and then increase sharply just after 1990?
- Why did it start falling equally sharply in the mid-1990s and continue to fall despite the recession?
- What factors might explain why the crime decline in England and Wales started later than in some other nations (like the US) but earlier than others (like most eastern European nations)?
- At the local level, why did the timing of acquisitive crime peaks vary and specifically, why did Merseyside peak five years before anywhere else in England and Wales?
- Within police force areas, why did high-volume acquisitive crimes peak together?
- Why was the sharpness of the peak particularly apparent in the non-metropolitan forces, rather than areas like London and Manchester?

Theories for the rise and fall in crime

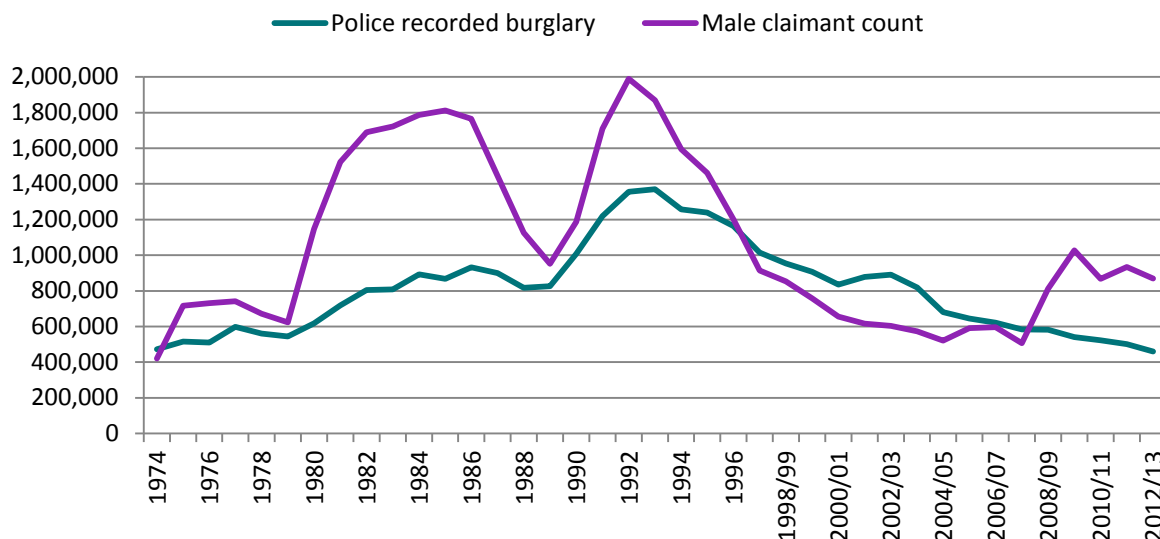
Many theories have been put forward to explain the trends set out in the previous section. While it is beyond the scope of this paper to examine them all in detail, a brief summary is included here to provide context, but also because it seems likely that ultimately a combination of these factors will be important, possibly to different degrees at different times, and that at times opiate/crack use may have interacted with other drivers of crime in important ways. For brevity, the explanations are grouped under five headings.

Economic explanations

There are essentially two theories of how economic conditions might drive crime trends and they operate in opposite directions. Under the first hypothesis, as a society gets richer crime will go up because there are more goods to steal and more people go out and socialise (and consume alcohol), leading to more violence. Under the second hypothesis, crime goes up instead during times of economic hardship because people have less money so the temptation to steal is greater, and poverty causes antagonism between groups driving up violence.

During the 1990s and early 2000s, it was largely the second hypothesis that held sway in relation to acquisitive crime (see, for example, Field, 1990; Rosenfeld and Fornango, 2007). In particular, the clear rise and then fall in unemployment that occurred in the early 1990s correlated markedly with the sudden spikes in crime, as did the long period of falling crime and benign economic conditions from 1995 to 2008.

Figure 9: Comparison between police recorded burglary and unemployment levels, as measured by male claimant count, 1974 to 2010



Sources: ONS, police recorded crime; NOMIS.

Two problems have emerged with this explanation. First, the correlation broke down in the recent recession as Figure 9 shows. Crime continued to decline despite the 2008 fall in gross domestic product (GDP) and rise in unemployment. Secondly, the relationship between crime and the economy, which Figure 9 would suggest is strong during the 1980s and 1990s, does not look nearly so strong when it is analysed at the police force area level.¹³

Offender-based theories (demographics, abortion and lead)

Another set of theories argue that changes in crime levels have been caused by changes in the stock of offenders (either through general demographics or some other mechanism like changes to abortion laws) or in their propensity to commit crime, for example, because of the degree of lead exposure during childhood (Donohue and Levitt, 2001; Nevin, 2007; Reyes 2007).

These theories have been examined in detail elsewhere. In the current context, it is merely worth noting that, because these theories operate on a generational basis, any rise or fall in crime predicted is likely to be gradual. Changes that affect the stock or propensity of offenders are likely to feed through to crime trends gradually, as new cohorts become less crime prone and previous cohorts slowly age out of offending. As such, these theories do not provide a convincing explanation of the sudden acquisitive crime 'spikes' that took place in the mid-1990s in England and Wales.

Criminal justice system theories

Some researchers have linked changes in crime to changes in policing or incarceration levels. Policing-based explanations can be divided into two types:

- those that focus on resources; and
- those that focus on police performance, tactics and techniques.

¹³ This is explored further in Chapter 5, but briefly, around one-half of police forces areas had a higher unemployment level in the mid-1980s than in the early 1990s, yet every police force area, except Merseyside, had an acquisitive crime peak in the 1990s.

The former is a fairly obvious formulation. If police resources increase, crime might be expected to fall and vice versa. This is unlikely to have caused the turn-around in crime, for the simple reason that the number of police officers was essentially flat through the mid-1990s when crime rose and fell rapidly.¹⁴

Changes to police practice have therefore tended to play a bigger role in potential explanations for the decline of crime (Zimring, 2001, 2011; Bandyopadhyay et al., 2012). But here too, it seems unlikely that changes in police tactics drove the sudden crime spikes evident in local-area data. For that to be true, police practice would need to have suddenly worsened and then improved at different times in different areas.

Studies have also explored the link between incarceration levels and crime. For the most part, these have yielded statistically significant but small effects (for a review see Durlauf and Nagin, 2011). Overall, they suggest that increases in the prison population have probably played some role in the decline of crime but that they are unlikely to be the main factor.

Opportunity and security theories (routine activities, changes in the stolen goods market, and security improvements)

These theories suggest that crime will flourish in conditions when it is easy to commit, and diminish when this ease is removed. Under this hypothesis, the long-term rise in burglary can be explained by the increase in female employment, which leaves more houses empty during the day; the rise in shoplifting can be explained by the shift of items to the shop floor where they are more accessible to thieves; and the rise in vehicle theft can be explained by the rising numbers of cars on the road (Ross, 2013).

Similarly, the fall in crime can be explained by security improvements that make offences harder to commit. Car immobilizers are the most studied example, though improved house security has also been cited (Farrell et al., 2011a; Vollaard and van Ours, 2011). Arguably, the biggest weakness of this theory is that, at the turning point of crime, all types of theft offences showed similar trends. It seems unlikely that the opportunity to commit burglary rose and fell at exactly the same time, and so markedly, as it rose and fell for vehicle theft. Supporters of the opportunity hypothesis suggest that there may be knock-on effects that explain this. They argue that by making cars harder to steal, immobilizers may also have prevented burglaries either due to the fact that stolen cars were often used in burglaries or because vehicle crime is frequently a 'debut offence' hence its prevention may stop offenders graduating on to other acquisitive crimes. This is certainly a possibility, but hard evidence is lacking. In any case, even these explanations do not appear to offer a reason for the local variations in crime – for example, why Merseyside had an earlier peak.

¹⁴ For a chart demonstrating this see the longer version of this paper.

Substance abuse theories (drugs and alcohol)

The final set of theories discussed here link changes in crime to changes in the consumption of drugs and/or alcohol. Generally, the evidence on alcohol suggests that it should be considered a potential driver of violence rather than of the acquisitive crimes that have dominated overall trends (Bushman and Cooper, 1990).

So, for the remainder of this report the focus is on the other substance abuse hypothesis: that changes in drug consumption cause changes in crime.

3. A historical overview of the spread of heroin in England and Wales

This chapter contains a descriptive account of the heroin epidemic and its influence on the number of opiate/crack users (OCUs) from the late 1970s through to the present day (2013).

The growth in heroin use

Available data and qualitative evidence agree that before the late 1970s heroin was not used widely in the UK and crack was unheard of. Heroin use was confined largely to London and users were mainly middle class and relatively affluent (Parker et al., 1988). One study of 37 users published in *The Lancet* in 1968 found that they had “little association with crime” (Kosviner et al, 1968).¹⁵

This changed in 1977–78 when a new supply route opened up from Iran and Pakistan (Pearson, 1987; Yates, 2002). This made heroin more available and affordable, but equally important was that the ‘new’ product was smoking heroin (Griffiths et al., 1994). This had two crucial effects, both of which probably increased take up:

- potential users put off by injection were no longer faced with that barrier; and
- smoking heroin came with the myth that, unlike the injection-variety, it was non-addictive (Yates, 2002).¹⁶

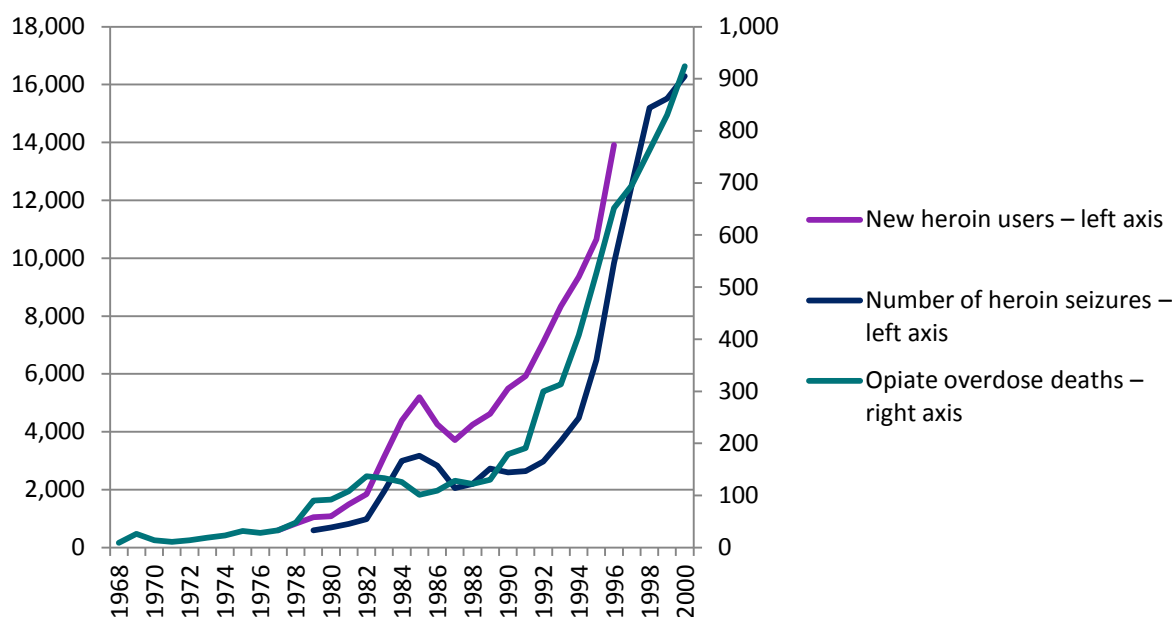
As a result, pockets of heroin use began to be recorded outside London. The main indicator of heroin use at this time was the Addicts Index, a dataset of new and existing dependent illicit drug users reported to the Home Office, largely by general practitioners and other medical institutions.¹⁷ Unfortunately it is likely both to lag and under-count the true population because evidence shows users tend not to seek medical help until several years after initiation, and some never do (Millar et al., 2001). However, along with other available indicators, the Addicts Index does give an idea of the scale of the increase in heroin use.

15 See also <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1924404/?page=1>

16 The degree to which heroin is addictive is explored to an extent in the longer version of this paper, as part of an attempt to establish how many OCUs cease using each year. In summary, heroin was found to be far from universally addictive – not everyone who tries it becomes a long-term user. But a proportion do become dependent and they can go on using for several decades.

17 The Addicts Index also changed its methodology slightly in 1987, meaning that estimates for the total addicts notified are not strictly comparable before and after this point. This is why throughout this paper the term ‘new heroin addicts’ is used where possible, as this category was not affected by the change.

Figure 10: Indicators showing changes in the use of heroin in England and Wales,¹⁸ 1968 to 2000



Sources: Addicts Index for new heroin users; Home Office statistics for seizures and De Angelis et al (2004) for opiate overdose figures.

It is clear that by the 1990s heroin use had increased to levels perhaps 10 or 20 times greater than during the 1970s. Indeed, it has been estimated that the number of heroin users in England and Wales was between 10,000 and 25,000 in 1981 (Wagstaff and Maynard, 1988), but that by the mid-1980s this had increased to between 60,000 and 80,000 (Pearson, 1987) and that by the turn of the 1990s the total volume of users was being counted in the hundreds of thousands (Sutton and Maynard, 1992).¹⁹ Partly for this reason, the term ‘epidemic’ is often used to describe the growth in use through the period.²⁰

In contrast to the heroin-using population prior to the epidemic, studies found that the new users tended to be young, working class and unemployed (Pearson, 1987; Parker et al., 1988).²¹ For example, in a 1984/85 sample of heroin users from the Wirral area of Merseyside, 87 per cent were unemployed and the modal age was 19 (Parker et al., 1988). In the sample 72 per cent became daily users within 6 months of first use (ibid.). According to Parker et al. there was a “tragic time lag between the contagious stage during which heroin use spread and the stage when the epidemic’s full impact was felt and reacted to by the community”.

The way heroin use spreads

Research suggests that heroin use spreads primarily through networks of friends and relatives

¹⁸ Note that the geographical coverage for opiate overdose deaths is just England, for new heroin users and seizures it is England and Wales.

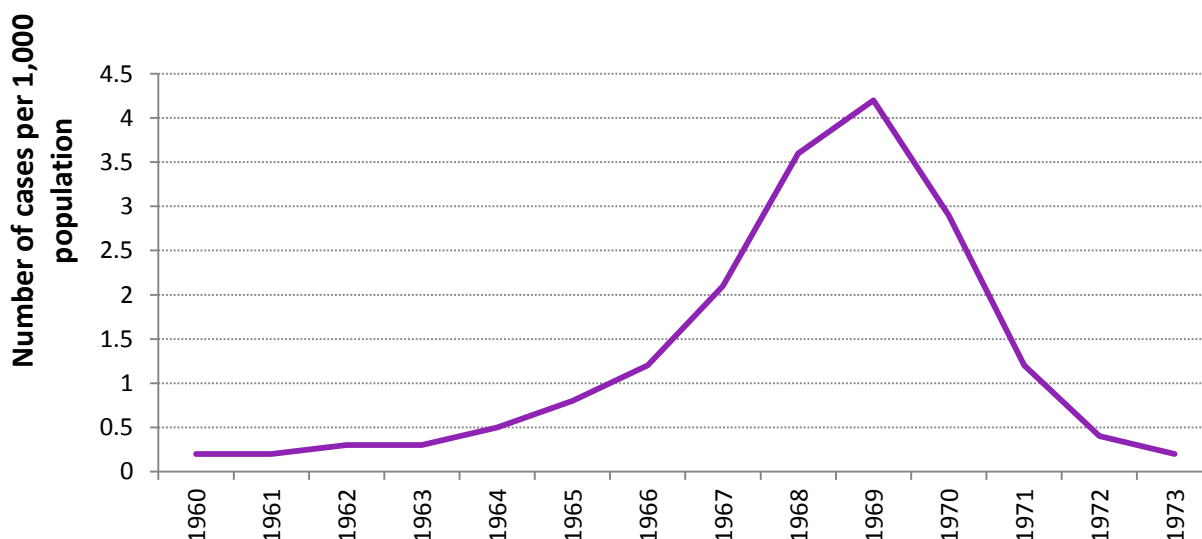
¹⁹ All these estimates are derived by multiplying up Addicts Index figures and therefore should be treated extremely carefully. Multipliers were themselves merely estimates.

²⁰ ‘Epidemic’ has also become the standard term due to the fact that much of the language of the spread of heroin is borrowed from epidemiology.

²¹ In the Wirral, during the early stages of the epidemic, Parker and Newcombe (1987) and Parker et al. (1988) found a male:female ratio of around 3.6:1. But there was also some suggestion that the ratio tilted slightly towards females as the epidemic progressed.

rather than through the marketing techniques of drug dealers. Nine out of every ten users in the Wirral said that they had first received heroin from a friend or relative, rather than from a dealer (ibid.). This fits the 'model' of the take up of heroin developed by Hunt and Chambers (1976) using data from the UK and from the US heroin epidemic more than a decade earlier. They suggested that at the person-to-person level, heroin use spreads via micro-diffusion. A few 'initiators' enter a community and pass on their heroin use, through networks of friends, to susceptible individuals. These secondary users then spread heroin to their susceptible friends, and so on. Importantly, what Hunt and Chambers (1976) found was that while initiators can pass on use to many people, secondary users spread heroin to a far smaller number because many of their friends will have already been exposed by the initiator. This means that the number of new users can rise very quickly but also fall equally rapidly, once all the susceptible individuals have been exposed and saturation is achieved. This 'spike' in new users (incidence) was evident in data from US epidemics in Chicago (Hughes et al., 1972); and in the district of Columbia, as shown in Figure 11 (Greene and Dupont, 1974).²²

Figure 11: Annual incidence of heroin use in the district of Columbia



Source: Greene and Dupont, 1974

A similar pattern occurred in the Wirral. Incidence decreased almost as sharply as it had increased. Parker (2004) found that there were 800 new cases in 1984/85 but this fell to 260 in 1986/87, and to less than 100 by 1990.

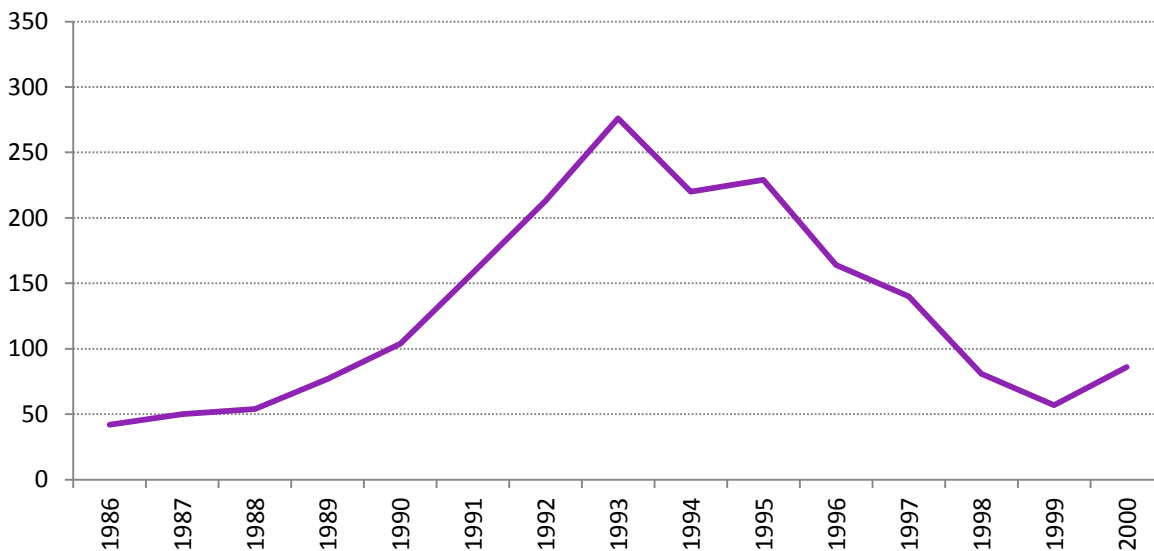
US authors also suggested that heroin use spread from the most densely populated urban areas to the less populated surroundings (Hunt and Chambers, 1976). This process, which they labelled macro-diffusion, meant that larger cities were affected first, then smaller cities, then

²² The Hunt and Chambers (1976) model of heroin epidemics is only one possible theory that fits the data and many more have been developed since – for a summary see Caulkins (2005). For this paper, the crucial point is that available data continue to show that, during epidemic periods, numbers of new users rise and fall very sharply and that in some models, the peak in total users is also very sharp (see, for example, Rossi, 2002). In other words, in a given locality, the epidemic trends tend to cause 'spikes' in illicit drug use, similar to the 'spikes' in crime shown in Chapter 1.

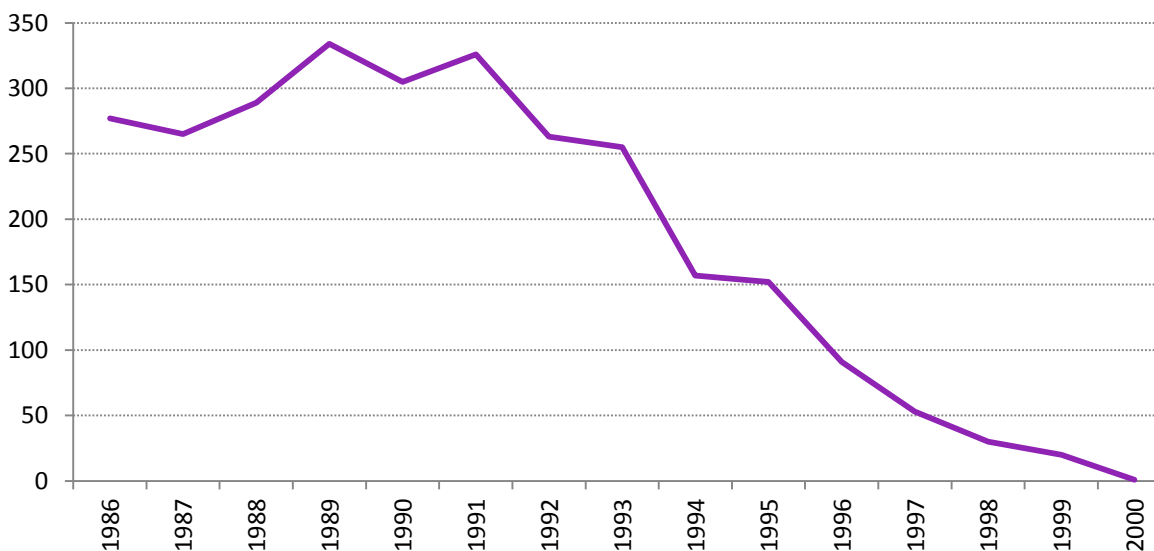
towns, and finally rural areas. In addition, they found that once an area had an epidemic, it rarely had another one for 20 years – until there was a new susceptible youth population. Again, there is evidence that the UK epidemic followed a similar pattern. Millar et al. (2001), looking at Greater Manchester, demonstrated both the sharpness of the peak in new users, particularly in the less population-dense suburbs like Bolton, but also that the peak was later there (1992/93) than for Central Manchester (1989/90), see Figure 12.

Figure 12: Estimated trend in new heroin users in Bolton and central Manchester, 1986 to 2000

Bolton



Central Manchester



Source: Millar et al., 2004

Figure 12 shows another pattern seen throughout the Addicts Index data: the spike in opiate/crack use was generally sharper in areas with a single urban centre, like Bolton, rather

than more sprawling urban locations like London and Central Manchester. The Hunt and Chambers (1976) theory offers a potential explanation: big cities have many urban centres of varying size, which would have been likely to have been affected by the epidemic at different times, giving rise to a more gradual rise and fall in opiate/crack use. But single urban-centre locations like Bolton would have seen a more focused impact.

The two waves of the epidemic

Qualitative research suggests that the UK epidemic occurred in two distinct waves with a lull in the middle, and that (in a slight contradiction of the US model), some areas were affected during both waves (Parker, 2004).²³ So whilst parts of London (Hartnoll et al, 1985), the major Scottish cities (Haw, 1985) and other western regions of the British Isles (Parker and Gay, 1987; Fazey, 1991) appeared to follow Liverpool in having an outbreak in the early 1980s, much of the country remained relatively free of heroin until a second wave in the 1990s.²⁴ The data – see Figure 10 above – also support the notion of two waves. There is an initial peak in all three national drugs indicators, followed by a slight lull, before a second, far higher peak.

Parker (2004) identified three types of area:

- those that only had a heroin surge during the first phase of the epidemic;
- those that only had a surge in the second phase; and
- those that had surges in both periods.

Parker concluded that Merseyside fitted into the first of these categories and this is supported by the Addicts Index data. They show that Merseyside was alone in having a decreasing number of new heroin users by the 1990s. It is not known definitively why Merseyside was the only area to escape a second heroin surge, but there are perhaps two possible theories.

- Merseyside was one of the first areas to be affected, so it is possible that the epidemic had simply run its course before the second wave started.
- Merseyside (particularly its main city Liverpool) was the first area to pioneer a 'harm reduction' response to heroin (O'Hare, 2007). It is possible that this strategy, which focused on methadone maintenance and the referral of arrestees to treatment, may have brought the epidemic to a swifter end.²⁵

Of the other police force areas, some, like Greater Manchester, saw surges in heroin use in both epidemic waves, but many were only affected during the second wave. Parker et al. (1998)

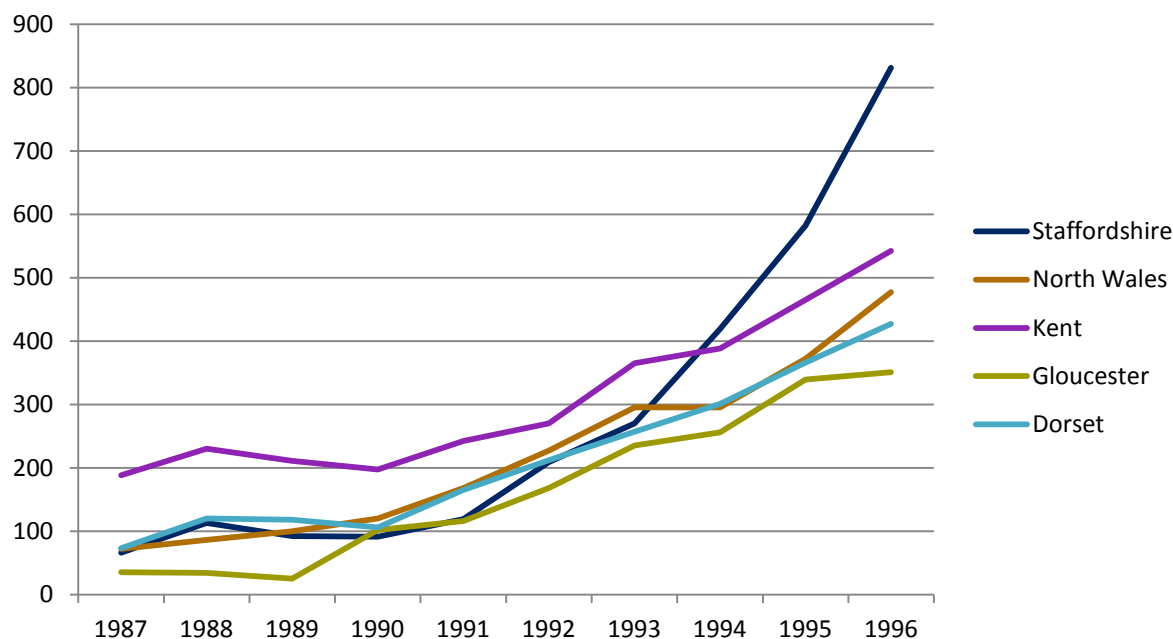
23 This depends, of course, on the geographic granularity. For the most part this review uses police force area level data, which is a high-level data source. It is possible that the US model is correct and different local areas within each force were hit in different waves.

24 Possible reasons for the two-wave structure are briefly explored in the long version of this paper.

25 The same paper (<http://www.canadianharmreduction.com/sites/default/files/Merseyside%20-%20Early%20Hx%20of%20HR%20-%202007.pdf>) also claims that the early adoption of a harm reduction approach in Merseyside meant that "an HIV epidemic did not happen amongst injecting drug users in Mersey".

use an Addicts Index map of the UK in 1989 to show that large parts of England and Wales remained largely unaffected by heroin at this point.²⁶ But their map had changed by the mid-1990s, following a survey of police forces and drug action teams. With the exception of Staffordshire, Gloucestershire, Kent, Dorset and North Wales all police forces in England and Wales that returned data reported having, or in Merseyside's case having had, a heroin outbreak. Furthermore, the Addicts Index data (see Figure 13) suggest that the survey responses from the exception areas possibly reflected a lack of awareness of a newly emerging epidemic, rather than no epidemic at all.

Figure 13: Trends in total heroin users reported to the Addicts Index, in the five forces that did not report an epidemic in Parker et al. (1998), 1987 to 1996



Source: Addicts Index

In summary, whilst the first wave seemed to affect Merseyside and a few other western parts of the country, by the time of the second wave, the heroin epidemic was a national phenomenon.

It was also during the second wave that crack use started to feature. A study by Gossop et al. (1994) found that before 1987, cocaine use was generally confined to powder cocaine ingested intra-nasally. But from 1987 a growing number of crack smokers began to emerge. However, most evidence suggests that these crack users were existing heroin users diversifying their drug use rather than totally new users (see, for example, Hope et al., 2005). Hence, unlike in the US, England and Wales did not really experience a separate crack epidemic, but an extension or diversification of the existing heroin epidemic.²⁷ This is why, throughout this paper, then, OCUs are grouped together and the term OCU (opiate/crack user) is used to describe them.

²⁶ Though see discussion of lag on Addicts Index data below.

²⁷ Even in the US, evidence suggests that many crack users were existing heroin users diversifying their drug misuse. However, there is little doubt that crack markets became more established in the US, with two important effects. Firstly, this probably resulted in the creation of more new users (i.e. those who initiated with crack, rather than diversified from heroin), but also the intense competition between suppliers in the market, particularly at the street-level, almost certainly had a greater impact on levels of violence than occurred in the UK. This is explored further in the long version of this paper.

The epidemic peak and the cohort today

Determining the national peak of the epidemic is not easy. The Addicts Index was still showing a rise in new and total users in 1996, but as already noted this is likely to lag the true situation by at least two to three years, and after 1996 the index was discontinued. There was then no standardized measure of OCU volumes until the annual estimates (Hay et al., 2006; 2012) began in the mid-2000s. These suggest that the total number of OCUs has fallen at an average rate of around 2.5 per cent per year since 2004/05. Taken on their own then, these series suggest that the peak was probably somewhere between 1993 and 2004 but do not allow for more precision than that.²⁸

The situation is further complicated by the fact that there are two ways of measuring the peak. It might be regarded as the point at which the number of new users stopped increasing and started to decline, or the point at which the number of total users started falling, which, in theory, could have been a number of years later.

For new users, De Angelis et al. (2004), using a variety of models that work backwards from drug overdose deaths to estimate the year of first use, concluded that the peak probably occurred around 1996 in England and Wales.²⁹ Similarly Frischer et al. (2009), using longitudinal data from the General Practice Research database, suggested that the number of new and total OCUs under the age of 25 was falling from 1998.

Though the epidemic may have been past its peak by the turn of the century, the speed at which new and total users fell was probably quite different. As was visible at the local level, volumes of new users tend to decrease very quickly once all susceptible individuals have been 'exposed' in an area. By contrast the number of total users – as the Hay et al. (2006; 2012) estimates suggest – have probably declined far more slowly. This is due to the fact that, whilst some users manage to quit opiate/crack use relatively quickly (Kaya et al., 2004; Sweeting et al., 2009), a proportion of individuals continue to use these drugs for decades after initiation, often cycling in and out of treatment services and periods of cessation and relapse during this time (Darke and Hall, 2003; Hamilton and Grella, 2009).

Both the Hay et al. (2012) estimates and the Drugs Data Warehouse (DDW)³⁰ agree that by the late 2000s, the OCU cohort had an average age of around 35. Yet the average age of initiation is around 18 to 20; and only about 3 per cent of OCUs start using opiates/crack over the age of 35 (Donmall and Jones, 2005). This therefore provides further evidence that new OCUs were sparse by the late 2000s, that the epidemic was well past its peak at this point and that today's population of OCUs are still, in all likelihood, dominated by those who began use during the epidemic period.

A final conclusion follows logically from this. If there were around 300,000 OCUs in the late-2000s, as suggested by the Hay et al. (2006) estimates, but the epidemic was well past its peak at this point, then at the peak, the total number must have been higher.

28 This paper does not graph the number of OCUs over time using its two main data sources – the Addicts Index and the Hay et al. estimates. Doing this would have made it appear that the numbers of OCUs must have continued to increase dramatically during the gap between the two series. The evidence presented in this paper (particularly the age breakdown of the current cohort) suggests that this conclusion, which may have led many to reject opiate/crack use as a partial cause of the crime drop, is almost certainly wrong. The difference in magnitude between the two series is due to the under-counting of the Addicts Index, not because the trend continued to increase. Figure 23 hopefully gives a better view of the true trend in OCUs. It is an attempt to model this trend. However, please note that this modelling is highly exploratory and encompasses a number of necessary assumptions that are open to challenge.

29 A study by Sutton et al (2004) also looks at incidence levels nationally, but only of injecting users. It concluded that initiation peaked in the early 1980s and remained stable through to the mid-1990s before declining. Though this pattern does not seem to agree with much of the rest of the evidence, it does at least tally with the conclusions presented here in the sense that incidence was almost certainly falling by the late 1990s.

30 The Drugs Data Warehouse is a Home Office database that has linked anonymised information for over 1 million drug-misusing individuals identified either within the criminal justice system and/or through contact with drug treatment services between 1 April 2005 and 31 March 2009. See Millar et al (2012).

4. The relationship between crack/opiate use and crime

Central to the analysis in this paper is the question of whether opiate/crack use causes acquisitive crime. To examine this, a review of international research was conducted, with the aim of identifying all studies in which offending levels among cohorts of opiate/crack users (OCUs) were measured. This identified 36 relevant studies, which are summarised in appendix 4 in the longer version of this paper.

Generally the studies were consistent on a number of points.

- It is clear that, overall, illicit drug users have higher odds of offending than those who don't use illicit drugs. A meta-analysis of 30 studies showed that the odds of offending were between 2.8 and 3.8 times greater for illicit drug users (Bennett et al., 2008).
- Studies that measured self-reported offending amongst OCUs (whether from a treatment, criminal justice system or community setting) generally reported very high numbers of offences – certainly high enough to impact national-level crime trends. For example, from a sample of 384 arrested heroin users in Baltimore, 243 males had on average committed more than 2,000 offences per individual per year for the previous 11 years (Ball et al., 1983).
- Apart from drug dealing (and prostitution amongst female OCUs) the most common crimes were theft offences. For instance, a sample of 1,075 treatment seekers from across England and Wales recruited for the National Treatment Outcome Research Study (NTORS), 87 per cent of whom were heroin users, self-reported 27,787 theft offences in the previous 3 months, an average of 26 per person (Stewart et al., 2000). In a smaller study of 210 illicit drug users in Scotland recruited from community settings, injecting opioid users admitted committing theft on 108 days per year on average (Hammersley et al., 1989). In volume terms, shoplifting stood out as the most common crime type, but cohorts generally reported a wide variety of theft-type crimes, including burglary, vehicle theft and robbery.
- Virtually all studies agreed that a few individuals committed the bulk of offences. Or to put it another way, many OCUs commit little or no crime.³¹ For example, in the NTORS sample, 75 per cent of crimes were committed by 10 per cent of the sample and 50 per cent reported no acquisitive crime at all.³² Another area of general agreement was that a

31 This point becomes even starker if the category is restricted to 'acquisitive crimes'. Many OCUs seem to be able to fund their illicit drug use through a combination of legal means and dealing.

32 This is important for the modelling of OCU crime carried out later in this paper. Without exception studies find that there are always a few OCUs, within any given cohort, who commit very high numbers of crimes. This drags up the average offending rate for the cohort as a whole and means that the average is a poor predictor for the majority of OCUs (who will have far lower offending rates). But the fact that across time and geography there consistently seems

high proportion (though, importantly, not all) of the OCUs who offend at high rates began their criminal careers before opiate/crack initiation. Hence drug misuse did not cause the onset of offending for these individuals.³³

These facts – which are generally agreed – present something of a puzzle. On the one hand, OCUs seem to commit very large numbers of thefts and the need to fund their habit seems an obvious explanation. But on the other hand, it is clearly possible for some individuals to be OCUs without committing (acquisitive) crime and many of those who do were already offenders beforehand. Hence the main area of disagreement between the studies: whether opiate/crack use actually causes the crime committed by OCU cohorts.

In theory there are three ways to explain the fact that cohorts of OCUs seem to commit very large amounts of crime:

- Illicit drug use causes crime;
- crime causes illicit drug use;
- a third factor causes both.

In a 2009 paper Bennett and Holloway looked at the first two of these options. They summarised all the different ways in which 41 offenders reported that drugs (including alcohol) were involved in their offending. They identified 77 different drug-crime connections (incidences where offenders self-reported a link between a particular drug type and a particular crime type) and they then coded these to either drugs-cause-crime explanations or crime-causes-drugs explanations. The main mechanisms are summarised below.

Drugs cause crime³⁴

Psychopharmacological: Crime occurs when the use of drugs results in change or impairment in cognitive functioning.³⁵

Economic-compulsive: Individuals commit acquisitive crime in order to buy drugs.

Systemic: Because buying and selling drugs is a lucrative but illegal activity, offending often surrounds those who take part in it. So drugs markets can give rise to violence between dealers competing over territory, or to theft of drugs/money by potential buyers or sellers in the system.

Crime causes drugs

Psychopharmacological: Individuals take drugs to find the courage to commit an offence.

Surplus proceeds of crime spent on drugs: Some offenders report that they bought and consumed opiates and crack as rewards for committing a particularly lucrative offence.

The findings revealed that almost 90 per cent of the narratives were classified as drug-causes-crime, with the economic motive being by far the most important individual mechanism, accounting for 56 per cent of the narratives (ibid.). Despite this, the authors found that it was

to be these high-rate offending outliers, means that the average offending rate can be applied to aggregated cohorts of OCUs over time.

33 An important point here is that although the exact proportion of those whose offending starts after opiate/crack use varies by study, it is above zero in every study. Hence for a proportion of every OCU cohort there will be a group of individuals for whom the causal link between drugs and crime appears far stronger from this perspective. See the longer version of the paper for more on this.

34 These categories are taken from Goldstein (1985). Bennett and Holloway (2009) prefer the term 'lifestyle' and argue that many of the categories can be split into both drugs-causing crime and crime-causing drugs narratives.

35 Bennett and Holloway (2009) note that this process can also follow a crime-causes-drugs connection if individuals take drugs to find the courage to commit an offence.

often very difficult to say in which direction the causality lay, and that criminality and drug misuse often seemed to mutually reinforce each other.

Even so, their findings are generally mirrored across other self-report studies. For example, in the NEW-ADAM study of arrestees, 83 per cent of offenders who said that their drug misuse and offending were linked said the connection was that they needed money to buy drugs. The psychopharmacological (drug-causes crime) explanation was the second most popular, with 27% of those who saw a connection citing this. Just 8% said that they used the money from crime to buy drugs and hence that crime drove drug use rather than vice versa (Bennett and Holloway, 2004). The only exceptions that could be located were studies that looked at younger OCUs (aged 14-20), who tended to report that a smaller proportion of offences were committed to finance opiate/crack use (Johnson et al., 1991).

The findings from cross-sectional regression analyses are also somewhat split along youth/adult lines. In a UK context, two studies by Hammersley et al. (1989; 1990) using cohorts of Scottish OCUs with a mean age of just 15 years, offered perhaps the strongest challenge to the causal link between heroin/crack use and crime. They found that: “(non-drug) crime explained opioid use better than opioid use explained (acquisitive) crime”. Coid et al. (2000), who found conflicting results, pointed out that for very young cohorts it is possible that the crime-causes-drugs relationship may be stronger but that this would reverse in adulthood once regular use became cemented and crime became a necessity to finance it. However, a more recent paper, using data from English OCUs with a mean age of 32, suggests that the Hammersley et al. findings are mirrored in adult cohorts (Hayhurst et al., 2012). Although median drug spend over a four-week period was £910.50 amongst the acquisitive crime offenders and £240 among non-offenders, the link between drug spend and crime was weak once other factors (like poly-drug misuse) were controlled for.

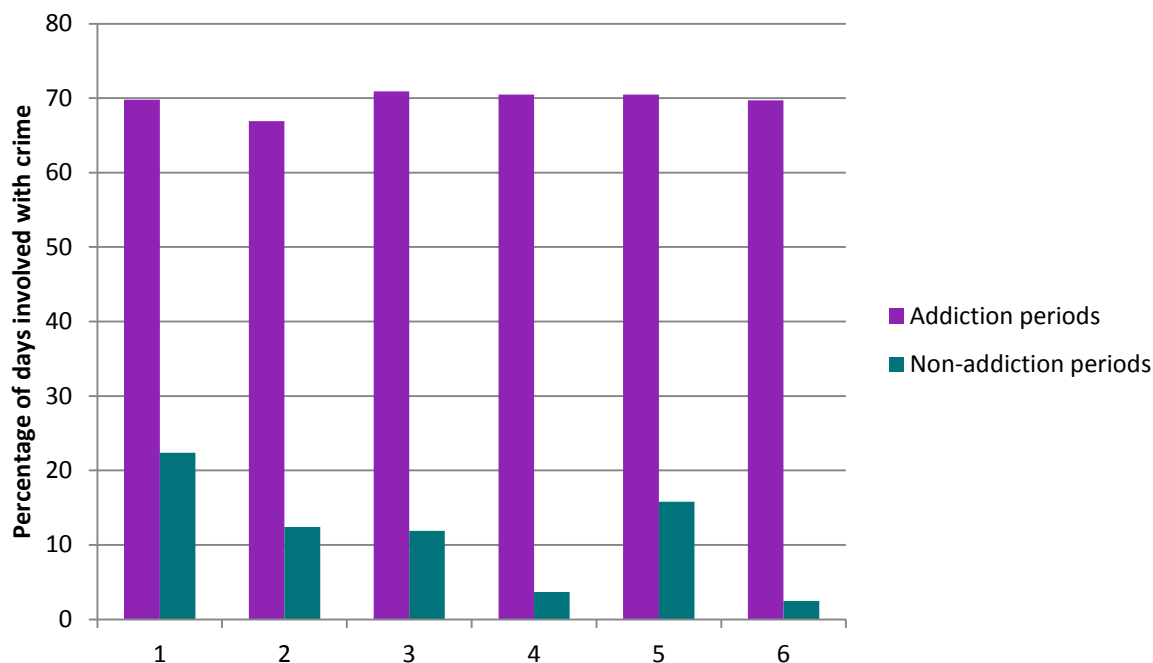
Klee and Morris (1994) also question the strength of the causal relationship, taking a different approach. They found a very high level of offending amongst young heroin users, in line with other studies, but they found an almost equally high level of offending amongst an otherwise similar cohort of amphetamine users, even though amphetamines are far cheaper, which meant that this group spent much less on drugs. Like Hammersley et al. (1989; 1990) they concluded that the direct need to finance use did not seem to be the main explanation for offending, and hence an underlying third factor causing both crime and drug use was more important.

Arguably though, the strongest methodological approach for isolating causality comes from longitudinal studies. This is because, even if a third factor (or combination of factors) does make people both more likely to commit crime and take opiates/crack, it is still possible for drugs to cause additional offences if the drug-taking accelerates the frequency of offending, or extends the criminal career. The evidence from the few longitudinal studies that have been undertaken suggests this is the case.³⁶

These studies are examined in more detail in the longer version of this paper but here the point can be made by referring to Ball et al.'s (1983) study, which followed 354 regular heroin users in Baltimore through periods of addiction and non-addiction. They found that heroin addicts tend to cycle in and out of addiction after onset, and that their criminality declined dramatically when not addicted, (Figure 14).

36 Unfortunately, as made clear in Chapter 1, the longitudinal studies that have been done are exclusively retrospective. This means that bias cannot be ruled out. It is possible that short-duration, less crime-prone users may have been excluded and that this inflates the drugs-causes-crime implications of the studies. In relation to this though, it should be noted that the same bias almost certainly exists in calculations of the size of the cohort – i.e. by necessity, treatment and criminal justice system datasets were used to construct these estimates, meaning that the potential hidden population of more benign users will almost certainly be largely excluded from these also. In other words, although this bias may affect the view of the OCU cohort as a whole – and as a result it should be emphasised again that not all OCUs are alike and many probably use these drugs and quit without recourse to acquisitive crime – it may not statistically significantly bias estimates for the total volume of crime committed by the cohort (in Chapter 6), as long as the ‘hidden’ population is excluded both from the offending rate calculations and from the cohort-size figures.

Figure 14: Longitudinal comparison of offending during addiction and non-addiction periods



So period 1 above refers to the aggregate offending of the cohort during their first addiction period (purple) and then their first non-addiction period (blue)

Source: Ball et al., 1983

This finding, which was repeated in other studies (Anglin and Speckart, 1986; Nurco et al., 1989) is important because if heroin use and criminality were caused entirely by a third factor, then there should be little difference between offending levels during periods of addiction and non-addiction within the same individual, once age is accounted for. The fact that there is so much variation apparently determined by changes in drug misuse rather than age or any other factor, suggests that whilst opiate/crack use does not explain all the criminality of these individuals (as offending still occurs in non-addiction periods) it may explain a substantial proportion.

The Baltimore study also suggests that opiate/crack use extends criminal careers.³⁷ With the exception of period 5 (by which time sample sizes are getting low) offending decreases in the non-addiction periods over time, which would fit with the normal 'maturing out' of crime identified by Sampson and Laub (2005) and others. But, there is no such evidence of maturing out during the periods of addiction (see also Welte et al., 2005).

Unfortunately, there has been little longitudinal research on UK OCUs. However, in less robust studies, Parker and Newcombe (1987) and Jarvis and Parker (1989), also find an acceleration in conviction rates after heroin initiation, as does Killias and Ribeaud (1999) in a European study.

It is also worth noting, as Coid et al. (2000) point out, that if drug misuse does not cause crime there would be no logical reason for criminality to reduce markedly upon entry to treatment, yet

³⁷ This is explained more fully in the longer version of this paper, but to provide context here – the average length of the first period of addiction in the Ball et al. (1983) study was around two-and-a-half years, with each subsequent period of addiction/non-addiction averaging a further one to two years. Hence by the time of the sixth period of addiction, many users would have been well into their 30s or even 40s, yet their offending rate when addicted was just as high as at the beginning of their career. Equally important to note is that, though suggestive, this does not conclusively prove that opiate/crack use extends criminal careers. It is possible that non-OCU offending also has periods of especially high offending at older ages, and that the ageing out process found in studies like Sampson and Laub (2005) is caused by long periods of little or no offending either side.

evidence suggests that it does (see, for example, Killias and Ribeaud, 1999; Killias et al, 2000; Bukten, 2012).

Two tentative conclusions emerge from the evidence presented.

- Regardless of the causality question, the large change in the number of OCUs over the last 35 years and the strong evidence of their high aggregate rate of offending means that the cohort itself is likely to have played a role in the rise and fall of crime, even if most of the offending was ultimately driven by a third factor.
- Opiate/crack use is likely to be causally related to crime to a degree, though the magnitude remains uncertain. For the group who start offending in line with or after initiation into regular opiate/crack use, this seems clear, but even for those whose offending preceded drug misuse, studies suggest that opiate/crack use would be likely to have accelerated their offending and extended their criminal career to some extent, which would cause additional offending in the aggregate.

If the above observations are correct (and this paper accepts that there is certainly some conflicting evidence) then some correlation between opiate/crack use and acquisitive crime should be evident at the local/national and international level. This is examined in the next chapter.

5. The relationship between opiate/crack use and crime locally, nationally and internationally

This chapter examines how the marked changes in the opiate/crack user (OCU) population outlined in Chapter 3 might help to explain some of the crime trends identified in Chapter 2. To start with, some qualitative similarities are drawn out.

- The rise in recorded acquisitive crime had two phases: gradual growth in the early 1980s; and faster growth in the early 1990s. In the middle, there was a slight crime fall from around 1986 to 1988. Opiate/crack indicators also suggest a two-wave pattern with closely matching dates and a greater overall increase in OCUs in the second wave.
- Crime data show that within areas, different types of acquisitive crime rose and fell together. This would be expected if opiate/crack use were a driving factor, as OCUs report a wide variety of theft-type crimes.
- Geographic variation in crime between areas appears to match geographic variation in opiate/crack use. This is tested more formally later in this chapter, but the clearest example is Merseyside, which had a crime peak around five years before anywhere else and which was also one of the first areas to be affected by the heroin epidemic and certainly the first area to be free of it.
- The police force level recorded crime analysis showed that for many areas, the increase in crime was not gradual but a 'spike'. Evidence from epidemic studies suggests that the number of new heroin users also tends to 'spike' in a given locality. A valid question is why crime might have more closely followed the trend in new users rather than the trend in total users, which may not have 'spiked' to the same degree. A possible reason is that at the peak in new users, a very high proportion of the OCU population (by definition) will be in the first period of addiction, and hence would be likely to be committing crime at a high rate on aggregate. But even a year or two later, many OCUs who started at or just before the peak will have either quit (there is some evidence that the highest exit rates occur in the early years, Sweeting et al., 2009) or started to cycle in and out of treatment/addiction/non-addiction. Overall crime would therefore be expected to decline swiftly until the entire cohort reached this 'cycling' phase, when the decline would flatten again.³⁸
- The crime data showed that the rise and fall in crime were not driven by just a few large areas. Instead, every police force area was affected. The Addicts Index data suggest that the same is true for the heroin epidemic. By the mid-1990s it had spread to most, if not

³⁸ This brief explanation generalises what is almost certainly a far more complex process – and this is explored in more depth in the longer version of this paper.

all, police force areas. Furthermore, the rises in acquisitive crime were sharpest in the non-metropolitan forces – those with fewer urban centres. The evidence on epidemic spread shows a similar pattern for opiate/crack use.

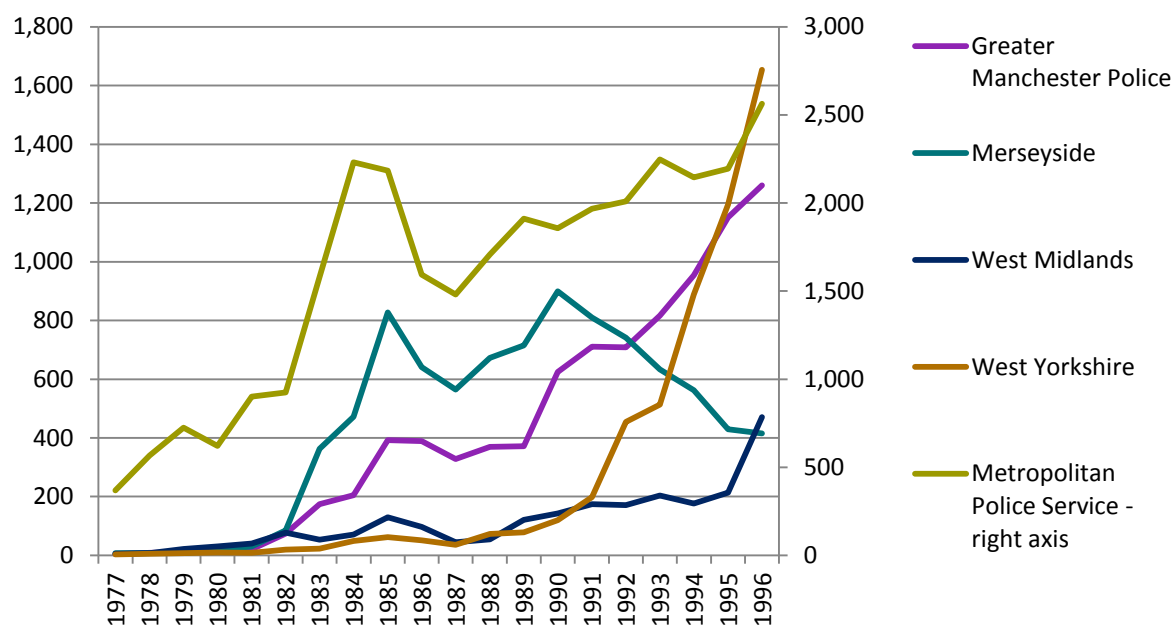
- That crime has continued to fall during the recession is less surprising in the context of the OCU epidemic cohort, which continued to decline (and age) at around the same rate both before and after the downturn.

The relationship between the Addicts Index numbers and crime in England and Wales

To analyse more robustly some of the links suggested above, data were gathered on new and total heroin users (from the Addicts Index), unemployment (from NOMIS) and recorded crime (from the Home Office recorded crime archives) for the period 1980 to 1997.³⁹ A number of statistical tests, with a generally increasing level of sophistication, were then performed.

Firstly, recorded burglary trends were compared with the Addicts Index data for the five police force areas with the highest burglary volumes in 1980 (Figures 15 and 16).

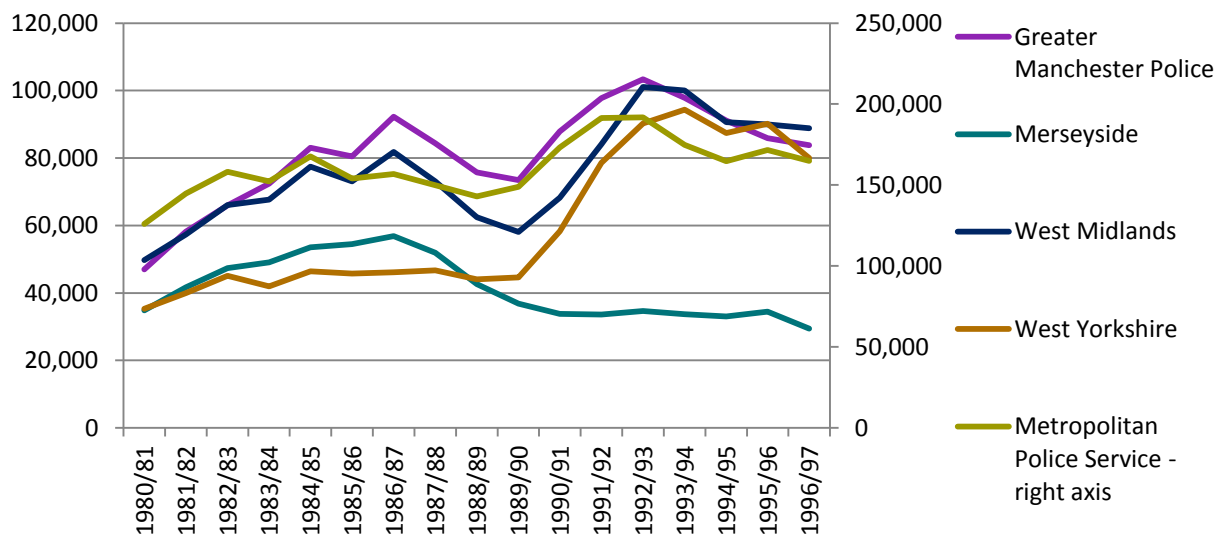
Figure 15: New heroin users in five police force areas, 1977 to 1995



Source: Addicts Index

³⁹ There are several reasons for stopping at 1997. Most importantly, the Addicts Index data were discontinued at this point, but recorded crime trends also become unreliable between 1998 and 2004 due to recording practice changes.

Figure 16: Recorded burglary in five force areas, 1980/81 to 1996/97



Source: ONS, police recorded crime

Figure 15 shows that Merseyside, having seen a marked increase in new users notified to the Addicts Index in the mid-1980s, had a declining trend by the 1990s. Of these areas then, it is the only one that might be considered to have been affected by just the first epidemic wave. London and Manchester were clearly affected by both waves, while West Yorkshire (and to a lesser extent West Midlands) were only affected by the second wave.

Figure 16 shows this pattern is generally mirrored in the acquisitive crime data (represented here by burglary). Merseyside has a large burglary rise in the 1980s but nothing in the 1990s. Areas affected by both waves (London and Manchester) saw rises in both phases, and areas affected only by the second wave (West Yorkshire) had only moderate growth in crime in the 1980s, but then had a huge increase in the 1990s. Arguably the one area that does not quite fit the pattern is the West Midlands, which has a lower level of new users throughout, yet has quite marked increases in burglary in both waves.

The next set of analyses looked at the correlation between crime and opiate/crack use in all 42 police forces, rather than just the 5 forces in Figures 15 and 16.⁴⁰ A series of correlation coefficients were calculated for all forces for the period 1983 to 1996. For the opiate/crack use variables, new heroin users and total addicts notified were used. And for the crime variables, burglary, theft of vehicle and theft from vehicle were tested. Also, given the high degree of correlation at the national level (see Figure 9), coefficients for the correlation between unemployment and these crime types were also produced.

In each case, four variations were tried to see if relationships were robust.

⁴⁰ The City of London was excluded due to its (small) size, and British Transport police was also left out – not being a geographical force, it does not have an OCU population as such.

- In the first variation police forces were ranked for every year, by their levels of crime, OCUs and unemployment. A Pearson correlation coefficient was then calculated based on these ranks, across all years and for all forces.
- The second variation used volumes of crimes/OCUs/unemployed rather than ranks.
- The third variation also used volumes but excluded the Metropolitan Police Service as it generally had markedly higher levels for all three variables, which may skew the correlation.
- Finally, for the same reason, a fourth variation that excluded several more outliers was performed (see the longer version of this paper for details). The results are shown in Table 3.

Table 3: Correlation coefficients between acquisitive crimes and opiate/crack users and unemployment across all police forces⁴¹, 1983 to 1986

		Correlation coefficients		
		All addicts notified	New heroin users	Un-employment
Burglary	ranks	0.69***	0.61***	0.14**
	volumes (all)	0.79***	0.84***	0.92***
	volumes (exc. London)	0.54***	0.61***	0.85***
	volumes (exc. other outliers)	0.49***	0.47***	0.85***
Theft of vehicle	ranks	0.66***	-0.10*	0.02
	volumes (all)	0.74***	0.81***	0.88***
	volumes (exc. London)	0.55***	0.58***	0.77***
	volumes (exc. other outliers)	0.44***	0.41***	0.75***
Theft from vehicle	ranks	0.72***	0.63***	0.11**
	volumes (all)	0.80***	0.84***	0.90***
	volumes (exc. London)	0.55***	0.61***	0.81***
	volumes (exc. other outliers)	0.51***	0.49***	0.81***

Note: *** = statistically significant at 0.1 per cent level.
 ** = statistically significant at 1 per cent level.
 * = statistically significant at 5 per cent level.

Sources: Addicts Index; police recorded crime, NOMIS

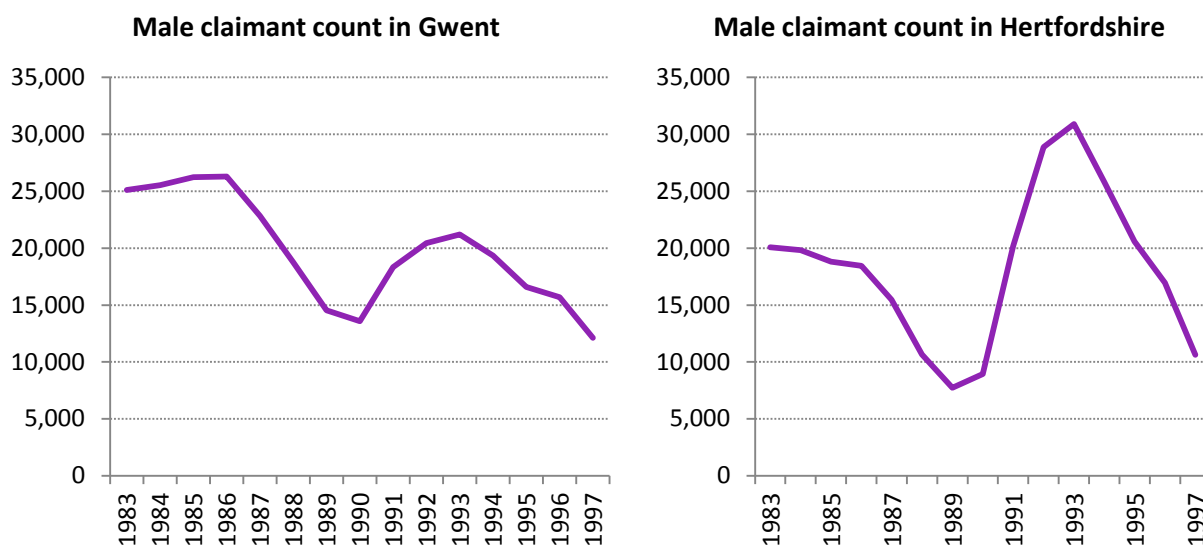
Table 3 suggests that there is a potentially strong relationship between both the OCU variables and acquisitive crime and between unemployment and acquisitive crime. However, whereas the OCU variables were robust to all specifications (with the exception of the rank correlation

41 Excluding City of London and British Transport Police.

between new heroin users and theft of vehicle), the unemployment correlation, which was very large for all the volume-based variants, almost disappeared when using rank correlation.

To try to understand this discrepancy, trends for each individual area were inspected. It was clear that, for the most part, trends in opiate/crack use and trends in unemployment displayed the same two-wave pattern seen in the recorded crime data: they rose in the early 1980s, had a lull, and then surged again in the early 1990s. But whereas all the police force areas except Merseyside had higher peaks in opiate/crack use and crime in the second wave, unemployment shows a different pattern. Of the 42 police force areas, 20 were like Gwent in Figure 17 below, and had higher unemployment peaks in the 1980s. The other 22 were like Hertfordshire, and had a higher peak in the 1990s.

Figure 17: Examples of the variability in unemployment trends, by police force area, 1983/84 to 1997/98



Source: NOMIS

This may explain why both opiate/crack use and unemployment are strongly correlated with crime when using volumes, but why only opiate/crack use maintains a similarly strong level of correlation when using ranks.

Ultimately though, correlation analysis remains a blunt tool for looking at causality. As has been identified, the opiate/crack use and unemployment variables are themselves highly correlated and more sophisticated methods are required to determine which, if any, are actually causal. Furthermore, the above analysis ignores the lag on the Addicts Index data, and simply measures the relationship between changes in crime and changes in OCUs in the same year. Given that for most OCUs there is likely to be a time lag between the start of their opiate/crack career and the date at which they were notified to the Addicts Index, this correlation could actually underestimate the true relationship.

So, to test more thoroughly the strength of the relationships and to try to incorporate the Addicts Index lag, all the data were pooled into a panel dataset for the purposes of multivariate

analysis.⁴² The panel dataset for 42 police forces⁴³ in England and Wales contained:

- police recorded crime volumes from 1981 to 1996 for burglary, theft of vehicle and theft from vehicle;
- new heroin users from 1981 to 1996 (from the Addicts Index);
- total addicts notified from 1987 to 1996 (from the Addicts Index);⁴⁴
- unemployment by area from 1983 to 1996 (from NOMIS);⁴⁵
- total population in each area from 1983 to 1996 (from NOMIS).

The primary aim of the analysis was to estimate the relationship between the number of OCUs and crime, which can be expressed as a regression equation:

$$CR_{it} = \alpha_{it} + \beta_1 H_{it} + \beta_2 CO_{it} + \eta F_i + \gamma T_t + \epsilon_{it}$$

where

- CR represents crime (burglaries, theft of vehicles or theft from vehicles);
- α represents a constant;
- H represents OCUs (either total heroin users or new heroin users as notified in the Addicts Index);⁴⁶
- CO represents a vector of control variables;
- F is a vector of police force level fixed effects;
- T is a vector of annual time dummies;
- ϵ is a random error term following a normal distribution with mean zero and standard variation σ^2 ; and
- the subscripts i and t represent the variation by area and time respectively.

This analysis uses two control variables. The first is unemployment. The previous section showed that both numbers of OCUs and volumes of unemployed had strong individual correlations with crime. This multivariate analysis goes a stage further – it gives the effect of, for example, an extra new heroin user, holding unemployment constant. By controlling for the other variable in this way, it should provide a better idea of which was the more important causal factor. Initial analysis – see the longer version of this paper – suggested that both the volume and rate of unemployment should be tested. In the final results just one was included, whichever showed the greater statistical significance.⁴⁷

The second control variable tested was demographics. This included the total volume of people in each police force area throughout the period. However, initial regressions showed that this variable had no statistically significant effect, so it was removed from the final results.⁴⁸

It would have been preferable to test further control variables, but data for this time period, at the required geographical level, were not available. However, there is reasonable confidence

42 A detailed account of the methodology for this section can be found in the long version of this paper

43 Again, the City of London and British Transport police were excluded.

44 Total heroin users were taken from 1987 rather than earlier because there was a break in the series between 1986 and 1987 – see the long version of this paper.

45 The unemployment variable used was actually a close proxy, total claimant count, as this was the only unemployment variable available throughout the period with sufficient geographic granularity.

46 As the interest is in the relationship between total OCUs and crime, total heroin users is the preferred variable. However, it is subject to measurement error (see the long version of this paper for more details) and is also a truncated series due to the break in the data. So whether there is a relationship between new heroin users and crime was also tested, effectively as a robustness check.

47 The unemployment rate variable was actually total claimants per 100 population. The reason for this choice comes from the system dynamics model contained in the long version of this paper. But note that this is a different form of unemployment rate from the standard definition where the denominator is not total population but the total population of those seeking employment.

48 The results relating to population are shown in full in the long version of this paper.

that the results are not markedly biased by the exclusion of any such explanatory variable. For the results to be biased there must be a third factor that influences both heroin use and crime, and that would change between areas over time. This is because the fixed effects will account for underlying differences in the crime propensity between areas and the time dummies remove any crime variation between years that is constant across the country. Many of the other explanatory variables that might have been included would be controlled for in large part through these two devices. For example, changes in police numbers between areas might conceivably influence both the number of heroin users and crime, so is a candidate for a missing variable. But as police budgets are decided centrally, changes across time are unlikely to vary much across areas. When budgets increase, all areas will likely see a rise in police numbers and vice versa. These changes then, which are in effect national rather than regional, would be captured by the time dummies and will not bias the results.⁴⁹

There remains the issue of the lag on the Addicts Index data. A rapid review of the evidence was conducted on the typical gap between opiate/crack initiation and first notification/treatment attendance. Separate studies agreed that the median lag is about two years and the mean lag around three to four years (Millar et al., 2004; Donmall and Jones, 2005; Nordt and Stohler, 2006). As a result this analysis uses a three-year forward lag for the main results. Effectively then, the model assumes that an increase in OCU numbers in year T, as recorded by the Addicts Index, actually occurred in year T-3 because those users would have been likely to be using opiates/crack for around three years before being notified.⁵⁰

Six variations were tested, three using total heroin users as an explanatory variable and three using new heroin users. The first variation used all police forces, the second excluded the Metropolitan Police Service (to see whether its larger volumes biased results) and the third included an interaction term. This was to investigate the possibility that opiate/crack use and unemployment may interact to drive up crime.⁵¹ A series of robustness checks were also performed in relation to measurement error, multicollinearity and serial correlation. The conclusions, outlined in Table 4 below (with standard errors in brackets), were generally robust to these issues but full details are given in the longer version of the paper.

Table 4: Results of fixed effects regression analysis

Burglary	Total heroin users	Total heroin users	Total heroin users	New heroin users	New heroin users	New heroin users
	(all police forces)	(exc. MPS)	(all forces and interaction term)	(all police forces)	(exc. MPS)	(all forces and interaction term)
Total heroin users	8.83***	11.16***	9.07***			
	(3.27)	(2.94)	(3.22)			
New heroin users				25.2***	29.9***	22.4***
				(3.95)	(2.97)	(6.42)
Unemployment rate	1180	1711*	972	983		858
	(944)	(944)	(952)	(909)		(678)

49 Clustered standard errors were also used to allow for heteroskedasticity between police forces. See the long version of this paper for more on this.

50 Sensitivity analysis was also run to check the importance of this assumption – see the longer version of this paper for more details.

51 This possibility had been suggested by some other exploratory analysis – see the longer version of this paper for more details.

Unemployment volume					0.14***	
					(0.043)	
Interaction term			-0.054			0.66
			(0.63)			(1.84)

Theft of vehicle	<u>Total heroin users</u>	<u>Total heroin users</u>	<u>Total heroin users</u>	<u>New heroin users</u>	<u>New heroin users</u>	<u>New heroin users</u>
	(all police forces)	(exc. MPS)	(all forces and interaction term)	(all police forces)	(exc. MPS)	(all forces and interaction term)
Total heroin users	4.27	7.11***	0.62			
	(3.01)	(1.18)	(3.12)			
New heroin users				11.6**	15.7***	2.44
				(4.83)	(1.80)	(5.46)
Unemployment rate			-1209*		-607	-1334**
			(630)		(366)	(650)
Unemployment volume	0.35**	0.0016		0.032*		
	(0.015)	(0.21)		(0.018)		
Interaction term			0.74***			1.94***
			(0.53)			(0.21)

Theft from vehicle	<u>Total heroin users</u>	<u>Total heroin users</u>	<u>Total heroin users</u>	<u>New heroin users</u>	<u>New heroin users</u>	<u>New heroin users</u>
	(all police forces)	(exc. MPS)	(all forces and interaction term)	(all police forces)	(exc. MPS)	(all forces and interaction term)
Total heroin users	10.87***	8.96***	7.66***			
	(1.82)	(0.78)	(1.95)			
New heroin users				24.44***	20.5***	16.3***
				(4.89)	(2.29)	(4.82)

Unemployment rate	1696**	1171*	1320**	1661*	937	1302*
	(506)	(620)	(640)	(866)	(598)	(740)
Interaction term			0.72***			1.87**
			(0.083)			(0.37)
Interaction term			0.72***			1.87**
			(0.083)			(0.37)

Note: *** = statistically significant at 1 per cent level.
 ** = statistically significant at 5 per cent level.
 * = statistically significant at 10 per cent level.
 (standard errors shown in brackets).

Sources: PRC, NOMIS, Addicts Index.

Throughout virtually all model specifications, the coefficient on the opiate/crack variable (whether it was total heroin users or new users) was strongly statistically significant. This was particularly true for burglary and theft from vehicle, where all the Addicts Index variables were statistically significant to the one per cent level. Interpreting these results is made slightly more complicated due to the forward lag. But to take the relationship between new heroin users and burglary as an example, Table 4 implies that for each new heroin user notified in a given year, recorded burglary would have been likely to increase by 22 to 30 offences 3 years prior to that.

The relationship between heroin use and theft of vehicles appears less strong and is only statistically significant (but strongly so) in the specification without London. One explanation is that according to the CSEW, a large proportion of vehicle theft offences at this time involved a vehicle that was subsequently recovered. Hence many may have been motivated by 'joy-riding' rather than the monetary gain more linked to illicit drug use. The data reveal another interesting fact in relation to these results. Whilst in many areas theft of vehicle showed a similar trend to the other acquisitive crime types, peaking sharply in the early 1990s, in London it did not. In London theft of vehicle actually declined through the period 1981 to 1993, while burglary and theft from vehicle rose sharply. So it may be that for most police force areas theft of vehicle offences were linked to the heroin epidemic, but in London, for some reason, they were not.

The results show partial support for a relationship between unemployment and acquisitive crime throughout the period. Stronger links are found with the vehicle crimes, where there is a statistically significant result for the unemployment volume or rate in almost every specification. Generally these are at a lower level of statistical significance than the one per cent recorded by the heroin coefficients. The relationship between unemployment and burglary seems less strong, although there are still statistically significant coefficients in the specifications without London.

The unemployment results are interesting in the light of the national-level trends outlined in Chapter 2, which showed correlation with crime throughout the 1980s and 1990s but none during the recent recession in 2008. The fixed effects results imply not just correlation during the period 1983 to 1996, but the possibility of causality. This makes it even more puzzling that the 2008 recession and the resulting rise in unemployment did not drive up crime. Though there are other potential reasons,⁵² one possibility is that unemployment has a bigger effect on crime during a period in which heroin/crack use is rising rather than falling. Research suggests that, during periods in which epidemics are taking hold, employment can act both as a preventative

52 The most obvious being that the 2008 recession was 'different' in some crucial way from earlier recessions. This is explored in the longer version of the paper.

factor, deterring opiate/crack initiation or descent into daily use, and as a source of funds, meaning less reliance on illegal income (Pearson, 1987).

The interaction term is an attempt to model the second of these two possibilities (the effect of the first will be incorporated in the heroin use variables).⁵³ The results are slightly equivocal. There are highly statistically significant results for the two vehicle crimes but not for burglary.

Taken together this analysis suggests that there was a strong relationship between heroin use and crime throughout the years before and during the crime turning point. There is also some more tentative evidence that unemployment played a role and also that high levels heroin use and unemployment may have interacted to drive up crime even further. However, given the difficulties of the Addicts Index data, these conclusions remain tentative. Further tests of these relationships in other areas and time periods would be welcomed.

The results from Table 4 were used to estimate the proportion of the total rise in each crime type that might be 'explained' by increases in OCUs. The ranges in brackets were calculated using the confidence intervals from the coefficients in Table 4. Findings indicate that the increase in the number of total heroin users between 1984 and 1993 might account for between 9 per cent and 60 per cent of the increase in burglary, with a central estimate of 35 per cent.⁵⁴ This is shown along with the equivalent findings for the two vehicle offences in Table 5.⁵⁵

Table 5: Proportion of the rise in each acquisitive crime explained by the heroin-use variables

	Burglary	Theft of vehicle	Theft from vehicle
Proportion of the increase in crime 1984–93 explained by total heroin users	35%	30%	44%
	(9–60%)	(-16–77%)	(29–59%)
Proportion of the increase in crime 1981–93 explained by new heroin users	48%	41%	48%
	(33–63%)	(3–80%)	(29–68%)

Note: Central estimates are shown with ranges, in brackets, produced from the confidence intervals on the original coefficients.

Sources: PRC, NOMIS, Addicts Index.

It should be noted that although the central estimates for theft of vehicle are in line with the other crime types, the uncertainty around these estimates is much wider and when using total heroin users the estimate is not statistically significantly different from zero. However, as has

53 If high unemployment drives greater opiate/crack initiation then this effect would be captured by the numbers of users recorded to the Addicts Index. However, given that the Addicts Index counts only a proportion of the true user population it is possible that the statistical significance of the unemployment variables is at least partly due to picking up part of this effect (i.e. anything not captured by the Addicts Index due to measurement error).

54 The period 1984 to 1993 was used as the measurement period when using the total heroin use variable because of the break in the series from 1986 to 1987. This coupled with the three-year forward lag meant that the data period for that variable effectively starts in 1984. For the new heroin users variable, which has no break in the series, a slightly longer time horizon, back to 1981, could be used.

55 See the longer version of this paper for a full description of the methodology for calculating the values in Table 6.

been shown, the relationship becomes much stronger if London is excluded – recall that theft of vehicle actually fell in London during this period.

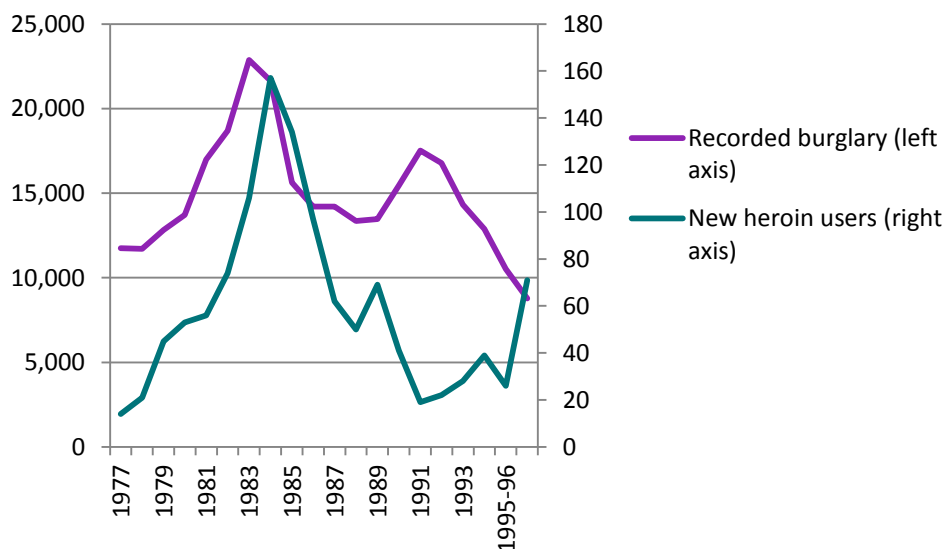
Overall though, the model suggests that opiate/crack use was an important factor in the large changes in acquisitive crime volumes that occurred across police force areas during this period. The central estimates suggest that opiate/crack use may explain about 40 per cent of the rise in these main acquisitive crime categories.⁵⁶

Scotland, Northern Ireland, the Republic of Ireland and the international picture

Though the correlation between opiate/crack use and acquisitive crime throughout England and Wales appears to be very strong, the data only really contain one area (Merseyside) that followed a noticeably different trend, hence any causal conclusion must remain tentative. Fortunately, Scotland, Northern Ireland and the Republic of Ireland provide further examples.

Ditton and Speirits (1981) chart a marked surge in new heroin users (and crime) in Glasgow starting in 1979. Edinburgh also seems to have been affected by the epidemic very early in the 1980s. But while the Addicts Index data suggest that Strathclyde, the police force area containing Glasgow, had surges in new users during both waves of the epidemic (peaking in the second wave), the trends in Edinburgh more closely resemble Merseyside. That is, Lothian and Borders – the police force area containing Edinburgh – appears to have had a large rise in heroin users during the early 1980s but not to have suffered a second wave at all. Once again, this was mirrored by the recorded acquisitive crime data (burglary), with a similar ‘spike’ in the early 1980s (Figure 18).

Figure 18: Recorded burglary and new heroin users in Lothian and Borders, 1977 to 1996⁵⁷



Source: Addicts Index, Scottish recorded crime data.

Like Merseyside, Lothian and Borders was an exception to the overall national trend. Total police recorded crime and recorded acquisitive crime for Scotland peaked in 1991. And

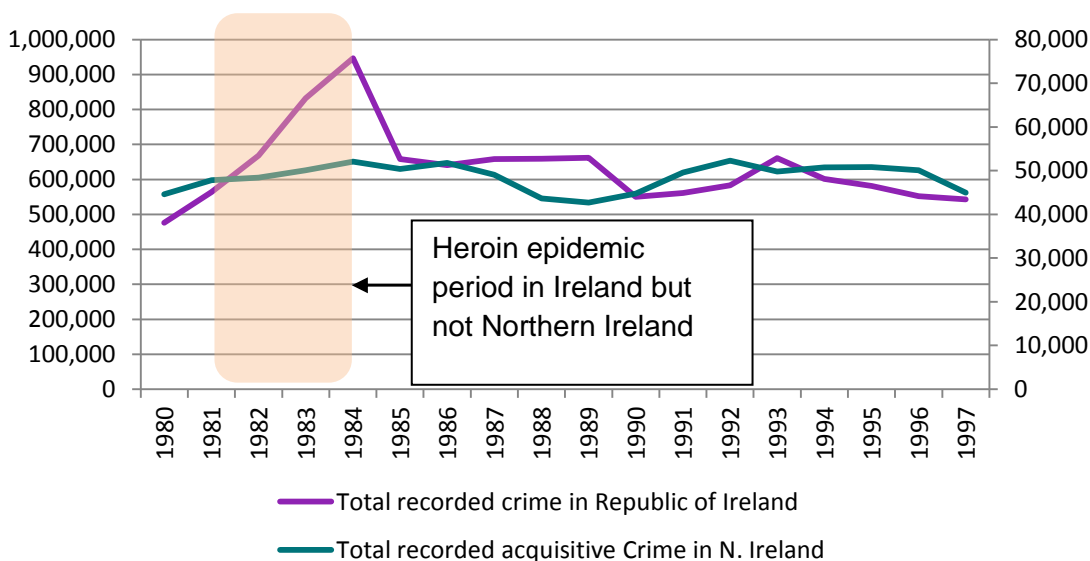
⁵⁶ The average of the ‘proportion of the total rise in crime’ estimates for each of the crime types is 41 per cent.

⁵⁷ When examining this chart it is important to recall, again, that the Addicts Index operates with a lag, hence the fact that it shows a peak in new heroin users a few years after the start of the sharp rise in burglary is in line with the possibility that increases in heroin use drove the increases in crime.

separately, Ditton and Frischer (2001), using parameters from the US epidemic model, modelled the likely spread of the epidemic across Scotland. They concluded that the peak in new users occurred around 1991, in line with the peak in total police recorded crime in Scotland.⁵⁸

The Republic of Ireland and Northern Ireland also provide an instructive comparison. Northern Ireland did not appear to suffer a significant heroin epidemic (see McElrath, 2002), whereas the Republic of Ireland did have an epidemic in the early 1980s, confined largely to Dublin (Dean et al., 1985). Burglary and total crimes spike very sharply in the Republic of Ireland in line with this epidemic (Figure 19). No spike is visible in Northern Ireland. The overall crime trend remains relatively stable throughout the period.

Figure 19: Crime trends in the Republic of Ireland and Northern Ireland, 1980 to 1997



Sources: Northern Ireland crime data were found here:

http://www.psnipolice.uk/directory/updates/updates_statistics/update_crime_statistics/updates_crime_statistics_archive.htm . Data for the Republic of Ireland were found here:

http://www.crimecouncil.gov.ie/statistics_cri_crime_murder.html

The international evidence is also supportive. In the US, the peak in new users was probably reached between 1971 and 1977 (Hughes & Rieche, 1995). This would put the US property crime peak, according to the National Crime Victimization Survey (NCVS), in line with the (incidence) peak of the epidemic, as in England and Wales.⁵⁹

Europe provides a final example. Aebi (2004) showed that, in aggregate, crime in western Europe peaked in the early 1990s and crime in central and eastern Europe peaked around a decade later. A similar pattern is to be found in the spread of heroin across Europe, according to a new set of studies by the European Monitoring Centre for Drugs and Drug Addiction

⁵⁸ As with most models of OCU trends, their findings are based on various assumptions so should be treated cautiously, but their estimates are similar to those found in a separate Scottish study, focusing on Glasgow (Hutchison et al, 2006).

⁵⁹ It is also worth noting that the slightly later peak in burglary volumes (between 1979 and 1981 depending on whether NCVS or police reports are used) would be more in line with the prevalence peak, but also it coincided with large rises in unemployment. Generally speaking, across all the nations examined in this paper the combination of high unemployment and being in an epidemic state of heroin use seems to drive the largest spikes in crime. High unemployment on its own apparently has far less of an effect.

(EMCDDA). These conclude that: “the beginning of the heroin use epidemic probably occurred more recently in Central and Eastern European countries than in western ones” (Barrio et al., 2013).

To summarise then, there is evidence of correlation between trends in acquisitive crime and changes in OCU numbers at the local, national and international level. Alongside the statistical analysis described above, the combined evidence from the examples of Merseyside, Edinburgh, and the Republic of Ireland is quite compelling. In the British Isles, there was not a single, uniform crime increase in acquisitive crime, followed by a uniform fall. Instead there were marked regional (and national) variations in trends in crime and these appear to be matched by corresponding OCU trends. This is not to say that changes in OCUs have solely driven trends in acquisitive crime. But they do appear to be an important contributory factor.

The next chapter attempts to estimate the size and nature of that impact, both on the rise in crime, and the subsequent fall, through to the present day (2013).

6. Quantifying the impact of changing levels of opiate/crack use on acquisitive crime trends

This chapter seeks to estimate the proportion of the rise and fall in acquisitive crime in England and Wales that might be attributable to the heroin epidemic, and its long-term consequences. Due to the data limitations, the model used to generate these estimates contains a number of simplifications and assumptions. For that reason, all results should be viewed as exploratory. The analysis that follows is really a tentative first attempt, upon which it is hoped others will build. The general approach was:

- to generate estimates for the number of opiate/crack users (OCUs) in England and Wales over time;
- to estimate the average offending rate per OCU per year;
- to multiply these two estimates to give an estimate for the amount of crime generated by opiate/crack use over time.

For the first step a trial-and-error approach was used. The analysis was based around the question: what must the earlier pattern of the epidemic have looked like to result in a cohort of the size and age distribution that exists currently? There are two crucial unknowns in this process:

- the trend in the number of new users; and
- the rate at which OCUs exit the population (either through quitting or dying).

But there are also two things that are known:

- the size; and
- age distribution of the current OCU cohort.⁶⁰

So a range of possible exit rates were selected based on available evidence. These were then combined, in turn, with many different trends in new users until a trend was found that, when projected forwards from a pre-epidemic 1975 baseline, produced an OCU cohort of the same size and age distribution as that suggested by current data.

⁶⁰ These things are known – to a reasonable level of accuracy – from the Hay et al. (2006; 2012) estimates and the Drugs Data Warehouse (DDW). See the longer version of this paper for more discussion on the validity of these measures.

Most studies suggest that between 5 per cent and 13 per cent of OCUs quit opiate/crack use or die each year (see, for example, Hickman et al., 2004), so all single-integer rates between these boundaries were tested. However, some studies also suggest that the exit rate can be higher than 13 per cent in the first few years after initiation and then decrease over time (for example, Kaya et al., 2004, Sweeting et al., 2009); so variations of this type were also tested along with exit rates based on the actual results from one particular longitudinal study (Hser et al., 2001). The results are below (Table 6), showing the ‘best fit’ epidemic profile for each exit rate.⁶¹

Table 6: Modelling results

Exit rate (the rate at which opiate/crack users exit the population annually)		Incidence		Prevalence	
		Peak of new users	No. of new users at peak	Peak of total users	No. of users at peak
5%	Fixed	1994	36,416	1999	383,810
6%	Fixed	1994	42,813	1998	410,381
7%	Fixed	1993	56,797	1997	481,372
8%	Fixed	1992	62,383	1997	496,481
9%	Fixed	1992	75,612	1997	559,286
10%	Fixed	1992	94,600	1996	686,826
11%	Fixed	1992	117,219	1995	792,211
12%	Fixed	1991	137,181	1995	842,158
13%	Fixed	1991	160,090	1995	941,155
30%	Variable reducing by 10% annually	1993	239,097	1997	869,657
30%	Variable reducing by 15% annually	1994	125,535	1998	543,887
30%	Variable reducing by 20% annually	1994	104,234	1998	428,699
Rate to match Hser et al, study v1		1993	103,635	1998	493,730
Rate to match Hser et al. study v2		1995	98,011	1998	475,146

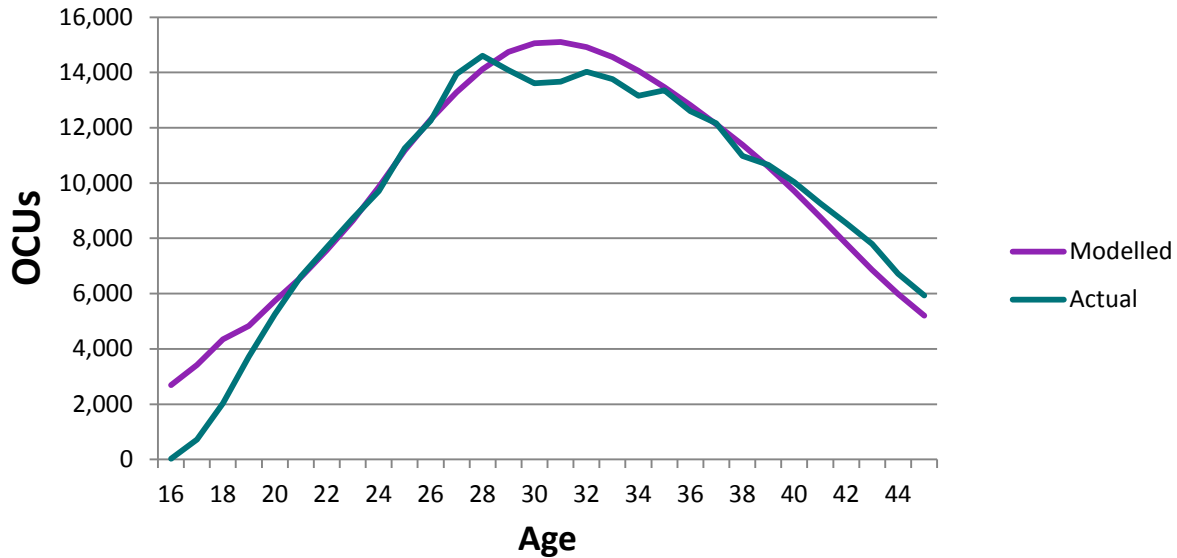
Note: The Hser et al. study followed a group of heroin users for 30 years and charted the exit rate, see the long version of this paper for more information.

These results highlight the level of uncertainty. They suggest that incidence (new users) peaked between 1991 and 1995 with a range of between 36,000 and 239,000 new users per year at the peak, though the best estimates cluster around 100,000). The results also suggest that prevalence (total users) peaked between 1995 and 1999, with most estimates suggesting at least 400,000 users at this peak. Using a scoring system and available evidence, the ‘Hser et al. study v2’ exit rate was selected as the best overall fit. Its relationship to the most recent (2008)

⁶¹ ‘Best fit’ in this context means that, following a trial-and-error process, this epidemic profile was found to produce the closest match with data for the current OCU cohort, i.e. fixing the exit rate, profiles of new users were experimented with to find the profile that gave rise to an OCU cohort of the same size and age as that seen in the real data.

data on the size and age profile of the OCU population is shown below. Figure 20 compares the 2008 modelled OCU population by age band with actual data on OCUs from the Drugs Data Warehouse for 2005 to 2009.

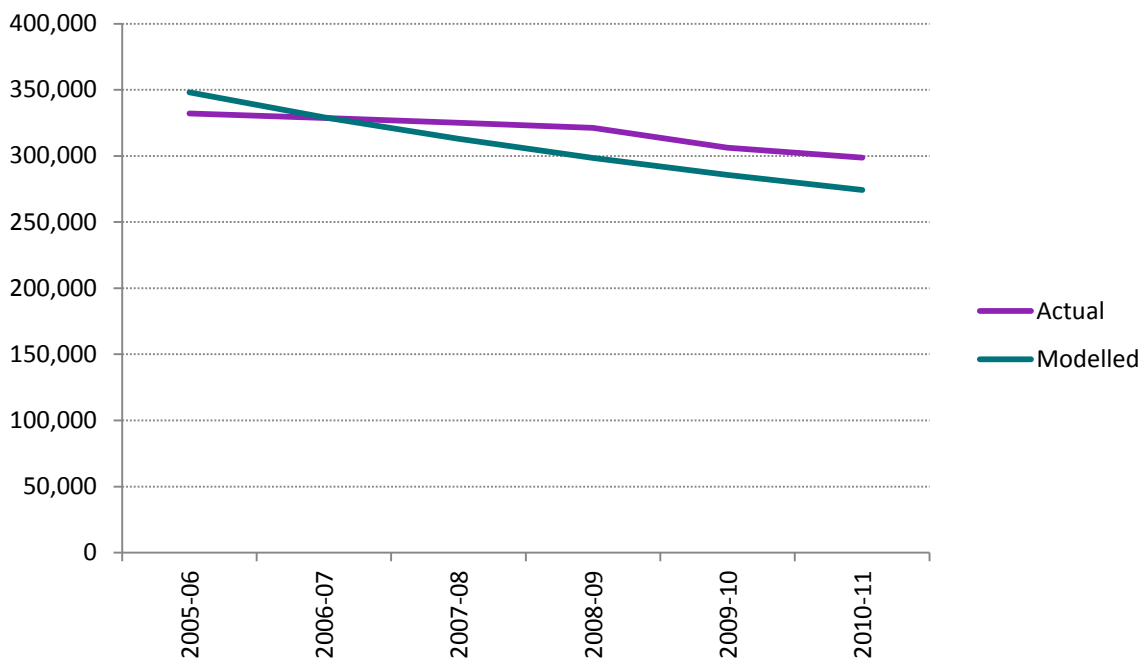
Figure 20: Comparison between modelled results and the actual Drugs Data Warehouse data for the age distribution of the opiate/crack user population in 2008



Source: Drugs Data Warehouse

The second known variable used to 'anchor' the modelled estimates are from the Hay et al. (2006; 2012) estimates of the size of the OCU population, over time.

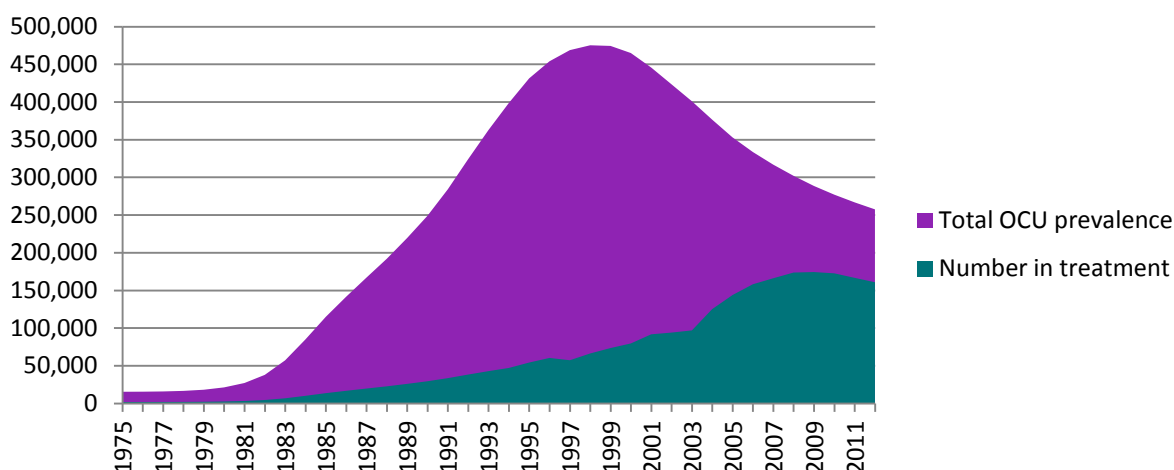
Figure 21: Comparison between modelled results and the Hay et al. estimates for the opiate/crack user population between 2005/06 and 2010/11⁶²



Source: Hay et al (2011)

To match the modelled OCU trend to the offending data, it was important to estimate the number of OCUs in treatment over time. There is good evidence that those receiving treatment generally offend at a much lower rate than OCUs not in treatment (see Coid et al., 2000; Stewart et al, 2000; Davies et al, 2009). So for each year an estimate of the proportion of the OCU population in contact with treatment services was generated using a variety of sources, principally the National Drug Treatment Monitoring System and the Regional Drug Misuse Databases.⁶³ Figure 22 shows both the modelled OCU trend and the estimated numbers in treatment.

Figure 22: Modelled opiate/crack user population, 1975 to 2012



62 It is important to note that both the modelling results and the Hay et al. (2006; 2012) estimates have a degree of uncertainty around them, hence this closeness of fit should not necessarily be seen as a mark of the overall reliability of the estimates produced in this chapter. In a sense, the trial-and-error method followed ensured that only results that were a good fit were carried forward – the process was not carried out prospectively. In other words, the results offer a possible version of what happened that fit the available data. They are not a conclusive version.

63 The methodology is described in full in the longer version of this paper.

The opiate/crack user offending rate

To model the OCU offending rate, the 36 UK and international studies on the relationship between drug misuse and offending were reviewed. Of these, data from five UK-based studies that yielded more granular data were considered for the model. In each case, an offending rate per OCU was calculated. To allow for comparison with overall crime trends, the results were made comparable to the Crime Survey for England and Wales (CSEW) acquisitive crime categories. In particular, crimes against commercial targets, like shoplifting, were excluded as these are not included in the CSEW. Prostitution and drug dealing were excluded for the same reason. A summary of the analysis is given in Table 7. As expected, the studies that used treatment cohorts find lower levels of offending compared with those that use criminal justice system (CJS)-based samples. But within cohort subsets, there was a good level of agreement, once the studies were rendered comparable (i.e. looking at the bottom row of the table).

Table 7: Average number of offences committed by opiate/crack users per year, calculated from available studies

Average number of offences per opiate/crack user per year	NTORS (1995-2000)		DTORS (2006-2007)		Coid et al. (2000)		Arrestee Survey (2004/05)	New-Adam (2001/02)
	Out-of-treatment	In-treatment	Out-of-treatment	In-treatment	Out-of-treatment	In-treatment		
Total	103.4	67.9	135.0	90.9	238.1	143.6	269.3	158.7
All acquisitive crime	91.3	42.8	92.2	47.1	81.8	37.2	257.1	141.5
CSEW acquisitive crime	8.4	4.0	9.6	6.4	8.7	5.71	33.9	41.0

Notes: The top two rows of this table are not strictly comparable across studies because they include different baskets of offences.

NTORS is the National Treatment Outcome Research Study.

DTORS is the Drug Treatment Outcome Research Study.

CSEW is the Crime Survey for England and Wales.

NEW-ADAM is the New English and Welsh Arrestee Drug Abuse Monitoring Programme.

Sources: Stewart et al, 2000; Davies et al, 2009; Coid et al, 2000; Boreham et al, 2006; Bennett and Holloway, 2004).

As Chapter 4 showed, OCU offending is heavily skewed with a small proportion of individuals committing a high proportion of total offences. Many OCUs from the shortlisted studies (particularly the treatment-based studies) self-reported little or no acquisitive crime. So the offending rates in the table should not be viewed as a likely level of offending for each and every OCU. They incorporate both the users who report no crime and the users who report very high levels, and hence should only be used – as here - for aggregate level estimates for offending at the cohort level.

There is also a noticeable difference between the top two rows of the table (total and all acquisitive crime) and the bottom one (CSEW crime). This is because most OCU crime does

not fall within the CSEW acquisitive crime category as the CSEW captures offences against individuals and households only. The most common OCU crimes are drug dealing and shoplifting.

For the main results, the focus is on the offending rate for crimes that would appear on the CSEW, the main measure for crime trends in England and Wales. Hence, the offending rates from the bottom row of the table were used. Care was taken to ensure that the amount of (CSEW) crime committed by OCUs was not biased upwards. Firstly, the results from the table were not directly extrapolated to the entire OCU population. This is because not all OCUs get arrested and not every OCU will have a rate of offending equivalent to that of a pre-treatment individual. This was resolved by having two estimates:

- one generated from treatment studies; and
- one generated from the CJS-based studies.

This ensured that rates were only extrapolated to appropriate populations.

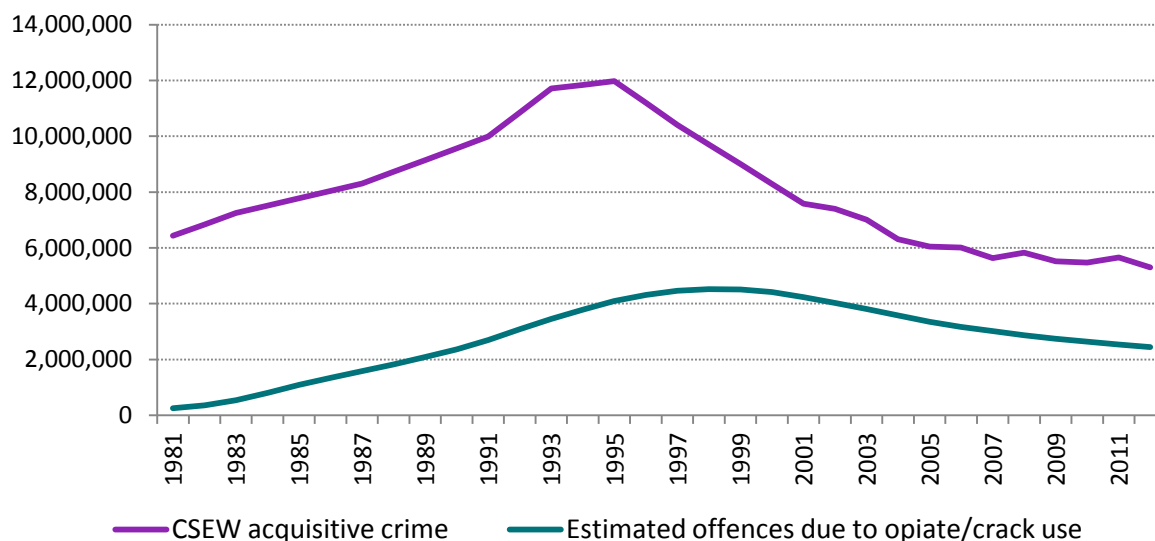
For the treatment estimate the offending rates from Table 7 were averaged for both the pre-treatment period (9.0 CSEW acquisitive crimes per year) and the post-treatment period (5.5 CSEW acquisitive crimes per year). These were then adjusted downwards by 20 per cent to account for the proportion of crime that might have been committed by these individuals even in the absence of the epidemic (the counterfactual). The long version of this paper gives a full explanation for this counterfactual adjustment. The adjusted pre-treatment rate, 7.2 acquisitive crimes per year, was applied to the estimates for the number of OCUs not in treatment and the post-treatment adjusted rate (4.4 CSEW acquisitive crimes per year) was applied to the estimates for those in treatment, for each year. By combining these, an estimate for the total amount of additional acquisitive crime generated by opiate/crack use over time, was produced.

For the CJS-based estimate, rather than averaging the offending rates from the two studies, the (more conservative) figures from the Arrestee Survey were used for reasons given in the long version of this paper. The offending rate was used in conjunction with estimates from the Offending, Crime and Justice Survey (OCJS), a general population survey that asks about illicit drug use and crime and hence allows for an estimate of offending rates among OCUs who did not get arrested in a given year. This was to ensure that the relatively high Arrestee Survey offending rate (33.9 acquisitive crimes per annum) was only applied to those OCUs who are both regular OCUs and who get arrested in a given year, and who are therefore comparable with the Arrestee Survey sample. Analysis of the Arrestee Survey and the OCJS suggested that the proportion of the total OCU cohort within this category was just over 30 per cent in 2004.⁶⁴ For the proportion not arrested, (i.e. the other 70 per cent), the OCJS was used to calculate an applicable offending rate, which was far lower: 2.2 CSEW acquisitive crimes per annum. These estimates were also adjusted for the counterfactual in an identical way as for the treatment cohorts. This produced an overall offending rate for the OCU population of 9.5 CSEW acquisitive crimes per annum that was applied to the number of OCUs per year from step one.

The results are shown below. The estimates suggest that the additional crimes committed by OCUs might be responsible for around one-half to three-quarters of the rise in acquisitive crime and between one-quarter and one-third of the fall.

⁶⁴ It was necessary to assume that this figure remains constant over time, which is an important assumption. See the assumption log and sensitivity analysis in the longer version of this paper for more on this.

Figure 23: Total crime compared with the estimated number of offences generated by opiate/crack use, 1981 to 2012



Note: The teal line uses the Arrestee Survey-based estimates. Crime Survey for England and Wales (CSEW) values have been converted to calendar year figures.

Source: CSEW

Table 8: Final modelling results

	Treatment approach	Arrestee Survey/OCJS approach
Estimated percentage of CSEW acquisitive crime rise explained (1981–95)	54.9%	77.0%
Estimated percentage of CSEW acquisitive crime fall explained (1995–2012)	27.3%	31.1%

Notes: OCJS is the Offending, Crime and Justice Survey.
CSEW is the Crime Survey for England and Wales.

The results of the model also imply that even though today’s OCU cohort is almost certainly smaller and older than it was at the epidemic peak, OCUs may still be responsible for a large number of acquisitive crimes. The model’s results are broadly in line with those from alternative Home Office research, suggesting that as much as 45 per cent of theft offences may be committed by OCUs (Mills et al, 2013)⁶⁵ This also means, though, that the continuing decline of the OCU cohort is probably still exerting important, though diminishing, downward pressure on CSEW acquisitive and total crime.

The model employs a number of assumptions typical of models of this type. A complete list of these, and the evidence behind them, is contained in the long version of this paper. Generally, wherever choices could be made in the input variables, the more conservative estimates have been used. However, to check the sensitivity of the final results to these assumptions, several extra analyses were conducted. The model was re-run varying some of the central parameters to see how much this changed the final result. The full findings are in the long version of this

⁶⁵ Note that the Mills et al (2013) estimates include offences against businesses (like shoplifting) that are not included here.

paper, but generally it was found that the results were reasonably robust to changes in many of the main parameters.

The choice of the 'baseline' level of OCU incidence (in 1975) had very little effect on the main results, which are also relatively robust to changes in the Hay et al. (2006; 2012) estimates for OCU prevalence. Even ten per cent changes in the offending rates had relatively small effects. However, the results were sensitive to the counterfactual and the choice of the exit rate, and to a slightly lesser extent to the number of OCUs who get arrested annually. To try to offer a 'lower-bound' estimate, three key assumptions were adjusted:

- it was assumed that 50 per cent of OCU crime (rather than 20%) would have occurred anyway;
- all offending rates were decreased by 30 per cent; and
- the exit rate was changed from the decreasing rate found in the Hser et al (2001) study to a 5 per cent fixed rate (which has a downward effect on results).

In this scenario opiate/crack use was responsible for between 15 per cent and 20 per cent of the rise in acquisitive crime, and for between 7 per cent and 8 per cent of the fall.

There are limitations to these analyses of course. Apart from in a crude way with the 'lower-bound' option, the methodology does not really test the degree to which uncertainties compound each other. Plus, there are other aspects of the model (like the application of offending rates to different periods of time) that are uncertain, yet cannot be tested by sensitivity analysis in this way. This is why the modelling results should be seen as exploratory.⁶⁶ Nevertheless, the evidence gathered here does generally support the notion that changing levels of opiate/crack use have affected acquisitive crime trends in England and Wales over the last 40 years, possibly in a substantial way. The central estimates suggest it can explain over one-half of the rise in crime in the period between 1981 and 1995 and between one-quarter and one-third of the fall since 1995.

⁶⁶ And also why there has been no attempt to put confidence intervals around the estimates in this chapter.

7. Conclusion

The rise and fall in crime that has occurred in England and Wales and in a number of other developed nations has been the subject of much academic debate. Ultimately though, despite much “imaginative scholarship”, a convincing overall explanation remains elusive (Farrell et al., 2011a).

This paper has attempted to add to the evidence by piecing together the available data and research on the extent to which opiate/crack use may have played a role, both in the sharp 1990s crime peak(s) and the downward trend since, which started steeply and has become more gradual.

Overall, the evidence presented shows that cohorts of opiate/crack users (OCUs) – on aggregate – commit markedly more crime than offenders not taking these drugs (Bennett et al., 2008). Studies also agree that the number of users increased dramatically in England and Wales and in many other western nations and then tailed off as users quit or died (Pearson, 1987; Barrio et al., 2013). Those two – largely undisputed – facts offer a compelling explanation for at least some of the rise and fall in crime, which has received relatively little attention, especially in relation to the decline in crime.

Probably the main reason why the waning of these opiate/crack epidemics has not always featured prominently in crime-drop research is that two other facts are disputed:

- whether opiates/crack caused the crime committed by OCUs; and
- whether the peaks in illicit drug use correlated with peaks in crime.

Lack of high-quality data mean that these two questions may never be answered definitively.

On causality, the evidence gathered here shows that opiate/crack use almost certainly generated additional offences, but quantifying this precisely remains challenging. The problem is that evidence also suggests that other factors, related perhaps to genetics and upbringing, produced an increased propensity for crime *and* opiate/crack use in many individuals. A key conclusion of this paper is that belief in the importance of such an underlying ‘third factor’ is compatible with the notion that the heroin epidemic was a crucial driver of crime trends. Without the epidemic, the underlying propensity for illicit drug use would not have been translated into the accelerated and extended offending self-reported by some OCUs in repeated studies.

The possibility of a causal relationship is further bolstered by the evidence presented here on the correlation between peaks in opiate/crack use and peaks in crime. A key element of this analysis involved deconstructing local, national and international crime trends to show that there was no single rise and fall. At the national level England and Wales, the US, the Republic of Ireland and many eastern European nations had peaks in acquisitive crime that matched the timing of their heroin epidemics, rather than each other. The same is true for regional exceptions like Merseyside and Edinburgh. No doubt there are areas that do not follow this pattern (and this paper highlighted at least one, the West Midlands). But whether or not researchers decide that the geographical crime variation is driven by variation in opiate/crack

use, the variation itself should be embraced. Its analysis surely offers the best chance of unlocking the crime-drop puzzle.

This paper focuses on England and Wales. It attempts to tell the full story of the epidemic and to try to quantify its impact on acquisitive crime. For the latter, two models were used. Although both should be viewed as exploratory due to data limitations, they do produce similar results.

Regression analysis, looking at the correlation between OCU indicators and recorded crime trends from 1981 to 1996, found that around 40 per cent of the rise in key crime types like theft and vehicle crime may be attributable to the epidemic.

A second exploratory model that combined best estimates of OCU numbers through time with best estimates for their offending, suggested that opiate/crack use might have driven around one-half of the rise in acquisitive crime in England and Wales and between one-quarter and one-third of the fall.

These results hide considerable uncertainty. Perhaps the best summary of this paper is that it has demonstrated the existence of an epidemic 'narrative', which fits many of the facts available, and which suggests that opiate/crack use has been an important driver of crime trends. But it has not proven that this is the only explanation for those facts.

The 'narrative' would run something like this.

- Following the opening of a new heroin supply route in the late 1970s, England and Wales had a significant drugs epidemic, or wave of epidemics, through the 1980s and early 1990s. This produced a cohort of heroin users, many of whom also used crack as their drug misuse developed.
- The cohort was not homogeneous. Many (perhaps most) did not become either long-term addicted or prolific criminals and some were offenders before using opiates or crack. While many probably had the clustering of crime risk factors that could have marked them out for a criminal career in the absence of the epidemic, the cohort probably also included a number of individuals whose only crime risk factor was a susceptibility to peer influence at a time when heroin use was spreading in their area. For the first group, heroin use may have accelerated and extended an existing criminal career and for some of the second group heroin may have kick-started a criminal career.
- Crimes committed were mainly minor theft offences. As a result, this cohort became prominent in the offending population and probably had a large impact on total crime, which is dominated by acquisitive crime.
- The crime rise was steady during the 1980s, when the majority of England and Wales remained relatively unaffected by the epidemic. It then increased very rapidly in the 1990s as every police force area except Merseyside reached its peak of opiate/crack use.
- Once the epidemic had spread across England and Wales and all susceptible individuals had been 'exposed', the number of new users probably decreased just as quickly as it had risen. Crime therefore began to fall; quickly at first as the less-recalcitrant users quit in significant numbers. But then more steadily as the population whittled down to more established users.

There are several important caveats to this story that need mentioning. Firstly, the effect of the OCU cohort was almost certainly greater on crime volumes than on the overall harm from crime, because OCUs tend to commit minor theft or drug dealing offences rather than the violent and

sexual crimes that cause most harm. As such, it is also important to note that the evidence presented does not explain why violence rose and fell with a similar trend.

The most important caveat though, is that this narrative does not imply that opiate/crack use was the sole factor driving crime trends. This paper has argued instead that trends are never likely to be driven by a single factor. Many factors are likely to have been important and interactions may also be crucial. Indeed, some findings suggest that rapid rises in unemployment, at a time when heroin use was spreading, may have exacerbated the crime impact beyond the level that either factor would have had on its own.

The analysis has several policy implications.

It suggests that relative to other drugs, OCUs continue to have the biggest impact on acquisitive crime trends. The central model estimates imply that the number of users will continue to reduce, but at a relatively gradual pace. If the rate of cessation could be increased, the potential for further crime reduction is large.

Raising the cessation rate of the existing cohort is unlikely to be easy though. It is made up largely of older users, many of whom will have repeatedly tried and failed to achieve cessation through existing treatment practices.

Focusing resources on the most important individuals may be the key. Evidence shows that not all OCUs are alike. A minority commit the vast majority of offences. So identifying these individuals is paramount.

The other main policy conclusion is that preventing a future epidemic is crucial. Evidence shows epidemics do not strike all areas simultaneously and there is a lag between epidemic start and the moment it becomes visible on treatment or criminal justice datasets. Local-level monitoring is therefore crucial, so that future epidemics can be restricted before spreading.

Evidence also shows that the main mechanism for epidemic spread is through person-to-person contact, which may have important implications for the way in which, for example, OCU prisoners are housed in relation to non-OCU prisoners. There is also some evidence that supply surges can act as triggers for epidemics, so the prevention of these remains important.

Finally, data in this area are sparse (but improving) and there may be better ways than those employed in this paper to explore the question of whether opiate/crack use is an important driver of crime trends. Suggestions for improving or refining this work are therefore welcomed.

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