



Explaining falling crime in the UK

By Mirko Draca

A simple answer?

Crime rates have fallen across many countries since the early 1990s.

IT HAS BEEN HARD TO PINPOINT a decisive reason for this fall in crime with factors such as investments in police, changes in incarceration rates and demographic factors such as abortion and even the level of lead pollution all having been considered.

The economic model of criminal participation turns on the issue of the 'rationality of criminals'. Is criminal behaviour driven by personal, psychological factors or is it based on an economic calculation?

In my work with Theo Koutmeridis and Stephen Machin, forthcoming in the *Review of Economic Studies*, we tackle a surprisingly overlooked reason for the fall in property crime that provides insights into the rationality of criminals, namely the price of goods. Simply put, the price of goods is a major determinant of the potential gains from property crime. Changes in these prices are therefore key incentives for the decision to

participate in crime. Systematic changes in the prices for commonly stolen goods could therefore feed through to drive trends in the aggregate rate of property crime.

In this work we study the link between crime and prices in the context of a new, large dataset that gives the product-level breakdown of items stolen in London from 2002-2012. This evidence establishes that changes in crime and prices are correlated for many different goods. It is further clear from a special subgroup of commodity-related goods (which offer the best experimental conditions for studying prices and crime) that the crime-price relationship is strong and characterised by rapid adjustment.

Further to this, mapping our estimates onto aggregate property crime rates indicates that prices explain a substantial part of the trend over the 2002-2012 period.

In total, while our data covers one city over one decade, this evidence is compelling enough to suggest that prices deserve serious further investigation as the potential main determinant of the major shifts in property crime that have occurred across countries since the 1990s.

'Eyeball Evidence' – it's there to see!!

Our study focuses on the set of consumer goods that make up the typical 'target items' found in the average burglary or theft incident. In addition we also do a close case study of the crime-price relationship for commodity-related goods (metals, jewellery and fuel). This case study serves as a useful 'natural experiment' in the sense that it gives us the cleanest conditions available for analysing how criminals respond to a

pure change in the value of goods.

Table 1 shows a breakdown of the biggest individual increases and decreases in theft rates across the goods categories in our data. Mobile phones and bicycles experience large increases in theft during the 2002-2012 period with final shares in the total count of stolen items of 31.6% and 8.8% respectively. Major increases across a range of jewellery sub-categories are also very noticeable. Amongst the goods that have experienced falls in shares are what can be thought of as 'likely suspects': audio equipment, recorded media (CDs, DVDs) and visual electronic goods (TVs, DVD players). This is reflective of the common intuition that these goods have become much less valuable in the past decade as imports from countries such as China have lowered prices very sharply.

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A visual depiction of the price-crime relationship in our data is given in Figure 1 which plots the average 12-month changes in price and crime over the sample period. This again shows the pattern of price-crime changes evident in Table 1, with clear rises for the jewellery categories and falls for Audio and DVD players.

Table 1: Changes in Property Crime Shares, Top and Bottom 10 Out of 44 Matched Goods, 2002-2012

Property Type Code	Property Type Description	10-Year Change in Share (%)	Final Share in 2012 (%)
ET	Mobile Phones	8.8	31.6
LA	Bicycles and Accessories	4.6	8.8
JA	Necklace / Pendant	1.9	5.1
JC	Watch	1.3	4.2
JB	Ring	1.0	4.3
JD	Bracelets	1.0	2.9
JE	Earrings	0.5	1.9
TA	Hand Tool – Power	0.5	5.9
GA	Foodstuff	0.3	1.7
ER	Battery / Charger	0.2	0.4
EA	Audio / Radio / Hi-Fi / CD	-8.5	2.8
HA	Records / CDs / Tapes / DVDs	-2.9	0.6
EB	TV/Video / DVD / Projectors	-1.9	2.3
SB	Optical Equipment	-1.0	1.8
TB	Hand Tool – Mechanical	-0.8	1.0
AA	Ladieswear	-0.6	2.6
GD	Drink – Alcoholic	-0.6	2.2
DA	Cosmetics / Drugs	-0.6	3.3
AB	Menswear	-0.5	3.3
AD	Toiletries	-0.5	0.5

Notes: This Table reports property type codes and names in the matched, balanced panel (2002-2012) of MPS data that have experienced the ten highest and ten lowest increases in their share of total crime (the sum of burglaries, robberies and thefts).

Modelling crime and prices

Figure 2 summarises the basic results from our econometric modelling. It shows the estimates of the relationship between crime and prices for the 44 goods in the matched London data over the 2002-2012 period. The estimate of 0.346 implies that a 10% increase in prices is associated with an approximate 3.5% increase in the count of stolen items for a given good. The next two bars break this down according to crime type, with higher estimates for theft (0.413) than for pooled Burglary/Robbery (0.254).

In the next step, we study the lag structure associated with this relationship. This is important for understanding the speed of adjustment, that is, how quickly crime responds after a change in prices. Figure 2(b) reports the results of a model where we directly allow for up to three months of lagged effects for prices in addition to the contemporaneous effect. The results for this indicate that the effect of prices unfolds quickly – there are no significant effects by the third month such that most of the adjustment occurs in the very short-run. ►

The bottom line

The estimates that we develop tell us about one important component of criminal decisions – the role of returns. As such, they stack up alongside other economic determinants of criminal decisions, such as the role of wages

in providing an incentive to ‘stay legal’. The point of our study is that previously one major factor explaining the potential ‘rationality’ of criminals was missing from the analysis.

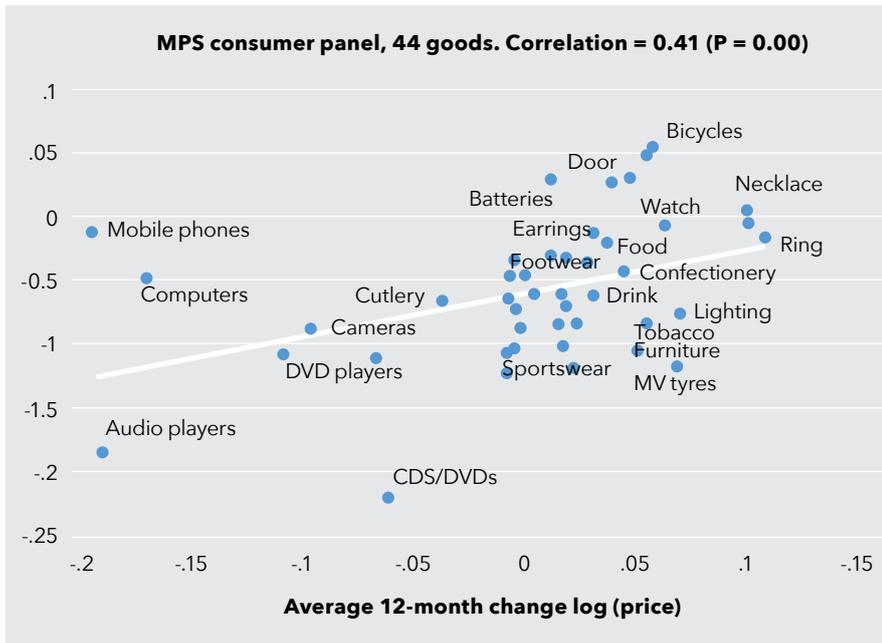
In terms of the overall contribution of prices to falling crime in this sample

we can quantify it as follows: the value of the main basket of stolen goods fell by approximately 1.4 percent per year. When considering the strength of the relationship between crime and prices, this translates into a predicted 0.49 percent per year fall in crime which is about 12.6 percent of the annual drop in crime witnessed over this period.

However, the economic calculations made by criminals do not end there. In addition to these effects induced by the fall in prices there are also a set of effects related to rising wages. The value of the ‘inside option’ of legal work in the low wage sector increased by about 1.5 percent per year in the period considered. This put even more distance between the potential return to crime and legitimate activity, explaining another 6.6 percent of the drop in crime.

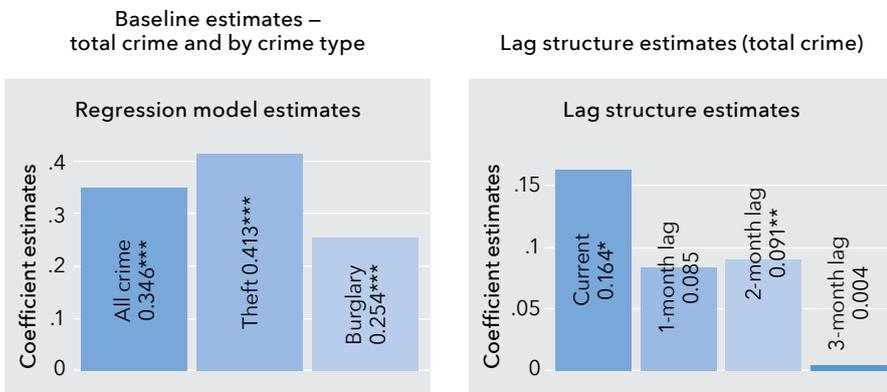
While we cannot conclude that criminals are fully rational actors we can say that incentives explain a significant fraction of criminal activity. A significant path for crime reduction therefore appears to lie in the area of affecting the returns to crime. To coin a new phrase, policymakers need to be ‘tough on crime and tough on the incentives for crime’.

Figure 1: Average 12-months changes in log (crime) and log (prices) for matched MPS panel 2001-2012



Notes: Average 12-month change over ten years in log (crimes) and log (price) per good across all 44 consumer goods panel. Some labels (mostly on relatively small crime categories) have been omitted for space reasons.

Figure 2: Crime and prices – estimates for 44-good model, 2002-2012



These graphs illustrate that with regard to all property crime, if the price rises by 10% then you can expect the count of stolen items to rise by 0.346%.

Notes: Bars represent coefficient estimates from regression models of crime and prices (with prices measured in terms of a price index per good where baseline value equals 100 in January 2002). Panel (b) shows estimates for a model of total crime with contemporaneous prices and three months of lags. *** denotes 1% significance, ** 5% and * denotes 10%. Specifications include month-good fixed effects and time effects for all periods. For full details of specifications, see Draca, Koutmeridis and Machin (2015).

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