Reform of Ill-health Retirement Benefits for Police in England and Wales: The roles of national policy and local finance

by

Rowena Crawford[*]   and   Richard Disney[†]

Abstract

We examine the determinants of ill-health retirements among police officers in the police forces of England and Wales between 2002-03 and 2009-10. Differences in ill-health retirement rates across forces are statistically related to the area-specific stress of policing and to force-specific differences in human resources policies. We describe a series of reforms to police pension plans; in particular a shift in the incidence of financing ill-health retirement through pension plans from central government to local police authorities that occurred in the mid-2000s. We show that these measures had a significant impact on the level of ill-health retirement, especially among forces with above-average rates of ill-health retirement. We investigate whether residual differences in post-2006 ill-health retirement rates across forces are related to their differential capacities to raise revenue from local sources, and find evidence that local police authorities were prepared to raise precepts to finance such retirements.

[*]   Institute for Fiscal Studies, London

[†]   Institute for Fiscal Studies, London, and University College, London.
Corresponding author: Institute for Fiscal Studies, 7, Ridgmount Street, London WC1E 7AE; Tel: (+)44 20 7291 4800; email: richard_d@ifs.org.uk

Reform of Ill-health Retirement Benefits for Police in England and Wales: The roles of national policy and local finance

1. Introduction

This paper focuses on the determinants of ill-health retirement rates among police officers across police forces in England and Wales. It investigates the extent to which ill-health retirement polices vary across police authorities, once we control for selected characteristics of police officers and differences in the nature of policing across police areas. There is significant variation in rates of ill-health retirement across police forces, and also in the extent to which local police forces rely on central versus local funding of police activities. We show that there has been a downward trend in ill-health retirement rates over time, in part driven by the policies of central government – including a partial shift in the burden of financing ill-health retirement from the national to local level. We therefore explore whether there is a connection between these relative trends in ill-health retirement and in central versus local finance of police activities, exploiting variations across police forces and over time.

As in the United States, policing in England and Wales is largely carried out at the local (county) level rather than at the national jurisdiction.[1] In contrast to the United States, however, most of the components of the remuneration (pay and pension) package of police officers are negotiated at the national level, and the bulk of financing of police forces comes through block grant funding provided by national government. Nevertheless, a significant component of police funding – varying from 12% to 45% of total budget across forces in 2011 – is raised from local property taxes.[2]

Normal retirement for police officers – at least for those entering the police service before 2006 – can take place after 30 years service or at age 50, with a retirement pension of up to two thirds of final salary. Although these terms are generally regarded as among the most generous on offer in public sector pension plans, especially in terms of normal retirement date,[3] police forces have also been characterised by high levels of *early* retirement on

---

[1] Scotland and Northern Ireland are separate legal jurisdictions, although much of what is described here also applies to the police forces in those nations.
[2] Universities' Police Science Institute (2011).
[3] Even allowing for the higher contribution rate levied on police officers than in other public pension plans: see Pensions Policy Institute (2008). Nor is there evidence of lower life expectancy among police officers than the general population as a justification for these findings: see Government Actuary's Department (2011).

grounds of ill-health, especially in the late 1990s when medical retirements were averaging almost half of all retirement across police forces (HM Treasury, 2000).[4] Ill-health retirement rates across forces varied from less than 20% of all retirements to over 75% in the same period; the high rates being seen as arising from a combination of generous enhancement provisions (*ibid*, Tables 1 and 2) and weak enforcement and monitoring of medical claims (Poole, 1997). Ill-health retirement rates have fallen since that time, partly due to tighter monitoring and to an increased willingness of forces to place officers on 'restricted duties'.[5]

In 2006 reforms were implemented to reduce ill-health retirement rates still further both by targeting 'high ill health retirement rate' forces (Home Office, 2004, Annex B) and by transferring part of the burden of financing ill health retirement onto local forces themselves. These measures will be described more fully in Section 2 and their impact on ill health retirement investigated statistically in Section 3 of the paper. In Section 4 we consider further the implications of the partial devolution of the funding of ill-health retirement to local police authorities. We examine whether police authorities with higher local taxable capacity from local property taxes pursue different ill-health retirement strategies in the post-2006 period to those with lower capacity. To our knowledge this is the first study of its kind concerning these issues in Britain.

2. Background

2.1 Institutions

Policing in the United Kingdom is carried out largely by territorial police forces, normally organised at the *county* level, albeit with some county forces merged into larger 'territorial areas' (e.g. 'Thames Valley') or 'joint forces' covering larger municipal areas such as Greater Manchester and, for most of London, the Metropolitan Police. In all there are 43 police forces in England and Wales; the nations which will be the focus of our analysis. A typical police force in England and Wales covers a population of around 1 million people, although the

---

[4] By way of comparison, average medical retirement rates in the same period among firefighters were 68%, among teachers, 25%, and in the armed forces 6%. Private sector rates (for those companies with pension plans with similar provisions) typically averaged around 10%. See HM Treasury (2000), Table 2 and Figure 3.

[5] Officers on 'restricted duties' are constrained in the operational duties that they can undertake: see Winsor (2011) pp.201ff. There is no reduction in pay from being on 'restricted duties': Winsor (2012), Chapter 5, recommended that such officers should receive a pay reduction equivalent to the 'premium' in police officer pay arising from capability of full deployability.

joint forces typically cover larger populations and, in the case of the Metropolitan Police, over 7 million people.[6]

Although policing thereby has a decentralised territorial aspect in England and Wales, akin to the United States, there is a much greater degree of centralisation in policing policy in the former. All police officers, irrespective of rank, are appointed to the national 'Office of Constable' – a procedure dating back to the year 1066 (but more recently and mundanely enshrined in the Police Acts of 1964 and 1996) – by which an officer is sworn by their local police force into the office and thereby gains powers of search and arrest that are not available to the general public, including, under certain conditions, the power to arrest outside their own territorial area.

Police officers do not have an 'employment contract' with an individual police force, and thereby lack certain standard employment 'rights' such as the right to form a trade union and take industrial action, or to take part in political activities. Equally, except under certain very specific conditions, a police officer cannot be made redundant, and will continue in the 'office of constable' (irrespective of actual rank) until he or she cannot undertake the full variety of tasks – both physical and mental – required by their office. For that reason, the age of 'normal' retirement for a police officer has traditionally been set at a relatively young age – either on attaining age 50 or after 30 years of service, as mentioned previously.

2.2 Pay and pensions

In contrast also to the United States, the determination of police remuneration in the UK has become increasingly centralised over time. As late as the early twentieth century – when there were many more local police forces in the UK – pay was set locally but in 1918 two important changes occurred. First a 50% central exchequer grant was introduced to supplement finance of police forces from local property taxes. Secondly, local police authorities were required to place their police forces on one of two standard pay scales so that by 1919 one or other of these scales had been adopted by almost all local forces. These were broadly consolidated into a single scale (albeit with additional allowances especially for officers within the (London) Metropolitan Police) as a result of the report of the Royal Commission on the Police of 1962.[7]

---

[6] As will be apparent, therefore, a 'county' in England and Wales is typically a larger territorial jurisdiction in terms of population than a county in the United States.
[7] See Winsor (2011), Appendix 2.

Police pay (and increases thereof) are now set by the Home Secretary – a senior minister in national government – albeit after the operation of a statutory negotiating framework for changes to pay and conditions - the Police Negotiating Board (PNB), made up of officials from the relevant national jurisdictions and local police authorities on the one side, and staff representatives on the other.[8] In the event of disagreements within the PNB there is scope for an independent arbitration procedure which can issue non-binding recommendations that are normally, but not always, accepted by the Home Secretary. It should also be noted that attempts to reform police pay and conditions, mostly recently in the form of comprehensive proposals from the 'Independent Review of Police Officer and Staff Remuneration and Conditions' (Winsor, 2011, 2012), are also dealt with through this negotiating machinery.

Pension provisions of the police are as follows. Most current police officers – both active and retired – are members of the Police Pension Scheme (PPS), which is a national unfunded contributory final salary defined benefit pension plan dating from 1987, although key principles of the scheme date back to 1921 and to subsequent legislation. Since April 2006, this scheme has been closed to new members, and new entrants to the police force are offered membership of the New Police Pension Scheme (NPPS), introduced as part of the reform process to public pension schemes that was initiated in the early 2000s (see Pensions Policy Institute, 2008). The main characteristics of the PPS and NPPS are summarised in Table 1.

Some more recent changes in police pension arrangements should be noted. First, as a result of changes to all public sector pension plans proposed by the Independent Public Sector Pensions Commission (HM Treasury 2011), the government in January raised employee contributions to both the PPS and the NPPS by, on average, 1 to 1.25% percentage points. Second, proposals stemming from both HM Treasury (2011) and Winsor (2012) to raise the normal pension age to 60 for police officers are among a number of potential changes to the pension plans that are currently under negotiation. Finally, in relation to this last issue, it should be noted that the average age at which police officers enter the service has tended to rise over the last few years, not least because of the excess supply of applicants and potential recruits. This has allowed forces to recruit candidates with greater experience (including experience in police staff roles) and enhanced educational qualifications. According to the NPIA (2010), the average age of successful police applicants at national assessment was

---

[8] Winsor, *ibid,* Appendix 3. Although not unionised, the various representative bodies of the staff side, notably the national Police Federation are both powerful and vocal in presenting the case for better pay and conditions for their members.

almost 27 years; long gone are the days when the average new entrant to the police service had left school at age 18, or even earlier.

2.3 Ill-health retirement

There are two incentives for police officers to retire on grounds of ill-health, subject of course to the loss of welfare associated with the ill-health itself. First, officers can receive a pension before their normal date of retirement (30 years' service or the earliest pension age); second, because the ill-health pension is normally enhanced by notional additional years of service.

The conditions that determine ill-health retirement for officers are underpinned by police regulations. An individual may be required to retire on medical grounds if he or she is permanently disabled; for police officers this is defined as:

> "disabled from performing the normal duties of a police officer, including operational duties, until compulsory retirement age..."

Several issues are worth noting in this process. First, the criterion for ill-health retirement among the police lays stress on the officer's inability to perform 'operational duties' – that is, limits on his or her potential full deployability such as in major public order situations and other more physically and mentally stressful situations. This is a stronger criterion of 'disability' than in most public social insurance settings where 'disability' would be defined by reference to capability in *any* employment. In the context of police officers, this definition links back to the supposed omnicompetence associated with the 'Office of Constable'. Consequently, many police officers who were unable to fulfil *specific* duties obtained full ill-health retirement even though they were perfectly capable of engaging in restricted activities.

In a separate but related development, the sizeable cost of ill-health retirements under the original Police Pension Scheme have induced many police authorities to encourage the possibility of alternative employment within the police service for those with restricted, but not completely disabling, injuries. The number of officers on 'restricted duties' has therefore risen quite sharply in the past decade (albeit at different rates for different forces), although it should be noted that there is at present no reduction in basic pay for an officer who is on 'restricted duties' (see footnote 5).

Secondly, as noted by Poole (1997) and others, assessment procedures for ill-health retirement differed widely across police forces. In some cases, ill-health assessments would be made on an initial recommendation from a line manager and/or evidence from the

applicant's doctor coupled with an in-house medical assessment, through to a much more stringent procedure based on several external medical assessments and more detailed consideration of alternative employment in the police service. Moreover, as noted by HM Treasury (2000), the police formula for ill-health retirement pension awards provides an enhancement of years of service according to a non-linear formula depending on existing numbers of years' service. As that document demonstrates, there are distinct 'spikes' in awards at those years of service at which the rate of enhancement increases, such as after 10 and 13 years' service. This suggests that financial incentives, as well as medical issues, played a major part in the process. Consequently, after the mid-2000s, efforts were made to implement standardised 'best practice' medical assessment procedures across forces.

The 2006 reforms to police pensions

As noted in Table 1, in 2006 new entrants among police officers were enrolled in the New Police Pension Scheme (NPPS). From the point of view of conditions of service, there was one important distinction arising from the reform: the NPPS makes a distinction between officers who are incapable of employment in general and those who are still capable of regular employment elsewhere. In the 2006 scheme, the latter would only receive an unenhanced pension. This change would make a sizeable difference to pension payouts in many simulated cases (Winsor, 2012, pp. 281-2); however most serving police officers are still covered by the earlier pension scheme which makes no such distinction.

Other changes introduced in 2006 however impact more generally on police pensions, especially concerning the *incidence* of the costs of ill-health retirement. The first was a change in the financing arrangements for pensions. Under the pre-2006 funding regime, all expenditures on police pensions, whether via normal or ill-health retirement, were transferred through the main central block grant to police authorities – the Police Main Grant – from the Home Office whilst contributions by serving police officers to the police pension plans were simply transferred back to the central government: in other words, the central government simply financed all pension payments.

Under the new arrangements in 2006, each police authority would establish a pensions account into which employee and employer contributions within that police force would be paid. This would then be used to pay the pensions of both new and existing retired police officers. Given the large stock of retired police officers relative to serving police officers, this account would normally have to be topped up from central government to remain in

balance.[9] Under the new proposals, this 'top-up' would be done in full for 'normal' retirements. However, for ill-health retirements, the local police authority would be responsible for paying an upfront charge of twice the average pensionable pay for the officer concerned into the pension account, with the ongoing pension award being financed from contributions or by central government subsidy (Home Office, 2005). For a realistic example, this would imply an upfront capital charge on the new pension account of three or four times the new pension award. For a plausible discount rate, and assuming life expectancy of ill-health retirees to be somewhat less than life expectancy of normal retirees, this upfront cost could constitute around one-quarter of the total projected pension cost over the remaining lifetime.[10] This capital charge on the local police authority would then have to be financed either from greater efficiency in spending the central grant or by raising revenue from local property taxes to rectify the shortfall in the pension account in relation to these retirements.

In addition, Home Office (2004, 2005) set a current target maximum level of ill-health retirements of 6.5 per 1000 officers in service for every police force. Although there were no *direct* financial penalties as such for failing to achieve this target, clearly forces with high levels of ill-health retirement would face a proportionate higher burden on their pension accounts that would not be fully compensated from central block grants. Moreover, each police force as a whole received a series of performance targets, of which this was one, and failure to achieve these targets could invite pressure from central government and local police authorities on senior police officers, particularly Chief Constables, who are often appointed on limited tenures, to match up or leave.[11] Combining these changes, therefore, it can be seen that central government, in the form of the Home Office, significantly altered the incentives to local police forces in relation to ill-health retirement.

---

[9] Home Office figures suggests that, in 2008, there were around 131,000 active members of the 1987 PPS and 12,000 active members of the 2006 NPPS. There were 104,000 retired members of the 1987 PPS as well as deferred members and survivors of members who were, or would, receive pensions.

[10] Assuming retirement on a pensionable income of £40,000 at age 50, a pension of £24,000, a real discount rate of 4% and a life expectancy beyond retirement date of around 25 years. This would of course understate the relative burden on the pension account for those officers who entered the police service later or who died much earlier due to severe disablement.

[11] However, among a number of radical steps proposed by the current Coalition administration (2012), all specific targets for police forces have been abolished. Instead locally appointed police authorities will be replaced by elected Police and Crime Commissioners, broadly along the lines of the United States, who will be expected 'to hold the [area police force] to account'.

3. Modelling Ill-health Retirement

In this section, the variations in ill-health retirement rates across police forces over time in England and Wales are examined using simple reduced form econometric models. Specifically, we examine the factors underlying differences in ill-health retirement rates and also the impact of the 2006 reforms on retirement rates. To set the scene, Figure 1 graphs the distribution of ill-health retirement rates across police force in England and Wales for fiscal year 2005-06, just as the various reforms to the retirement regime described in the previous section were announced. It can be seen that the range of ill-health retirement rates is large, but this may reflect transitory circumstances across police forces, especially among the smaller forces where the numerator of the ratio is relatively small.

In Figure 2, therefore, we use panel data on ill-health retirement rates by police force to examine which police forces have systematically higher (or lower) rates than the average for the period 2001-02 to 2004-05. We would expect year-on-year variability in ill-health retirements across police forces but, running a simple fixed effects police force-level regression for the period demonstrates that there are several police forces with statistically significantly higher ill-health retirement rates than the average (those with significant coefficients at 5% or above are indicated by the darker bars in Figure 2).

Given these systematic disparities in ill-health retirement, and in order to examine the effects of the 2006 reform described in the previous section, we estimate a reduced form regression model to explain the determinants of the ill-health retirement rates for 42 police forces in England and Wales over the period 2002-03 to 2009-10.[12] The dependent variable is therefore the (ill-health retirement rate per 1000 police officers)$_{it}$ for the *ith* police force at time t. This rate is assumed to depend on five broad categories of factors:

- *Characteristics of police officers.* Ill-health might correlate with personal characteristics such as age, gender, ethnicity and underlying health. Bearing in mind that we are working on force-level data rather than individual data, this implies that forces with, for example, a higher proportion of older police officers might have a higher ill-health retirement rate. In our specific data set, evidence on force-level characteristics are limited, and we use *normal retirements per 1000 officers* as a proxy for age structure,

---

[12] We exclude the (small) police force of 'City of London' from among the 43 England and Wales forces as we have no local area control variables.

since there is clearly a strong correlation between having older police officers and the incidence of normal retirement through the pension scheme.[13]

- *Stress and intensity of work across police force.* The argument here is that police officers working in more stressful settings (for example, inner city areas) face higher levels of risk of injury and ill-health. We have several variables that proxy aspects of policing that can be utilised in the analysis, mostly taken from data from CIPFA (2011). Here we utilise:[14]
  - *crime rate*: number of notifiable offences per 1000 population,
  - *population density per officer.* This is a good proxy for operating in urban areas, but also for the police force strength relative to the local area,
  - *crime clear-up rate* as % of recorded offences. This would clearly be an endogenous variable in a structural analysis of policing, but might also capture any residual intensity of policing.

- *Outside options.* Since ill-health retirement from the police, especially before 2006, is not necessarily associated with incapacity for *any* employment, we construct two variables that measure the outside opportunities available to police officers who take retirement on grounds of ill-health. In each case we do this by matching measures of local earnings and employment by local authority level taken from the Office of National Statistics' *Annual Survey of Hours and Earnings* (ASHE) into the police force area data. We use two indicators:
  - *The local area unemployment rate.* Tentatively, we might assume that a higher rate indicates lower job availability, although it may also be associated with greater deprivation and stressful policing, and,
  - *The local area wage relative to the average wage* for England and Wales. Given that police wage rates are set nationally, this also largely captures the ratio of local wages to local *police* wages.[15] Again, we might hypothesise that

---

[13] Measures of the health status of police officers would obviously be a good predictors of ill-health and therefore, presumably, ill-health retirement. However Winsor (2012) noted: "The physical fitness of police officers, and some staff, are tested as part of the recruitment and probation process but, unless they undertake certain specialist roles, never again thereafter", (*ibid*, p.211). No data derived from fitness or health test on police officers therefore exist.

[14] We plan to augment these variables with additional controls from matching local authority data into police force area data. See the next sub-set of characteristics.

[15] The matching of local earnings into local police earnings across police forces is illustrated graphically in Winsor (2012) Volume 2, Appendix 3, pp.686-689. It should be noted that ASHE data are the most comprehensive sources of earnings data in England and Wales, being a 1% survey of

a higher outside wage relativity might be associated with greater efforts to obtain early retirement on grounds of ill-health.

- *Police force early retirement policy*. As already described, police forces have differed widely in their attitudes to, and levels of, ill-health retirement. We simply proxy this by an area force dummy variable.

- *Policy changes*. These involve the policy changes introduced in 2006 and described in the previous section. We characterise them by two statistical measures:

  o *A post-2006 dummy* (commencing 2006-07) to test whether the change in the structure and finance of the police pension plan had any effect on ill-health retirement. Note this is a simple estimate in *differences* and will also partially capture the downward trend in police force ill-health retirements from 2002-03 onwards, and,

  o *An indicator of having a 'high ill-health retirement rate' pre-2006*, interacted with the post-2006 dummy. This captures the policy, described in the previous section, by which central government after 2006 targeted those forces with an ill-health retirement rate of 6.5 per 1000 or more. We use several definitions of 'high ill-health retirement rate' forces, two based on easy 'observables' and one based on our own method of identification:

  - *Definition 1:* those forces which had an ill-health retirement rate in excess of 6.5 per 1000 in 2005-06.

  - *Definition 2:* those forces which had an ill-health retirement rate in excess of 6.5 per 1000 at any point in annual period from 2002-03 to 2005-06.

  - *Definition* 3: those forces which have a significant above average ill-health retirement rate pre-2006 (i.e. those with a positive and significant fixed effect as depicted in Figure 2).

    In contrast to the post-2006 dummy this variable can be treated as a quasi-*differences-in-differences estimator*, insofar as we interpret the coefficient as the response in ill-health retirement rates of the 'high rate' forces after the policy change, relative to other forces.

The results of this exercise are described in Table 2. Table 2 shows that there is a positive, but weak and insignificant, association of ill-health retirement rates with age, as proxied by

---

social insurance records, but that ONS applies some *caveats* to the employment weightings. The matching uses local authority employment weights to aggregate the pay data into police force areas.

the rate of normal retirements. We do not anticipate strong associations in the data between personal characteristics and ill-health retirement, except perhaps with underlying measures of health status that are not available for the reasons described earlier (see footnote 13).

Local variations in 'stressfulness' of policing are a more promising avenue and indeed we find statistical evidence that variation over forces and time in these indicators are correlated with ill-health retirement rates: in particular there is a weakly significant positive association with local crime rates and a strongly significant positive association with population density. There is no significant association with 'outside options', but it may be that these are imperfect measures of actual options available to officers, and also capture other facets of the local economy.[16]

The simple 'difference' measure of the impact of the 2006 measures suggests an average reduction in the rate of ill-health retirement rate of roughly 1 in 1000 officers. From Figure 1, this is equivalent to a reduction of around a third in the average rate; however, the necessary *caveat* is that there is a significant downward trend in the rate from the start of the period and this coefficient may simply be capturing this initial trend. Of more interest, therefore, is the coefficient on the interaction term with high ill-health retirement rate forces. Although Definitions 1 and 2 are easily observable measures to central authorities, they are contaminated by year-on-year variance in rates of ill-health retirement, and we prefer Definition 3 as characterising forces with *persistent and statistically significant* above-average ill-health retirement rates in the pre-2006 period. And the results in Table 1 suggest that these forces did indeed reduce their ill-health retirement rates significantly as a result of the 2006 policy measures – by about two-thirds of the average rate of retirement (see Figure 2).

These policy measures may therefore be seen as reducing both the level and variance of the rate of ill-health retirement rates across forces. However, there is a further factor which comes to the fore in the post-2006 period. Since forces now have to finance part of their ill-health retirement from local sources (see Section 2), the possibility now arises of variance in ill-health retirement rates arising from differences in the local 'taxable capacity' of local police forces. This general argument – that components of the remuneration of public sector

---

[16] For most police forces, except perhaps some counties of South East England, police rates of pay lie well above those in occupations with comparable qualifications and job characteristics (Winsor, 2012, Chapter 9). It is possible that some officers retiring on ill-health grounds have very specific outside options (such as senior administrative roles with security firms, for example) that are not captured by these measures.

workers can be affected by local taxable capacity – has been discussed in a small but interesting literature in the United States: see Inman (1982), Gyourko and Tracy (1991) and Poterba and Rueben (1995). It has not, to our knowledge, been discussed in *any* public sector labour market context in Britain.[17] Accordingly, the next section discusses the issue of local versus central finance in greater detail.

4. The role of local finance

4.1 Police finances: a brief introduction

As described in Section 2.2, for much of the previous century there was a trend towards greater central funding of local police authorities in England and Wales. This reflected, in part, the slower historic growth of the local tax base, which is almost wholly derived from taxes on property. However, it also reflects the move towards greater central control of police spending – both as a means by which central government influences the allocation of police resources and activities – but also in order to limit increases in property tax rates, since central government, rightly or wrongly, has tended to believe that budgetary controls on spending at the local level are considerably more lax than those enforced by HM Treasury on central spending.

The largest bulk grant for policing for England and Wales (accounting for, on average, 35% of police finding in 2010-11) comes from the Home Office through the Police Main (or block) grant. A further, 11% comes through specific grants for particular activities and priorities (e.g. for 'neighbourhood policing' and for counter terrorism), and around 30% from the Department of Communities and Local Government (DLCG) and the Welsh Assembly. The remaining funds are raised locally, through a precept levied on local residential properties.[18]

The Home Office main grant is allocated to local police forces by a complicated formula which takes account of local demographics, socio-economic factors and measures of crime intensity and perception known as the Police Funding Formula (PFF) (Home Office, 2012).

---

[17] Understandably, perhaps, given that many public sector workers in Britain have pay and pension plan which are largely centrally bargained. There is however some discussion in Winsor (2012), Chapter 9 and Appendix 3, of whether police *staff* rates are responsive to wages in 'outside' labour markets within police force areas or instead are 'contaminated' by local variation in the earnings of police officers.

[18] Small additional sums are raised locally from fines and fees, from some charges for policing (e.g. for certain sports events) and, for individual police forces, from lending police officers to other forces ('mutual aid') or from revenue from the loan of specialist units (e.g. underwater recovery teams) between forces. The DLCG is responsible for financing other local government activities in England; again with Council Tax and also the 'business rate' as the main sources of local finance.

The basic Home Office grant is population-weighted, and separated into five workloads: crime, incidents, traffic, 'fear of crime' and special events (such as football matches). Each component of the grant is then weighted by socio-economic characteristics of the population (such as measures of employment, unemployment and receipt of welfare benefits), density of population, type of housing, the spatial density of bars serving alcohol, and so on. There are further adjustments for the costs of local police (since there are some local differences in pay rates, especially for staff other than officers). The DLCG grant uses somewhat similar weighting measures through the Standard Spending Assessment (SSA), and other discretionary grants have yet further mechanisms. To complicate the position further; to avoid excessive volatility in grant allocations from year-to-year by, for example, application of the PFF, there is a 'damping mechanism' which allows for annual deviations in the grant from that set by the PPF (and SSA). Some of these additional criteria and the 'damping mechanism' give a degree of exogeneity to central funding to police forces since, as we shall see, in several respects the capacity of police forces to raise funds from local sources depends on somewhat similar characteristics.[19]

The dominant source of local financing of police activities is the 'precept'; levied as part of Council Tax on local residential property. This tax was introduced in 1993 replacing previous property taxes, and allocates each residential property to one of eight bands assessed in 1991 in England (2003 in Wales) depending on size and other features. Newly constructed properties are assigned a band and properties with major reconstruction may be rebanded. Each local authority sets a Council tax (and police precept rate) as an annual levy on a middle-banded property; a nationally fixed formula then sets the rate of tax on each band as a fixed multiple or fraction of that levy. Consequently, the revenue that can be collected by a local police force from the precept depends on the total number and composition of properties in the area times the rate of precept set by the local police authority. It will therefore be apparent that the elasticity of revenues from changing the precept depends on this original banding assessment of residential property in the area, as well as any new construction.

It is important to note, however, first, that the multiple of banding rates from lowest to highest band is much more limited than the range of property values in any given area and, second, that house price increases (or falls) do not *per se* increase property tax revenues since the formula relating residential property type to band has remained fixed since the inception

---

[19] For further discussion, see Universities Police Science Institute (2011). This paper remarks that the current government is committed to reforming and simplifying the grant allocation procedure but notes that: 'Such is its complexity it may even be beyond significant change' *(ibid*, p.3)

of the Council Tax. Instead, revenue rises when the rate of precept on properties is increased, not because house values themselves rise (other than compositional effects arising from new builds and any rebanding based on home improvements). Moreover, central government has at various times attempted to cap increases in the precept of specific police forces if these are seen to be 'excessive'.

Figure 3 shows how the share of financing raised from the local precept varies across local police forces in 2005-06. As we model shortly, these differences partly depend on the nature of residential property, but they also depend indirectly on the formula allocating central grants, on any 'capping' procedures, and also on the expenditure needs of individual police forces. Figure 4 shows that revenue obtained from local sources by police forces tended to increase as a share of total income, especially in the first part of the period. This increase slowed down in the second party of the period, in part reflect attempts to 'cap' precept increases as part of a general attempt to limit Council tax increases by DCLG.

4.2   *Local finance and public sector remuneration: previous evidence*

The idea that the generosity of components of public sector remuneration – whether in the form of current or deferred pay – is related to local revenue-raising capacity has received little attention in the literature in Britain, both because many key public sector groups have their pay set nationally but also because public grants to local authorities are the dominant form of finance of local authorities. There is a small but interesting published literature in the United States on the topic, but it has not focused on retirement provisions as such.

In the United States context, Inman (1982) examines the willingness of local jurisdictions in the United States to finance public pensions, in a context in which taxpayers have an option of funding public pensions through current taxes or by running deficits. He contrasts a 'stayer' model, in which the decision depends on borrowing costs and other factors, and a 'mover' model in which taxpayers may exit the jurisdiction before the obligation to repay unfunded public pension deficits arise. In the latter model, however, the obvious incentive to move in the face of pension deficits may be capitalised into lower property values or into lower current wages. The statistical results suggest that there is a trade-off between pension (under)funding and lower current wages of police officers, and several other public sector groups; there is however no direct test in the paper of the property value capitalisation hypothesis.

Gyourko and Tracy (1991) examine the more direct test of whether public sector remuneration is higher, *ceteris paribus*, where local taxes are higher, contrasting the incidence of local sales taxes and property taxes. The nuance of the paper is that property taxes are borne more directly by local residents of the jurisdiction than sales taxes; therefore, where jurisdictions rely more heavily on sales taxes, then for a given tax burden, public remuneration is higher. They find that police officers in jurisdictions with access to non-property taxes are able to increase their current remuneration by 7-9%. An important issue, discussed more extensively in Poterba and Rueben (1995), is that some US states have imposed limits on property tax rates. These tax limits should therefore reduce public sector remuneration in affected jurisdictions, and such a finding is confirmed by the authors. Neither of these papers discuss the potential endogeneity of such limits, nor the interaction of property taxes (and other local taxes) with either public pensions or employment of public sector workers (e.g. financing of early retirement). In that sense, our analysis is closer to that of Inman's interest in terms of our interest in the financing of public pension obligations and the employment of public sector workers, but closer in methodological approach to the work of the other cited authors.

4.3 Local finance and ill-health retirement in police: a statistical analysis

In this final section, we examine the determinants of the 'precept' – the property tax which provides the locally-funded component of police funding. We show that the real value of the precept per head of population depends on area characteristics (notably the quality and density of housing) and on the demand for police officers. Our primary hypothesis in the present context is that the level of ill-health retirement should have no effect on the precept rate pre-2006, since the costs of ill-health retirement were wholly covered from central block grant funding in that period. This turns out to be the case. There is however evidence of a positive relationship post-2006, when police forces became responsible for part-funding ill-health retirement of police officers.

The additional variables in the analysis which need further discussion are:

- *Real precept per head of population (£).* This is the actual *amount* of tax levied per household to part-finance local police services. It is a product of the rate of precept (discussed in Section 3.1 above) and the character of the housing stock.
- *Council tax base (000s)/population (000s).* This variable, collected from administrative data, should be a strong predictor of the real precept per head, since it is

describes the number and composition of properties per head of population on which property taxes can be levied.[20] Time variation in this variable will arise primarily from new construction.

- *Number of officers in the force (000s).* This variable is, strictly speaking, endogenous to a structural model of the police precept. In our reduced form approach, this variable may capture any differential local community preferences for hiring police officers over and above those provided for from central funding.

Other variables in the analysis have already been discussed.

Table 3 describes the results from estimating a model of the determinants of the real precept per head. This is a fixed effects specification model with year dummies. It suggests that a higher 'council tax base' raises the real precept per head, as would be expected. The local unemployment rate and local wage relative to the average, which might proxy probability of defaults on council tax payments, have no strong effect. There is a positive effect of 'number of police officers' on the council tax precept, suggesting that local communities that wish to have higher levels of policing may be willing to pay a higher precept. However, the effect is very small and there are various issues of endogeneity arising from inclusion of this variable.

The augmented equation in column (2) shows that the period after 2006, when part-funding of ill-health retirement was transferred to local police forces, is associated with a significantly higher real level of precept per head. This is, however, a simple 'differences' test, and inspection of Figure 4 suggests that the *growth* of precept per head actually declined after the mid-2000s. The relationship between rates of ill-health retirement and precept per head is insignificant for the period as a whole, as we would expect given that for much of the period (pre-2006-07) ill-health retirement was wholly financed out of central funding. Note however that for the sub-period from 2006-07 onwards, the interaction between the rate of ill-health retirement and precept is positive and significant, in the period when local police authorities *did* become partially responsible for its funding. This finding is therefore

---

[20] It is important to reiterate, as in Section 3.1, that the 'banding' of households into Council Tax bands, as a multiple of the basic rate, was done at a past date, and current fluctuations in the value of the stock of housing do not affect this tax base. The 'council tax base' utilises a normalisation, like 'equivalent income', by which higher (lower) value properties are treated as a multiple (fraction) of average band properties in calculating the base. Thus an area with a high proportion of high-banded properties will be treated as if it has many more properties per head than a poorer neighbourhood with low banded residential housing (CIPFA, 2012).

consistent with the hypothesis that police authorities were indeed willing to raise local precepts in the post-2006 period in part in order to finance greater ill-retirement. It should however be noted that the coefficient is fairly sensitive (in significance rather than sign) to the inclusion of specific covariates.

5. Conclusion

This paper has investigated the determinants of ill-health retirement across police forces over time in England and Wales. To our knowledge, this subject has never been investigated statistically, and indeed the literature on local variation in police remuneration and employment is relatively limited elsewhere also, including the United States. Given the somewhat different institutional features of police forces in Britain from those in the United States – notably central bargaining over pay and pensions – the scope for local differentiation of remuneration is currently limited. Nevertheless local police authorities in Britain have a degree of autonomy in the fraction of police funds that is raised from local sources, in the levels and deployment of police officers and staff, and in the extent of discretionary early retirement through the route of ill-health. Consequently ill-health retirement rates, and the degree of local funding of police activities, have varied widely over police forces. We investigate whether these variations are connected, exploiting in particular a reform of the system of police funding of pensions in 2006, which place greater financial burdens on local forces in relation to ill-health retirement.

We show using administrative data for England and Wales that police ill-health retirements are related to reasonable proxies for the stress of local policing. We show that the 2006 reform of police pensions, which contained a number of features, reduced significantly the rate of ill-health retirement, not just across all forces, but specifically among those forces that had been targeted as having 'high' rates of ill-health retirement by the Home Office. The estimated changes in rates are statistically large (relative to average ill-health retirement rates) and robust.

Nevertheless, variations in ill-health retirement rates across police forces remained even after the 2006 reform. We test the hypothesis that forces that wished to have higher-than-average ill-health retirement rates after this date were prepared to finance these rates by levying a higher 'precept' – the component of the Council Tax on local properties which part-finances police activities. We derive a simple reduced form model to 'explain' the determinants of local real precept per head in each police authority. We show that the level

of ill-health retirement was *only* associated positively with the precept rate after 2006. This fits with our prior, insofar as there should have been no relationship between precept and ill-health retirement rates pre-2006 since all retirements were centrally funded. The post-2006 association is, however, fairly sensitive to the inclusion of additional regressors and warrants further investigation.

References

CIPFA (2011) *Police Actuals*, London: Chartered Institute of Public Finance and Accountancy, www.cipfastats.net/publicprotection/policeactuals/default.asp

CIPFA (2012) *Understanding the Council Tax,* London: Chartered Institute of Public Finance and Accountancy, http://www.cipfa.org.uk/press/download/UCT_1213.pdf

Government Actuary's Department (2011) *Police Pension Scheme and New Police Pension Scheme in England and Wales, Actuarial Review as at 31 March 2008 – Valuation data and demographic assumptions,* November, London.

Gyourko, J. and Tracy, J. (1991) 'Public sector bargaining and the local budgetary process', in R. G. Ehrenberg (ed) *Research in Labor Economics*, 12, 117-136: Greenwich CT: JAI Press.

HM Treasury (2000) *Review of ill health retirement in the public sector*: London, http://archive.treasury.gov.uk/pdf/2000/ill_health110700.pdf

HM Treasury (2011) *Independent Public Sector Pensions Commission: Final Report*, March: http://cdn.hm-treasury.gov.uk/hutton_final_100311.pdf

Home Office (2004) *National policing plan, 2005-08: Safer, stronger communities,* London.

Home Office (2005) *The Police Pension Scheme – new police pensions financing arrangements:* Home Office circular 54/2005: London.

Home Office (2012) *Police Grant (England and Wales), 2012-13*, HC 1797, London: The Stationery Office.

Inman, R.P. (1982) 'Public employee pensions and the local labor budget', *Journal of Public Economics*, 19, 49-71.

NPIA (2010) *Annual Results Report 2008-09,* National Policing Improvement Agency: London.

Pensions Policy Institute (2008) *An assessment of the government's reforms to public sector pensions*, London.

Poole, C.J.M. (1997) 'Retirement on grounds of ill-health: cross sectional survey in six organisations in the United Kingdom', *British Medical Journal*, 314, 929-932.

Poterba, J.M. and Rueben, K.S. (1995) 'The effect of property-tax limits on wages and employment in the local public sector', *American Economic Review,* 85, 2, Papers and Proceedings, 384-389.

Universities Police Science Institute (2011) *Police funding (England and Wales) 2011-12: Police Briefing Paper No 1*: (author: T. Brain) Cardiff University School of Social Sciences, Cardiff.

Winsor, T. (2011) *Independent review of police officer and staff Remuneration and Conditions, Part 1 Report*: Cm 8024, March, TSO: London.

Winsor, T. (2012) *Independent review of police officer and staff Remuneration and Conditions, Final Report*: Cm 8325, March, TSO: London.

Table 1: Summary of Police Pension Scheme and New Police Pension Scheme

Scheme	Police Pension Scheme (PPS) 1987	New Police Pension Scheme (NPPS) 2006
Eligibility	Joined force up to 05-04-06	Joined force from 06-04-06
Employee contribution rate	11% of salary	9.5% of salary
Maximum pension	2/3 final salary	½ final salary + 4×lump sum
Accrual rate	$1/60^{th}$ 20 years+$1/30^{th}$ after 20	$1/70^{th}$
Maximum service full pension	30 years	35 years
Earliest pension	48.5 (as early as 46 if transferred in service); deferred 60	55; deferred 65
Indexation of pension	Was to RPI (2010 on to CPI)	Was to RPI (2010 on to CPI)
Survivor's pension	50% of member's pension	50% of member's pension
Ill-health benefit	One level of benefit	Two tier benefit based on severity

Notes: RPI = retail price index; CPI = consumer price index. Under UK provisions, pension lump sums are generally treated by the tax system more favourably than annuities (pensions) up to a ceiling, therefore commutation to lump sum payments are generally favoured; in PPS, therefore, police officers could also have part of the pension taken as a lump sum (as in other pension plans).

Table 2: Modelling ill-health retirement rates across police forces

Dependent variable: Ill-health retirements per 1000 police officers

| **Explanatory variables:**	(1)	(2) Definition 1	(3) Definition 2	(4) Definition 3
Force dummies: ✓ = yes	✓	✓	✓	✓
Employee characteristics *Total retirement rate*	0.011 (0.021)	0.010 (0.021)	0.005 (0.021)	0.008 (0.020)
Stress factors *Crime rate*	**0.043*** (0.019)	**0.043*** (0.19)	**0.046*** (0.018)	**0.043*** (0.019)
Clear-up rate	0.058 (0.040)	0.059 (0.39)	0.028 (0.040)	0.044 (0.039)
Population per officer	**0.047***** (0.010)	**0.048***** (0.010)	**0.045***** (0.010)	**0.042***** (0.010)
Outside options *Local area unemployment rate*	0.02 (0.19)	0.014 (0.19)	0.018 (0.19)	0.051 (0.19)
Local area relative wage	−11.35 (8.27)	−11.0 (8.28)	−12.22 (8.23)	−11.32 (8.16)
Indicator: Post-2006	**−1.16**** (0.36)	**−1.10**** (0.36)	**−0.92*** (0.38)	**−0.93*** (0.36)
Indicator that "high ill-health retirement" (IHR) force	-	−2.65 (4.93)	−1.15 (5.02)	−2.73 (4.00)
Interaction of Post-2006 with "high" IHR force	-	**−0.83** (0.94)	**−2.00**** (0.57)	**−2.25**** (0.75)
R^2 Number of observations F = (.)	0.4723 336 F(48, 287)=5.35	0.4738 336 F(49, 286)=5.25	0.4811 336 F(49, 286)=5.41	0.4885 336 F(49, 286)=5.57

Note: *, ** and *** indicate significance at the 10%, 5% and 1% level from a 1-sided test. For 'Definitions 1 to 3', see text.

Table 3: Modelling real police precept per head

| Explanatory variables:	(1)	(2)
Council tax base (£000s)/population (000s)	**168.59***** (17.68)	**168.72***** (17.89)
Number of officers in force (000s)	**0.006***** (0.001)	**0.006***** (0.001)
Local area unemployment rate	0.53 (0.50)	0.45 (0.50)
Local area relative wage	−17.74 (12.69)	−16.55 (12.67)
Post-2006 indicator	-	**17.26***** (1.96)
Ill health retirements per 1000 officers	-	−0.11 (0.13)
Interaction of Post-2006 with ill health retirements per 1000 officers	-	**0.37**** (0.17)
R^2 Number of observations F = (.)	0.0038 334 F(11, 281)=122.8	0.0027 334 F(13 279)=105.3

Note: Fixed effects regression; time dummies included. *, ** and *** indicate significance at the 10%, 5% and 1% level from a 1-sided test.

Figure 1: Ill-health retirement rates by police force, England and Wales, 2005-2006.
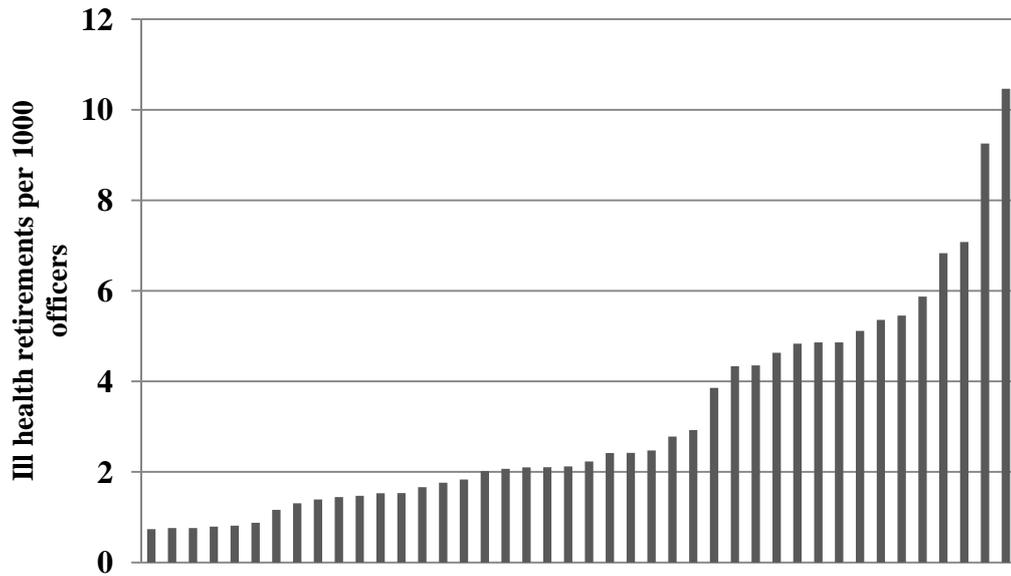
Source: Home Office returns and CIPFA *Police Actuals* 2005-06.

Figure 2: Differences of ill-health retirement rates (IHRRs) from average, 2002-03 to 2005-06
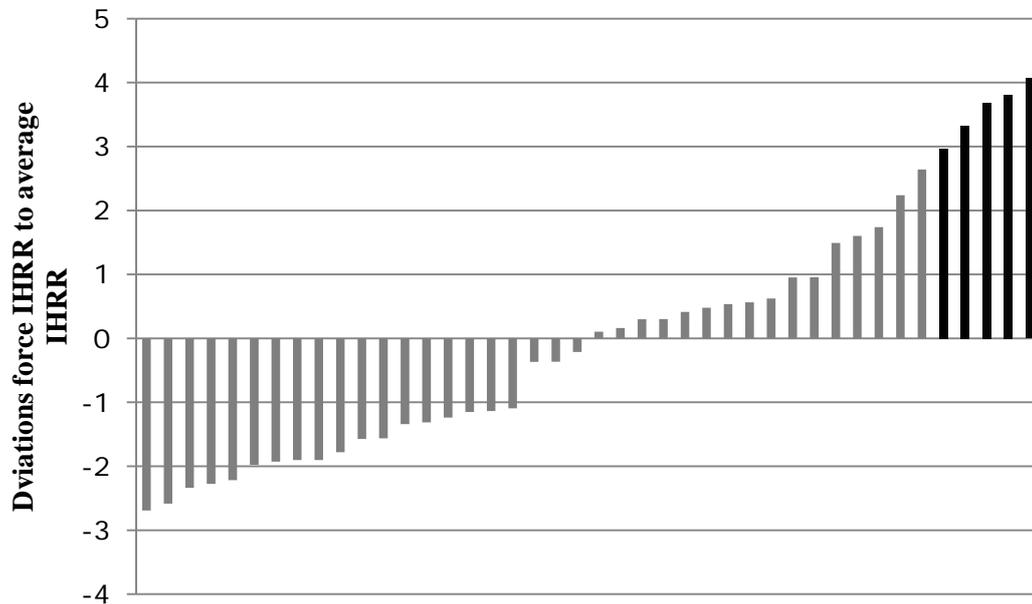
Note to Figure 2. Source: as Figure 1, various years. Estimated by regression of police area fixed effects on IHRRs for whole period. Dark shaded bars are those significantly positive at 1% or 5% level.

Figure 3: Share of funding by police force raised from local precept, 2005-06
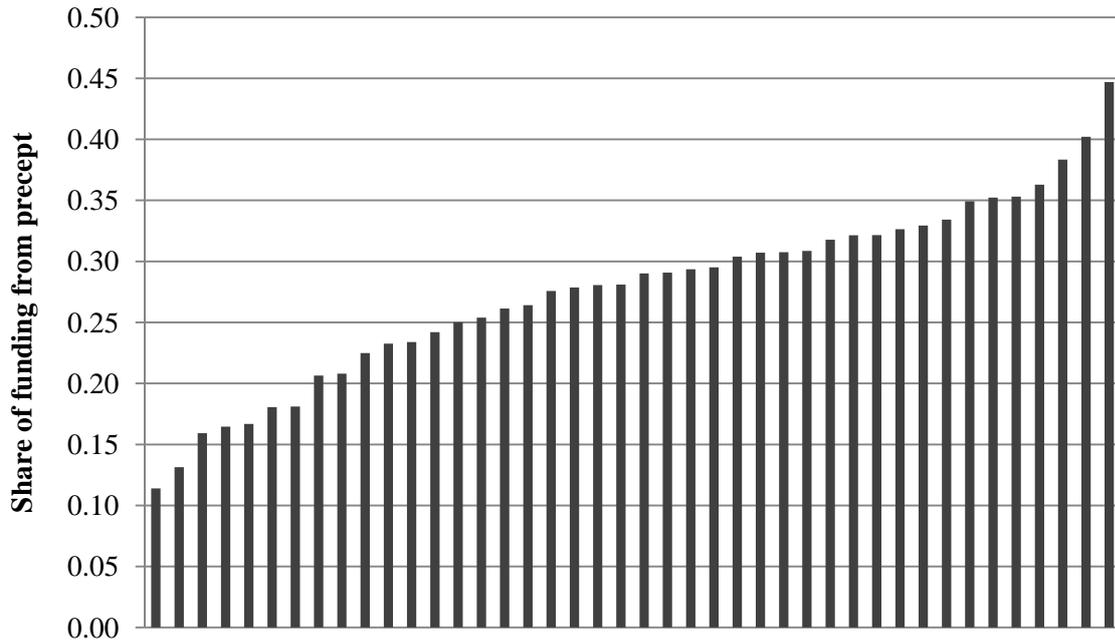
Source: CIPFA *Police Actuals*, 2005-06

Figure 4: Changes in the share of funding raised from local precept, 2002-03 to 2009-10
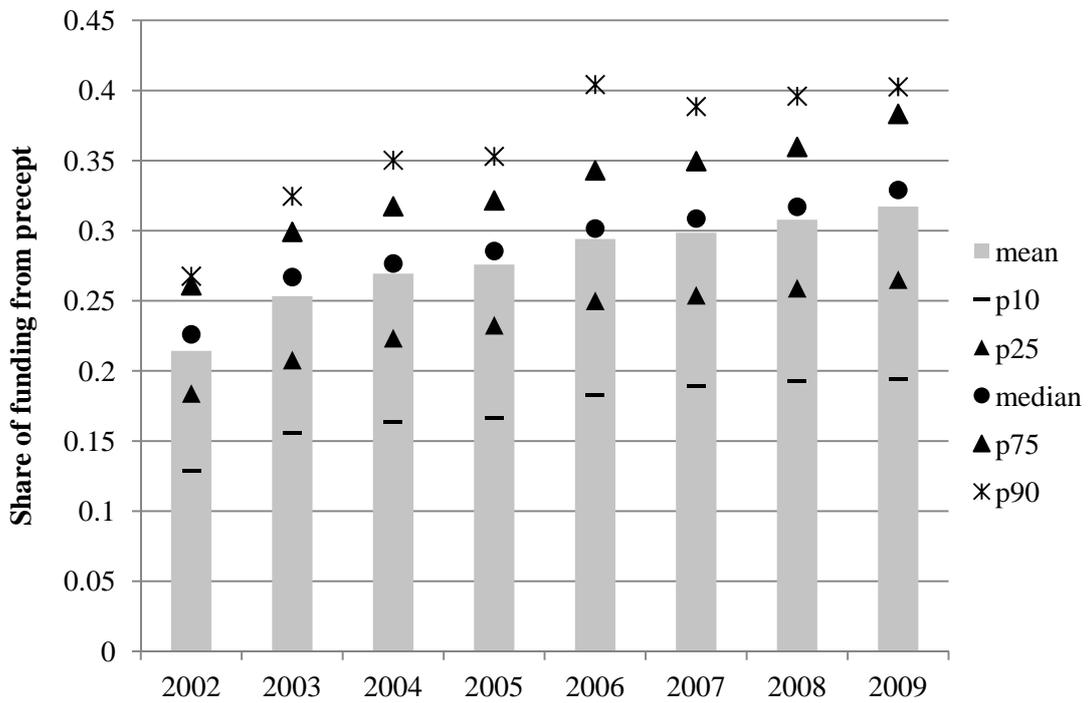
Source: CIPFA *Police Actuals*, various years.