

Crime and property prices

Steve Gibbons uses Metropolitan Police figures for reported crime to show that vandalism and graffiti have a significant impact on house values, but burglary and violent crime levels in an area do not.

Crime prevention and control are top of the political agenda in developed countries. This is particularly the case in the urban environment, where fear of crime and the direct costs associated with property crime are seen as having particularly severe consequences by discouraging local regeneration and provoking a downward spiral in a neighbourhood's status.

Policy makers in Britain apparently share this view, arguing that

neighbourhoods have been stuck in a spiral of decline. Areas with high crime and unemployment rates acquired poor reputations, so people, shops and employers left. As people moved out, high turnover and empty homes created more opportunities for crime, vandalism and drug dealing. (Social Exclusion Unit, 2001, p.7)

Certainly, anecdotal evidence suggests that persistently high local crime rates deter potential new residents and cause those who can to move to move out to neighbourhoods with lower crime rates.

There is some evidence from the US, suggesting that crime rates do affect property values. For the UK, however, there is no existing evidence on the subject. This study uses crime data provided by the Metropolitan Police in London to estimate the effect of crime rates have on property prices in the Inner London area.

The rather surprising conclusion is that burglaries have no measurable impact on property prices. However, criminal damage to property, such as vandalism, graffiti and arson, has a huge impact on the value of property in a given area. A possible explanation of this finding is that obvious signs of criminal damage may be taken by potential property buyers as general evidence of instability in a community, of lack of social cohesion and of a general neighbourhood deterioration.

A simple statistical association between property prices and local crime rates is unlikely to tell us much about how crime – or any other aspect of the community – determines house prices. This is because there are many things about the neighbourhood that we do not observe, but which have an effect on housing costs and crime rates. Consider land prices, for example: low local land prices attract low-income residents; if low-income residents are prone to commit crimes in their own neighbourhood, we shall find more crime in low land-price neighbourhoods. Unless we can allow for land prices, regression estimates of the impact of crime

The collage contains several property listings:

- Lansdowne Place £390,950**
UNDER OFFER
Ground floor 1 bed flat
Easy access for intruders
Modern kitchen
Communal parking with high incidence of car crime
Gas central heating
- Middle Road £360,000**
NEW INSTRUCTION
Opposite Queen's Park
Crime against the person common
Rear Patio garden
Front garden is local job hangout
- Florence Road £250,950**
Potential for improvement
High incidence of burglary
Up and coming neighbourhood
Violent crime and mugging within 5 minutes walk
- Port Hall Street £100,950**
White rendered walls
Graffiti target
Frequently broken windows
Freshly planted front garden – used a public
- Albert Road £115,950 *REDUCED***
Criminal damage is common in this street
Regular fresh graffiti
Possibility of arson
Ideal for first time buyer
- Kingsbury Street £409,450**
22' Lounge Diner
Near to A&E department
Hot-spot for street crime

The propensity to report a crime varies with the characteristics of the victim



on property prices will be biased towards finding a negative relationship.

On the other hand, burglars will target properties where the expected return in terms of the value of stolen goods is highest. Since high land-price neighbourhoods will have high proportions of high-income residents, the returns to burglary here will be high. We should expect to find high burglary rates in these areas, other things equal. So we must pay careful attention to the unobserved components of property values that are area specific and attempt to control for them.

The detail of the equations used to structure the relationship between crimes and property prices is set out in my paper "The cost of urban property crime", CEP Discussion Paper No. 574. In particular, they allow for factors that may jointly influence both crime levels and the prices of properties in a particular geographical area.

Many police forces in the UK record crime at a geographically localised level. However, it is nearly impossible to obtain this data at the present time in a form that is useful for mapping to other area characteristics and to properties. One exception is the Metropolitan Police in London, which has made available to us a unique data set recording property-based crime on an annual basis for the period April 1999 to March 2001. The numbers of property-based crimes are recorded across the London area on 100m grid references.

The Met data lists by five types of crime: burglary in a dwelling; burglary in other buildings; criminal damage to a dwelling; criminal damage to other buildings; and theft from shops. Criminal damage includes graffiti and vandalism, but excludes damage committed in the course of a burglary, which is recorded under burglary. Unfortunately, it seems that the Metropolitan Police is unable to postcode other offences accurately.

Although this Met data has exceptional geographical detail, it is far from perfect in other ways. It is well known from comparisons of victimisation surveys and recorded crime statistics that the latter understate the true incidence of crime – the so-called *dark figure*. Unsurprisingly, the probability of a crime being reported varies with the severity of the incidence. However, the propensity to report a crime also varies with the characteristics of the victim. Only about

45% of burglaries involving a loss, but without injury or loss of earnings, seem to be reported, though that figure rises to nearly 100% for burglaries that do involve injury and loss of earnings. No information is available for reporting rates for criminal damage. Our main data source for property transactions is a sample provided by Ekins Surveyors. Ekins is the trading name of Woolwich Surveying Services Ltd, a wholly owned but independent subsidiary of Woolwich plc operating in the residential and commercial property sectors. In addition to its work with the Woolwich, Ekins receives survey and valuation instructions from over 100 other lending organisations. The full Ekins sample contains data from December 2000 to July 2001 for 10,464 properties in the Inner London Area, covering the E, EC1, N, NW, SE, SW, W and WC postcode areas. We geo-code these properties with National grid references based on their postcode. After geo-coding and dealing with missing data problems, our final sample is some 8,100 properties.

Our next task is to match crimes to properties. Since the aim is to obtain a measure of the expected crime level within a few blocks of a property, the calculations are based on the number of crimes of each residential crime type recorded within a 250-meter radius of the property and on the implied crime level per square kilometre. For non-residential crimes, the distance was doubled to compensate for the lower density of non-residential properties.

Table 1 summarises the key variables in the property price and crime data. The top panel summarises the property valuation sample. The focus of our work is on recorded crimes in the categories "burglary in a dwelling" and "criminal damage to a dwelling".

Taking these crimes for the London area between April 1999 and March 2001 and plotting them within a 1 km radius on a 500-meter grid indicates burglary hot spots north of Islington in North London and around Brixton in South London.

Criminal damage, also, is high in these areas, but the hot spots are more dispersed. They extend north from Islington and towards Tottenham on the west side of the Lea Valley; east into the East End of London; and on the south side of the River Thames towards Woolwich. Recorded property crime rates are generally low in the Central London area, rise in the inner city areas and fall away again towards the suburbs.

Table 1. Summary statistics

| | Mean | s.d. | Min / Max | Obs. |
|--|-------|-------|---------------|------|
| Ekins property valuation data | | | | |
| Property prices, 12/00-07/01 (£000) | 235.4 | 244.8 | 14 / 4500 | 8084 |
| Criminal damage in a dwelling (per km ² per year) | 50.5 | 30.5 | 0.63 / 155.8 | 8084 |
| Burglary in a dwelling (per km ² per year) | 121.6 | 79.4 | 1.2 / 565.3 | 8084 |
| Eastings | 53091 | 676 | 51470 / 54840 | 8084 |
| Northings | 18064 | 664.6 | 16690 / 19590 | 8084 |



Recorded property crime rates are low in the Central London area

The key results are summarised in Table 2. Taking account of basic differences in housing types and broad differences in geography, we find that prices fall by nearly 4% for an additional five reported incidents of criminal damage per year. Five reported incidents is an extra 10% on the average number of incidents recorded. Surprisingly, at face value, domestic burglaries appear to *push up* property values. This implausible result almost certainly reflects unobserved property, household and neighbourhood characteristics. Higher returns to burglaries in higher priced dwellings and the higher propensity for better-off households to report crime could bias these estimates.

We continue to find very significant effects from criminal damage, even once we take more care in controlling for local amenities, community and geography – distance to underground stations, green spaces, police stations and school truancy rates for example. But burglaries remain unimportant, even in our best models.

Table 2. The effect of a 10% increase in crime near the average property

| | Basic model | Adjusting for local amenities and geography | Predicting from the location of public houses |
|-----------------|-------------|---|---|
| Criminal Damage | -3.9% | -2.0% | -2.4% |
| Burglary | +1.0% | Not statistically significant | Not estimated |

Consideration of the possible cultural factors underlying the incidence of graffiti, vandalism and other forms of criminal damage suggests another approach to our analysis. Alcohol consumption is an associated factor in many types of crime, although the lack of official statistics for the UK makes it difficult to quantify the link. A study in one town in England found that 88% of people arrested for acts of criminal damage, over a period of five months, had been drinking in the four hours prior to the incident (Jefferies and Saunders, 1983). Official statistics for local prisons in the United States indicate that 33% of inmates convicted for a property crime (and some 56% of inmates convicted for a public order offence) had been drinking prior to the offence.

Although the link between alcohol consumption and crime is not necessarily directly causal, alcohol is often a contributory factor in violent crimes and acts of public disorder. This may be because alcohol encourages aggression, induces psychotic states, or decreases inhibitions. Or it may be that some certain social environments encourage both excessive drinking and disorderly or criminal activity. In any case, a link between the location of crimes and the location of licensed premises, and the time of offences and the end of licensing hours is widely recognised.

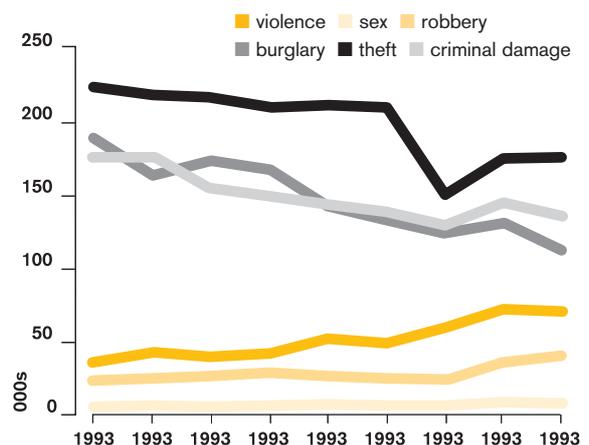
So we would expect the incidence of property crime in our London data to be higher at locations near licensed premises, and for prices to be lower near pubs. Indeed this

is the case. For the average property, criminal damage decreases at the rate of 3.5 crimes per sq km per year as distance to the nearest pub increases by 1km. And there is a decline in house prices near pubs that seems to be linked to this rise in crime.

Why is it that burglaries do not seem to influence property prices, while criminal damage incidents in a neighbourhood do? Of course, homeowners can take preventative action against burglars (alarm systems, barriers etc), which they are less able to do to prevent damage to property. But we should consider to what extent our estimated impact of criminal damage to dwellings picks up the cost associated with a high incidence of other crimes – for example, violent crime, robbery, or vehicle crime.

Our data is slightly limited by the lack of information on crime in other categories. Some unobserved crime categories are cause for concern, because the estimates of the economic costs of these types of crime are high. Brand and Price (2000) estimate that average cost associated with an act of violence against the person is £19,000, with serious wounding carrying total costs of £130,000. For robbery, their figure is £9,700 per incident. We would expect the costs associated with increased risk of such crimes to be capitalised in property values. On the other hand, incidents of assault and robbery may be more important in individual choices about where and when to walk the streets. The location of property crimes is more directly related to choice of residential location.

Figure 1. Crime trends in Metropolitan Police area, 1993-2001



Changes in counting rules can make comparison between pre- and post-1999 figures misleading. Figures are adjusted for overall effect on offence groups, but the Theft and Handling group cannot be corrected accurately. All vehicle-related crimes (including some criminal damage to vehicles) have been deducted from the Theft and Handling category post-January 1998. There were also minor geographical changes to the Metropolitan Police Force boundary in 2000.

Alcohol consumption is an associated factor in many types of crime



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The crime trends for the Metropolitan Police Force Area in Figure 1 also suggest little association between criminal activity in the criminal damage (crim) category and what we would perceive as serious urban crimes such as violent crime (viol) and robbery (rob). While recorded crimes in the burglary, criminal damage and theft categories have been on a general trend down in the last decade, violent crime and robbery have been on the increase.

What are we to make of our results? On the face of it, the impact of criminal damage on property prices seems high relative to estimates of the direct, physical and emotional costs associated with criminal damage itself. Average costs per incident to the household experiencing it are in the order of £510 (Brand and Price, 2000). In comparison, our estimates translate into a social valuation of criminal damage in the order of £100,000 per incident.

It is quite clear from this that, if incidents of criminal damage affect property prices, then it is for reasons other than the expected costs of the incidents themselves.

A more likely explanation is that incidents of vandalism and criminal damage impact on property prices because they induce fear of crime. Graffiti, for example, comes out as one of the few neighbourhood factors which is consistently significantly correlated with several measures of fear of crime.

Criminal damage is certainly *perceived* as a problem by individuals. In the 2000 British Crime Survey, 32% of respondents agreed that vandalism was a "very/fairly big problem" (Home Office, 2001), although only 10% of these considered it had a negative impact on their quality of life. Nevertheless, in the same study, between 33% and 50% of respondents in owner-occupier neighbourhoods considered that disorder in general has a negative impact on quality of life and 20% of respondents in affluent owner-occupier neighbourhoods thought disorder was increasing.

Perhaps the most plausible interpretation of the results is that incoming residents perceive criminal damage in the neighbourhood as signalling higher crime in the area, or a deteriorating neighbourhood in general. In essence, what we are finding relates to neighbourhood effects of the type described by Wilson and Kelling's *Broken Window Syndrome*. According to this hypothesis – popular in the environmental criminology literature and with advocates of neighbourhood clean-up campaigns – unrepaired damage

to property in the neighbourhood encourages further vandalism, perceptions of community disorganisation, upward spiralling crime rates and downward spiralling neighbourhood status.

If vandalism and graffiti are seen as predictors of neighbourhood decline and precursors of escalating crime rates, then it is not surprising that they impact on property prices. Nevertheless, our evidence is that these disorder-related crimes are weakly to moderately associated with more serious crimes, suggesting that the disorder/crime link is not necessarily causal. Physical disorder like graffiti and vandalism may be symptomatic of deeper disruptions in social cohesion and community expectations.

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