The limits of performance assessments of public bodies:
the case of deprivation as an environmental constraint on English local government[1]

Dr Roxana Gutiérrez-Romero
Department of Social Policy and Social Work
University of Oxford

Dr Dirk Haubrich (corresponding author)
Department of Politics and International Relations
University of Oxford

Prof Iain McLean
Nuffield College
University of Oxford

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Abstract

Most industrialised countries have public sector current expenditure of 35 to 50 per cent of Gross Domestic Product and have come under increasing fiscal pressure to cut or control their spending levels. This has brought about the need for policy makers to be able to evaluate what the government gets for its money. To do so, many countries have developed elaborate oversight mechanisms involving a plethora of targets, metrics and indicators. These are applied by bodies beyond traditional legislatures and courts of accounts and include quasi-independent agencies, such as auditors, inspectorates, and watchdogs. These assessment regimes assume that the auditees are ultimately responsible for the performance on which they are measured, a rationale that might neglect the fact that some public organisations may face external conditions that constrain, and are not influenced easily by, their policy.

The article scrutinises one such evaluation approach, the Comprehensive Performance Assessment of local government in England, for the significance of such factors. Using panel data techniques and data from the Index of Multiple Deprivation 2004 and the first three CPA rounds in 2002-04, the study finds *inter alia* that deprivation in education, crime and living environment had a significant negative effect on the overall CPA scores, while discretionary expenditure have a positive effect. However, the effects differ widely across the five types of authorities. The model also reveals that there is no statistically significant evidence to suggest that authorities controlled by a party perform better than those without, and that, although in simple bi-variate analysis Conservative councils have higher CPA scores than those controlled by other parties or with no overall control, these differences disappear in multivariate analysis.

Introduction

One of the responsibilities of government is to deliver high-quality, relevant services that meet the needs of citizens, communities, businesses, and other organizations. To do so, national governments have started to modernise their service offerings, by introducing

alternative delivery systems, inviting the independent sector to contribute to service provisions, and enhancing their *eGovernment* capabilities, to mention but a few.

This move has been accompanied by the development of sophisticated schemes to monitor and oversee how well the services are delivered. Given that in most industrialised economies, public sector current expenditure represents between 35 and 50 per cent (in the case of the UK 38.5 per cent) of GDP, and that prosperous states in particular have come under increasing fiscal pressure to cut their spending, the need of policy makers to be able to evaluate what the government gets for its money is evidently clear.

Oversight has a long tradition in many countries and refers to scrutiny and steering from some point 'above' or 'outside' the individuals or organisations scrutinised. Traditionally, it has been effectuated by law courts or elected legislatures, but increasing use has been made of ('quasi-independent') reviewers, watchdogs, inspectors, regulators, auditors or monitors that are to some degree detached from executive government and line management. Examples for the former are the French *inspections générales* and the German *Bundesrechnungshof* (court of accounts), whereas representatives of the latter are the National Audit Office (NAO) in England and the US Inspectors General and the US General Accounting Office, to mention but a few.

The 1980s and 1990s have witnessed an increase in oversight and audit activity by governments that has led some authors to herald a 'new age of inspection' (Day and Klein 1990) and the advent of the 'audit society' (Power 1997). Although Hood *et al.* (2004) reveal, in a study of three policy domains (higher education, prison services and higher civil servants) across eight countries (Japan, Germany, France, USA, England, Netherlands, Norway, and

Australia) that the explosion of oversight has been far from uniform and has often resulted in hybrid rather than 'pure' mechanisms of oversight (that include elements of mutuality, randomness and competition), the responsibilities and resources allocated to overseers has undoubtedly grown. In the case of the UK, for example, formal arms-length overseers doubled in size and real term resources during the 1980s and 1990s, at a time when UK civil service was cut by more than 30 per cent and local government by about 20 per cent (Hood et *al.* 1999).

In terms of mechanisms, oversight has shifted its emphasis, away from mere fiscal audits to value for money and performance audits. The methods for monitoring and evaluating have been expanded as a result, and now make increasing use of public service agreements, balanced scorecards, service level agreements, indicators, performance targets, and benchmarking, all of which are now based less on conventional measures of input (e.g., the number of police officers employed) or processes, but on outputs (e.g. the number of people arrested for committing a crime) or outcomes (e.g., the impact of policing policies on crime levels). In the case of the US, for example, the American Government and Performance Results Act of 1993 required all federal departments and agencies to develop five-year strategic plans linked to measurable outcomes, via a series of annual performance plans. These performance plans had to cover each programme activity, with specific performance measures, and objective, quantifiable and measurable goals (Propper and Wilson 2003).

Many of these schemes bring with them the overseers' authority to approve, reject, forbid, command, reward or punish the overseen to some degree or other. What they assume in the process, however, is that those overseen are ultimately responsible for the performance on which they are measured: their policy priorities, capacities and capabilities (or lack thereof)

influence the quality of the services they provide, so the underlying supposition, and they should be sanctioned (or rewarded) accordingly.

This rationale might neglect the fact that some public organisations may face external conditions that constrain, and are not influenced easily by, their policy decisions. The aim of this study is to scrutinise a particularly advanced evaluation approach, the Comprehensive Performance Assessment of local government in England, for the significance of such factors. In so doing, it hopes to shed light on the question how reliable and valid such prescriptive and quantitative evaluation schemes are.

Since 2002, the UK government has assessed the delivery of public services provided by English local authorities through a regime called the Comprehensive Performance Assessment (CPA). Performance in six service blocks (benefits, social care, environment, libraries and leisure, use of resources, education and housing) is monitored through inspections and audits in order to determine if central governmental grant (of currently £120bn per annum (i.e., almost a quarter of UK public expenditure) is money spent effectively. In the process, inspector judgements and hundreds of performance indicators are weighted, summarised, categorised and transformed so as to arrive at a final category rating (of 'excellent', 'good', 'fair', 'weak', and 'poor') and reward authorities that perform well.

This article assesses whether the CPA scores are affected by external constraints, with a particular focus on local levels of deprivation, political control, and the level of discretionary expenditure (i.e., the level of financial resources spent beyond that provided through central government grants). It does so by carrying out a statistical analysis of the first three CPA rounds that were conducted for the 148 English unitary and upper-tier authorities in the years

2002, 2003, and 2004 (the results from the CPA round of 2005 were not published in time to be incorporated; and methodological changes would have prevented them from being added to our panel data). Additional insights and pointers are provided from the semi-structured elite-interviews we conducted with auditors, auditees and other stakeholders.

In so doing, we gauge whether a systematic pattern of factors can be observed that affect the performance of local authorities, irrespective of the extent to which CPA can be said to be an accurate measure of performance. For scope reasons, we cannot address this important but separate issue. Instead, we assume that the CPA framework reflects the quality of public service delivery in local authorities and do therefore not assess the extent to which the numerous categorisations and transformations used to calculate the CPA scores are sound; whether the underlying performance indicators are the most appropriate to use; or whether the auditor and inspection judgements are objective.

The article proceeds through four sections. Section I offers a review of the existing work done on the link between deprivation and performance and, in so doing, provides an introduction to the topic. Section II describes the advantages of using panel data analysis and the methods used to deal with omitted variable bias. Section III outlines the variables and data selected in the study on hand, and explains the modifications we introduced to address issues of collinearity and circularity. Section IV concludes the paper, by presenting the results of the statistical analysis, with an emphasis on the effects of the various domains of deprivation and discretionary spending on the CPA scores by type of authority.

I. Deprivation and performance: the story so far

Deprivation may affect authority performance in many ways. Some service functions may be put under particular strain if large sections of the population suffer from low income, unemployment, poor health, or low educational attainment levels. Similarly, in areas with deprivation and large black economies, local tax collection tends to nosedive as citizens are keen to conceal their existence to their council, which ultimately feeds through to the relevant CPA indicators measuring tax collection performance. To what extent mechanisms such as these are at work has been scrutinised in various existing publications, which should be briefly reviewed so as to justify our own choice of variables and data.

Prior to the framework being implemented in 2002, the Audit Commission had stated that it would be taking account of local circumstances that influence the quality of service provision (Audit Commission 2002a, p. 3). Yet, as the framework was rolled out it became clear that no arrangements were made to adjust performance scores or ratings for deprivation. Instead, the Commission stated repeatedly that there was insufficient statistical evidence to show that levels of deprivation had a significant effect on authorities' performance (Audit Commission 2002b, p. 5) and pointed out that, in fact, some of the councils in the most deprived areas managed to attain ratings of 'excellent' and some councils in relatively affluent areas were 'poor' or 'weak' (Audit Commission 2002c, p. 2).

However, while 35 percent of the most deprived quartile of the 148 councils achieved either a weak or a poor CPA rating, the figure drops to a mere 17 percent for the most affluent quartile. What is more, the 22 councils that received an 'excellent', for example, were not equally spread across the different types of authorities: they include 8 (out of 34) county councils, 8 (out of 33) London borough councils, but only 4 (out of 36) metropolitan

boroughs and 2 (out of 47) unitary authorities. Suspicions therefore remained that the CPA framework does not sufficiently take account of deprivation.

In response, the Commission produced (Audit Commission 2003b). This study used the Average of Wards Scores of the Index of Multiple Deprivation 2000 (IMD 2000) at authority level and the performance ratings and performance scores as predictor and dependent variables respectively. It concluded that that there is no evidence of an interaction between service performance scores and deprivation and that the correlation is significant only for London Boroughs ($r^2 = 0.184$), while county councils, metropolitan authorities and unitary authorities showed no correlation. In the case of London, however, the Commission attributed the comparatively high correlation to factors such as transitory population or pressures of recruitment that are specific to the capital (p. 9) and concluded that there is overall very little relationship between deprivation and service performance score.

Andrews (2004), published six months after Audit Commission 2003b, used the IMD 2000 as the *explanans*, but used the performance indicators (PIs) underlying CPA performance as *explanandum*. With this finer comb, Andrews concluded that "external environmental constraints on local authority performance must be recognised for accurate and equitable performance assessments" (p. 19) and that some authorities may have been misclassified by not taking sufficient account of these factors (p. 24). More specifically, "for over half of the PIs used in the first round of the CPA", for example, "deprivation had a statistically significant influence (at the 95% level) on performance" (p. 22).

Before Andrews' study was published the Audit Commission commissioned the New Policy Institute (NPI) to conduct a more thorough analysis of the relationship between CPA and

deprivation. The NPI study, which was published in July 2004, approached the issue in a different way. Its authors argued that choosing performance indicators as the dependent variable for all service blocks is misleading, because, firstly, the nature and methodology of CPA assessment methodology differs substantially between the service blocks, and, secondly, CPA scores were mainly driven by the results of inspections and assessments, with performance indicators themselves only making up around 11 per cent of an authority's overall score (Palmer and Kenway 2004, p. 13). While PIs may be popular with researchers because of their transparency and suitability for basing comparisons on them, they appear to be of only limited importance in the CPA framework overall. As to the relationship between CPA and deprivation, Palmer and Kenway concluded that CPA scores on education were significantly correlated with social deprivation, but the scores for other services, and overall scores, were not (pp. 14, 15, 46).

In various publications in 2004 and 2005, the Audit Commission announced that a modified CPA regime, to be introduced for the CPA results published from 2006 onwards, would take into account the findings of the NPI study (Audit Commission 2004a, p. 8; 2004b, p.14; 2005b). This would include adjustments made for each performance indicator for which the NPI study revealed a correlation coefficient of 0.4 or above, or -0.4 or below (2005b, p. 75), a condition that was eventually to be met by seven (out of several hundred) performance indicators, four of which were used in the housing service block. Under the new model, authorities' performance as measured by these indicators will be uplifted to take account of their level of deprivation (Audit Commission 2005b, p. 75). An example – in which the adjustment results in the authority's original indicator score of 38 percent being increased by nine percentage points – is given below.

Adjusted PI value = original PI value - linear function of deprivation (gradient x IMD 2004)

$$= \quad 38\% \quad - \quad (-0.25 \times 36)$$

$$= \quad 47\%$$

However, given that the adjustment is not substantial, is only applied to a very small selection of indicators, and that indicators generally represent only 11 percent of the information basis used in the assessment framework, it is our view that the Commission's concession will not make a material difference to authorities' assessment ratings.

Meanwhile, Andrews *et al*. (2005) investigated the extent to which success or failure in service provision is attributable to circumstances that are beyond the control of local managers and politicians. The explanatory variables used were: quantity of service need; age diversity; ethnic diversity; social class diversity; discretionary resources; lone parent households; population change; population; population density; and political disposition. The authors found that the ten constraint variables collectively explain around 35 percent of the inter-authority differences in service performance and 28 per cent of the differences in the ability to improve score. They concluded that these are "satisfactory levels of statistical explanation" (p. 650). More specifically, they found that higher ethnic and social class diversity appear to place additional burdens on service providers and thereby result in lower performance; that authorities with a high percentage of single parent households, which represented the authors' proxy for measuring deprivation, found it more difficult to climb the CPA ladder (p. 651); that large authorities found it easier to achieve good CPA results; and that no differences exist between the four types of authorities. The authors then concluded that "the CPA process is flawed by the failure to take account of circumstances beyond the control of local policy makers. The performance effects of these constraints have distorted the rankings in the CPA league table. Some councils have been falsely lauded for operating in

favourable circumstances, whereas others have been wrongly criticised for the performance effects of difficult local conditions" (p. 654).

In concluding our review of the existing literature and evaluating the methodological approaches used therein, we agree with Andrews's conclusion that there appears to be an impact of deprivation on authority performance that needs exploring, and we reject the Audit Commission's initial claim that no significant correlation can be detected. We also concur with Palmer and Kenway's conclusion that in order to test this hypothesis in a statistical model, performance indicators are the wrong choice for the dependent variable because of their limited bearing on final CPA ratings. The Commission's recent adjustment of seven indicators does therefore appear not only insufficient, but based on a narrow methodological fundament. Yet, we found Palmer and Kenway's usage of the IMD 2000 as a composite index in need of improvement. We regard the explanatory variables chosen by Andrews *et al*., in turn, as outstanding, although we disagree with their choice of single parent households as a proxy for deprivation, which we think is much too narrow to capture the multi-facetted nature of the phenomenon of deprivation. All the pros and cons mentioned inform the choice of our own data and methods described below.

II. Panel data analysis as a methodological approach

The analysis presented in this paper uses panel data analysis so as to capture the variance in CPA performance during the first three CPA rounds in 2002, 2003 and 2004, rather than focusing on the 2002 round only. Panel data analysis deals with changes that occur in multiple cases (people, firms, countries. local authorities etc.) over two or more time periods. A panel

dataset consists therefore of cross-sectional data on n spatial units, over t time periods, for a total of $n \times t$ observations. The two-dimensional information of panel data allows the analysis of differences between spatial units (i.e. cross-sectional differences) and/or differences within-spatial units over time.

Panel data permit analysing the variance across observations (e.g. local authorities) and the variance among variables that changed over time (e.g. CPA scores and explanatory variables), thus providing more variability and causing less problems of collinearity. Further, panel data can measure the impact of variables that remained constant over time, such as the impact on CPA of the geographical location of local authorities. Similarly, panel data can also measure the impact on CPA of variables for which data is available for a single year only, such as variables obtained from the 2001 census (e.g. ethnic and social class diversity). This study faced additional data limitations because it used not only the Index of Multiple Deprivation (IMD) 2000 but also its successor IMD 2004.

We use a panel-corrected standard error (PCSE) model to control for autocorrelated errors and heteroscedasticity between panels. We control for these aspects because it is likely that external factors that affect local authorities affect all of them to varying degrees. Local authorities are tied both to the economy as a whole and to factors that are specific to their local circumstances. As such, it seems reasonable to allow correlation of the disturbances across local authorities and also across time.

The model we use is expressed in eq (1), where the slope coefficients are constant, and the intercept varies over Local Authorities. The dependent variable (CPA scores) and the independent variables were measured in logarithms, which facilitates the interpretation of the

coefficients as they can be interpreted in terms of 'elasticities'. The slope coefficient β measures the elasticity of y with respect to x, in other words "the percentage change in y for a given (small) percentage change in x" (Gujarati, 1995, p. 166). y represents the CPA scores and x the explanatory variables. β_1 measures the elasticity of the CPA score with respect to variable x_1, assuming that the other variables remain constant.

$$logCPA_{it} = \alpha_i + \sum_{k=1}^{k} \beta_k \, logx_{kit} + \varepsilon_{it} \qquad\qquad eq(1)$$

where $i=1,2..N$ refers to the spatial units, that is local authorities and counties, $t=1,2,..T$ refers to a time period and $k=1,2..K$ refers to a specific explanatory variable. Therefore, y_{it} and x_{it} refer to the dependent and independent variables for spatial units i and time period t. α refers to the intercept, β_k refers to the coefficient of each of the k independent variables and ε_{it} refers to the random error.

III. The selection of variables and data

For the analysis presented here, we use as explanatory variables a number of variables that controlled for external influences (e.g. political, economic, social and environmental). We also use the IMD 2004, as the most comprehensive explanatory variable on deprivation available, rather than the less up-to-date IMD 2000, or any other proxy measure for deprivation. The IMD 2004 is used not only as a composite index but its seven underlying deprivation domains were used as well. Lastly, we use population-weighted average deprivation scores, rather than the more widely used ranked deprivation index. The last two

points represent crucial enhancements to the analysis of the link between deprivation and CPA scores and merit a short excursion.

The IMD 2004 was published in April 2004 by the Office of the Deputy Prime Minister as an update and replacement of the IMD 2000 (Noble *et al*. 2006). Using the IMD 2004 as explanatory variable allows us not only to use more up-to-date data but also to include data from its seven constituent sub-domains in order to test whether different types of deprivation affect CPA performance to different degrees. The indicators included in the IMD domains are given below, together with the percentage weight the sub-domains command in the composite IMD index:

1. *Income deprivation* (22.5%; based on households with adults and children receiving income support; job seeker allowance; working families tax credit; disabled person's tax credit; asylum support service subsistence).

2. *Employment deprivation* (22.5%; based on unemployment claimant count; incapacity benefits claimants; severe disablement claimants; participants included in New Deal programmes).

3. *Health deprivation and disability* (13.5%; based on years of potential life lost; comparative illness and disability ratio; emergency admissions to hospital; adults under 60 suffering from mood or anxiety disorders).

4. *Education, skills and training deprivation* (13.5%; average points score for children at stage 2, 3 and 4; proportion of children not continuing school above 16; proportion of under-21s not entering Higher Education; school absence rate; proportion of working age adults with no/low qualifications).

5. *Barriers to housing and services* (9.3%; household overcrowding; difficulty of access to owner occupation; road distance to GP premises, post office, primary school, supermarket; application for homeless assistance).

6. *Crime* (9.3%; offences measured on 4 types of burglaries; 5 types of thefts; 10 types of criminal damage; and 14 types of violence).

7. *Living environment deprivation* (9.3%; social and private housing in poor condition; houses without central heating; air quality; traffic accidents involving pedestrians and cyclists).

During our elite-interviews we came across some very poor authorities that used the IMD 2004 sub-domains to better target spending at their most-deprived wards, by developing 'floor-target actions plans' on service areas such as crime, health, education, housing, 'worklessness' and 'livability'. Neighbourhood renewal funds and other revenue sources were then specifically targeted based on this index (Social Exclusion Unit 2000, p. 12).

Unfortunately, due to methodological differences in their respective estimation, the IMD 2004 cannot be compared directly with its predecessor, because the IMD 2000 for English counties was estimated using wards (electoral divisions of which there were 8414 on this set of boundaries), while the IMD 2004 uses a Lower Layer Super Output Area (LSOAs, of which there were 32,482). This methodological difference results in IMD scores for 2000 that are generally lower than the IMD 2004. Comparing the IMD 2000 to the IMD 2004 would therefore suggest that deprivation has increased in all authorities, when in fact all that has changed are the boundaries of the electoral divisions. As a result, it is impossible to expand the scope of the study and assess whether changes in deprivation over time have affected the CPA performance of authorities.

This study also uses the 2004 IMD *population-weighted average score*, whilst most studies (including those of Andrews 2004 and Palmer and Kenway 2004) tend to refer to the more widely publicised *average ward rank*. The IMD average ward rank across 148 authorities ranges from 1 (least deprived) to 148 (most deprived) and, inevitably, conceals differences in the levels of deprivation across authorities. In ranking the IMD in this way, information is lost about the variability of deprivation across authorities, because the ranking of the IMD scores does not show the difference in the levels of deprivation across authorities. In contrast, by using the population-weighted average IMD score (aggregated at district level), our approach reveals the actual extent of the variation in deprivation and can therefore produce a more accurate analysis. The IMD 2004 scores range between 3079.9 (least deprived) and 28775.9 (most deprived) across all 148 councils.

As already mentioned, on the dependent side of the equation, the CPA results from the first three CPA rounds in 2002, 03 and 04 are used as variables. However, we use not the CPA *ratings* (which would have yielded an ordinal variable with the five values of 'excellent', 'good', 'fair', 'weak' and 'poor'), but the underlying CPA *scores* expressed in *percentages* (which yields a continuous variable with cardinal values between 36.6% and 93.8%). CPA scores are more meaningful because, similar to the IMD 2004, they show the amount of variation across authorities. The conversion into percentages (of the maximum score possible), in turn, is required because 32 of the 148 authorities (viz., the 'shire' counties, which have 'shire districts' below them) are only assessed in four of the six service blocks and have therefore lower minimum and maximum sores (an approach already employed by Andrews *et al* 2005, p. 649).

Our preliminary statistical analysis showed that modifications to our data had to be made in order to address emergent problems of collinearity and circularity. As regards the former, a correlation coefficient as high as 0.97 was detected among the IMD domains of income deprivation, health deprivation and employment deprivation (measured in logarithms). If variables that are collinear are kept in a model, the regression coefficient estimates will be biased with large standard errors, and the R-squared will be overestimated. Two of these collinear variables did therefore have to be dropped. Given that unemployment and poor health are strongly correlated to low levels of income (which was kept as a variable), dropping these two variables is not likely to lead to a specification bias in the model.

Another possible problem is circularity. Given that the seven sub-domains of the IMD 2004 – as the most important set of explanatory variables used in the model – are based on 27 different indicators and that the CPA scores and ratings on the dependent side of the equation are based on hundreds of indicators as well, it was necessary to check whether the same indicators had entered both sides of the equation. In one case the same performance indicator ("average point score of children at key stages two to four") was used to arrive at the CPA score in the education service block as well as the deprivation score in the IMD education sub-domain.

For policy-makers this circularity could be deeply worrying. A council could improve its school results, in which case its CPA score would go up but its IMD score would go down.
Or it could let its school results deteriorate, in which case its IMD score would go up but its CPA score would go down. A Machiavellian chief education officer would simply do whichever brought more money into the council's coffers.

Irrespective of the policy implications, we addressed the statistical issue by constructing a new deprivation domain for education that measures education deprivation of *adults* only. The new domain is based on indicators measuring the proportion of those aged under 21 not entering Higher Education (1999-1002), the secondary school absence rate (2001-2002), and the proportion of young people not staying in school level education above the age of 16 (2001). In order to test our choice, we later compared the statistical model using the modified domain with the model using the original domain and found that the resultant panel data estimates of all variables had the same sign, and the differences in their magnitude were so minor that both variables could be used interchangeably without affecting the resultant tables.

To conclude the explanation for our choice, and modification, of variables and data, the following list gives an overview of all explanatory and dependent variables used:

- Quantity of service need 2001 (measured in logarithms)

- Age diversity 2001 (log)

- Ethnic diversity 2001 (log)

- Social class diversity 2001 (log)

- Discretionary expenditure 2002, 2003, 2004 (log)

- Population size 2002, 2003, 2004 (log)

- Population Density 2002 (log)

- Overall Index of Multi Deprivation scores 2004 (log)

- Education, Skills and Training Deprivation 2004 (log) or Adults Education Deprivation 2004(log)

- Barriers to Housing and Services Deprivation 2004 (log)

- Crime Deprivation 2004 (log)

- Living Environment Deprivation 2004 (log)

- Income Deprivation 2004 (log)

- Type of Local Authority:

    o County Councils,

    o Inner London Boroughs,

    o Metropolitan Districts,

    o Outer London Boroughs, and

    o Unitary Authorities.

- Political Control 2001, 2002, 2003:

    o Labour,

    o Conservative,

    o Liberal,

    o Independent, and

    o No overall control

III Statistical Results

Table 1 shows the regression results based on the use of eq (1) above, which measures the effect of the above listed explanatory variables on the CPA scores for 2002-2004. All variables are measured in logs, in order to interpret the results in terms of elasticity. The coefficients that have a significant negative impact on CPA scores – in other words, contributed to having a lower CPA score between 2002 and 2004 – are those of quantity of service need, ethnic diversity, social class diversity, and deprivation in the domains of

education, crime and living environment. For instance, as the middle column shows, a 1 percent increase in crime deprivation results in a drop in the CPA score by .05 percent.

By contrast, discretionary expenditure has a positive (but not significant) effect on CPA scores: if an authority spends 1% more from its own resources, it will improve the CPA score by 0.19%, an observation that will be explained further at the end of this section. Deprivation in barriers to housing and services has a positive (but not significant) effect on CPA scores as well. In other words, the greater the distance for citizens to access shops, post offices and hospitals, the higher the CPA score. This observation, too, will be explained in more detail further below.

We also tested two hypotheses on political control. The Conservative Party is the intellectual descendant of ratepayers' parties that emphasised minimising local taxation and maximising service quality. Their 2005 local election slogan was 'Conservative councils cost you less' (Conservative Party 2005, p. 3). Therefore:

> H1. After controlling for demographics, Conservative councils score higher in CPA than councils controlled by other political parties, or with no overall control.

Secondly, the comparative government literature shows that nations with proportional representation and (typically) coalition government have higher welfare spending, but worse fiscal discipline, than nations with plurality electoral rules and (typically) single-party government (Persson and Tabellini 2005, pp. 270-3). The local government analogue for coalition government is No Overall Control (NOC). Hence:

H2. After controlling for demographics, NOC councils have poorer CPA scores than councils controlled by a single party.

Dependent Variable CPA 2002-2004 (log)	Overall CPA Coef.	Overall CPA Coef.
Quantity of service need 2002 (log)	-0.107*** (0.027)	-0.109*** (0.023)
Age diversity 2002 (log)	1.377*** (0.272)	1.309*** (0.296)
Ethnic diversity 2002 (log)	-0.016 (0.011)	-0.019* (0.009)
Social class diversity 2002 (log)	-0.674* (0.269)	-0.639* (0.287)
Discretionary expenditure 2002-2004 (log)	0.191 (0.220)	0.168 (0.210)
Population 2002-2004 (log)	0.007 (0.008)	0.011 (0.010)
Population Density 2002 (log)	0.004 (0.007)	0.006 (0.007)
Education, skills and training Deprivation 2004 (log)	-0.060*** (0.009)	-0.058*** (0.008)
Barriers to housing and services Deprivation 2004 (log)	0.009 (0.007)	0.010 (0.008)
Crime Deprivation 2004 (log)	-0.050*** (0.010)	-0.036*** (0.009)
Living environment Deprivation 2004 (log)	-0.039** (0.012)	-0.043*** (0.013)
Income Deprivation 2004 (log)	-0.016 (0.025)	0.001 (0.029)
Type of Local Authority (County Councils Base Group)		
Inner London Boroughs	0.066* (0.027)	0.056* (0.024)
Metropolitan Districts	0.022 (0.020)	0.014 (0.016)
Outer London Boroughs	-0.047 (0.027)	-0.051** (0.020)
Unitary Authorities	-0.007 (0.021)	-0.012 (0.020)
Political Control (Conservatives Base Group)		
Labour	0.013 (0.026)	
Liberals	-0.027 (0.027)	
Independent	-0.155** (0.059)	
No Overall Control	-0.007 (0.020)	
Political control by a party (No Overall Control Base Group)		0.010 (0.017)
Number of obs	443	443
Number of groups	148	148
R-squared	0.999	0.999

*Standard errors in parenthesis. Significance levels: * p<0.05, ** p<0.01,*** p<0.001.*

Table 1: Determinants of CPA scores 2002-2004 (Panel-corrected standard errors)

The middle column in table 1 shows that Inner London Boroughs achieved higher CPA scores than county councils However, apart from the poor performance of Independent councils,

(*n*=6 – too few cases for reliable inference) none of the results on political control are significant when all types of councils are considered in a single model. At this level, H1 is not supported

An additional regression was run to estimate whether Local Authorities controlled by a party obtained higher CPA scores than those authorities that were not politically controlled by any party. This model is shown in the third column in table 1, and the regression shows that there is no statistically significant evidence to suggest that authorities controlled by a party performed better than those without. Thus neither H1 nor H2 is supported in these models. Although in simple bi-variate analysis (not shown) Conservative councils have higher CPA scores than those controlled by other parties or NOC, these differences disappear in multivariate analysis – presumably because Conservative councils are in relatively prosperous area.

A further concern is that the effect of the explanatory variables on the CPA score may vary by type of authority. That is to say, it may be the case that the CPA scores of county councils, inner London boroughs, metropolitan districts, outer London boroughs and unitary authorities are affected differently by the explanatory variables used in our model. If confirmed, it would be misleading to generalise from the effect of an explanatory variable on the country average CPA score.

During the elite interviews we conducted with auditors, auditees, and other stakeholders, repeated mention was made of the need to carry out comparative analyses between "like cases" of authorities. We followed this advice and observed interesting differences with regard to the effect of some of the explanatory variables, as evidenced by the data shown in table 2. For instance, quantity of service need has a negative effect on the CPA score in

county councils, but a positive effect in the remaining types of authorities. Similarly, the effect of age diversity on CPA scores is positive when all authorities are grouped together (see Table 1), but negative in all types of authorities except inner London Boroughs (see Table 2).[2]

Dependent Variable CPA 2002-2004 (log)	County Councils	Inner London Boroughs	Metropol. Districts	Outer London Boroughs	Unitary Councils
	Coef.	Coef.	Coef.	Coef.	Coef.
Quantity of service need 2002 (log)	-0.144*	2.126***	0.076	0.833***	0.048
	(0.073)	(0.258)	(0.058)	(0.186)	(0.077)
Age diversity 2002 (log)	-1.988	1.022	-1.936	-1.506*	-0.937*
	(1.035)	(2.094)	(1.036)	(0.660)	(0.381)
Ethnic diversity 2002 (log)	-0.122***	0.565*	-0.093***	0.136	0.030*
	(0.008)	(0.248)	(0.016)	(0.075)	(0.013)
Social class diversity 2002 (log)	2.637*	2.119	2.311*	2.038**	1.614***
	(1.049)	(1.852)	(1.029)	(0.647)	(0.351)
Discretionary expenditure 2002-2004 (log)	0.415	-0.088	0.462*	1.231***	0.388
	(0.346)	(0.254)	(0.199)	(0.262)	(0.297)
Population 2002-2004 (log)	-0.008	0.010	0.048***	0.207***	-0.077***
	(0.029)	(0.195)	(0.012)	(0.025)	(0.011)
Population Density 2002 (log)	0.141***	-0.031	0.017	0.261***	-0.018*
	(0.022)	(0.201)	(0.033)	(0.057)	(0.007)
Adult education, skills & training deprivation 2004 (log)	-0.244***	-0.406***	0.087	0.196*	-0.114**
	(0.067)	(0.076)	(0.047)	(0.083)	(0.036)
Barriers to housing & services deprivation 2004 (log)	0.036	-0.721*	0.023	0.003	-0.071***
	(0.021)	(0.355)	(0.025)	(0.036)	(0.021)
Crime Deprivation 2004 (log)	-0.104***	-0.826***	0.233***	-0.533***	-0.116***
	(0.013)	(0.156)	(0.040)	(0.089)	(0.019)
Living environment deprivation 2004 (log)	0.010	-1.360	-0.090**	-0.168**	-0.120***
	(0.052)	(0.921)	(0.032)	(0.062)	(0.017)
Income deprivation 2004 (log)	0.274	-1.064***	-0.208	-0.728***	0.282***
	(0.149)	(0.254)	(0.150)	(0.194)	(0.034)
Political Control (Conservatives Base Group)					
Labour	0.002		-0.027	-0.006	0.033
	(0.016)		(0.039)	(0.020)	(0.054)
Liberals	(dropped)		-0.072**	-0.129***	0.005
			(0.025)	(0.037)	(0.032)
Independent	(dropped)		(dropped)	(dropped)	-0.121*
					(0.057)
No Overall Control	-0.010		0.043	-0.079	0.046
	(0.017)		(0.046)	(0.045)	(0.042)
Number of obs	102	36	107	60	138
Number of groups	34	12	36	20	46
R-squared	0.999	0.999	0.999	0.999	0.999

*Standard errors in parentheses. Significance levels: * p<0.05, ** p<0.01,*** p<0.001*

Table 2: Determinants of CPA scores 2002-2004 by type of authority (Panel-corrected standard errors)

This somewhat counterintuitive result is even more pronounced for the case of social class diversity, which has a positive effect on CPA scores for *every single* type of authority when they are analysed separately, but a negative effect when they are grouped together. This case is a useful illustration of the importance of analysing authorities in groups with similar

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[2] Our statistical analysis shows high R^2 values close to 0.99. Although highly unusual for most statistical models, this is not a surprising result for panel data analysis because we are comparing the performance of a local authority with its own performance at different times, which means we can explain much of the variation with a few variables. What is more, because of the variation between local authorities, the R2 values in panel-dataset models report on a cross-sectional rather than a time series analysis.

characteristics, an approach that may produce entirely different estimates. In the class diversity case, for example, a wide variance in social class across all authorities can be concluded. Thus, when trying to measure the strength of the linear relationship between CPA scores and social class across entities (as done in Table 1) this relationship is negative (coefficient equal to -0.674). Yet, when authorities are grouped with peers that have a more similar social class composition (Table 2), the estimated relationship between CPA and social class is stronger and positive (coefficients above 1.6).

The results on political control are also significant for some classes of authority. Table 2 shows that, among metropolitan districts and Outer London boroughs only, Liberal Democrat councils do perform worse than Labour or Conservative councils. However, neither H1 nor H2 is supported even when the results are disaggregated into the five models of Table 2.

With regard to the effects of deprivation, Figure 1 provides a first overview of the effect of the IMD 2004 composite index on the CPA scores in 2002, 2003 and 2004. For illustrative purposes, and in order to make the analysis more tangible, the graph provides names of some of the authorities situated at the outer edges of the scatter plot. More importantly, however, the graph shows that there is a negative relationship between the two variables, with a statistically significant correlation coefficient of -0.23. Thus, the higher the level of deprivation, the lower the CPA performance score, a conclusion that contradicts, to a different extent, some earlier studies (Audit Commission 2003b, Palmer and Kenway 2004) but confirms others (Andrews 2004; Andrews *et al.* 2005).
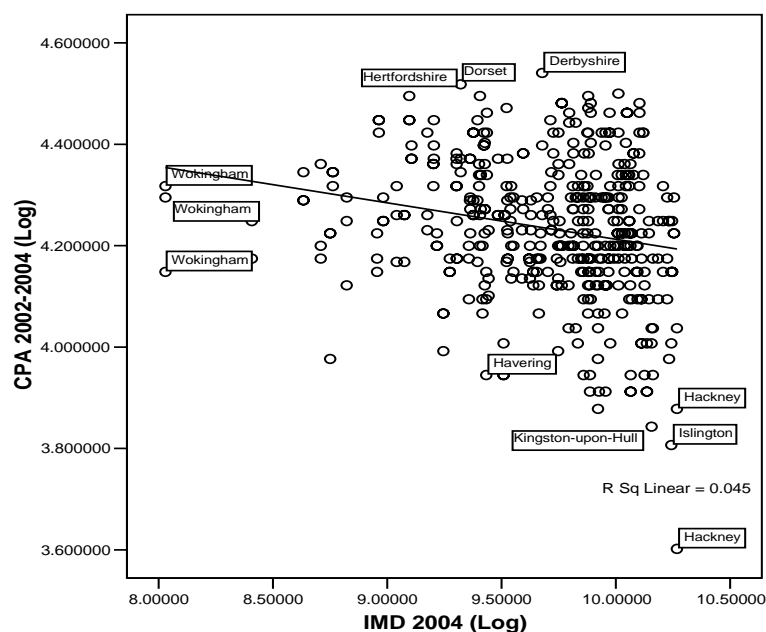
Figure 1: The effect of the IMD 2004 on CPA scores 2002-2004

This is not the end of the story, however, as this first high-level overview is only the beginning, and more detailed insights can be gained from a second stage, during which the different domains of deprivation are mapped onto the different types of authorities. This more extensive analysis is best approached with visual help. Starting with the first set of columns on the left of figure 2, we can see that the seven deprivation domains (of employment; health; adult education; barriers to services and housing; crime; living environment; and income) do not differ significantly from one another when they are assessed on a national level, i.e. when all English authorities are analysed as a single group: both the outmost left column, representing the IMD 2004 composite index, and the seven columns to the right of it, representing the constituent sub domains, display equally high deprivation scores.

The picture does not change much for the next set of deprivation domains to the right of the first, which shows that, if analysed separately, the 46 Unitary Authorities are relatively

homogeneous and equally deprived across the seven domains. What is more, they do not deviate much from the national average.

However, divergences of some significance emerge within the third group comprising the 34 County Councils. As the first column on the left of this group indicates, they are the least deprived authorities in the country when measured across all seven deprivation domains through the composite IMD 2004. Yet, when split up into the individual domains, upward deviations surface for income deprivation and for barriers to housing and services, the latter of which is due presumably to the long distances prevalent in rural areas to reach the nearest shop, post office or hospital.

Even greater differences between the deprivation domains come to light for the three groups on the right of the figure. The metropolitan districts and, more strikingly, the inner and outer London boroughs display very drastic deviations between the individual deprivation domains. For instance, Inner London Boroughs are on average more deprived than the rest of the authorities in the deprivation domains of income and crime, whereas they are on average less deprived in barriers to housing and services (presumably for reasons to do with relatively good proximity in metropolitan areas) and adult education.
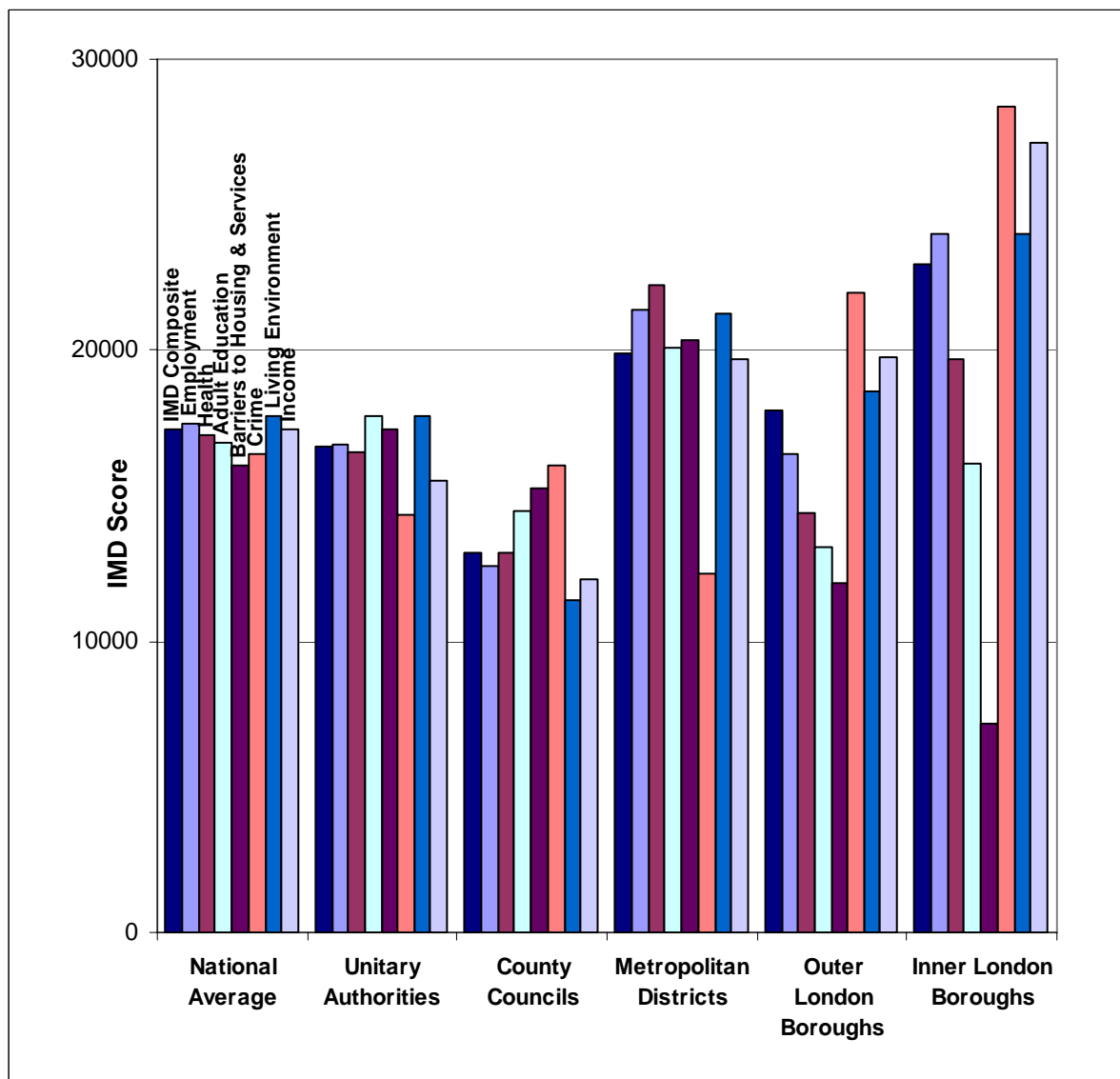
Figure 2: IMD 2004 Deprivation, as composite and domains, by type of authority

Figure 2 illustrates the danger of using a single measure of deprivation only or the Index of Multiple Deprivation as a composite only, because the composite index may conceal important differences between authorities and a single variable may bias the investigation into one or the other direction. Policy recommendations based on such analyses do therefore not adequately address the problem under study.

Now that we have shown that the five types of authorities are not equally affected by the seven deprivation domains, the effects of the seven domains of deprivation on CPA scores

must be ascertained. Table 3 produces in the columns labelled Model 2 to Model 9 the effects of the seven deprivation domains and other determinants on the six CPA service blocks, taken across all (i.e. not differentiating between) types of authorities. The estimation method used was the PCSE model for all service blocks.[3]

Table 3 shows that the effect of the domains of deprivation on CPA scores varies across the service blocks examined. Deprivation in the domain of education has a negative effect on the overall CPA scores and in all CPA service blocks, except for social care (children) and libraries and leisure. In these two latter CPA service blocks, education has a positive but insignificant effect. Deprivation in the domain of barriers to housing and services has a significant negative effect in the CPA service blocks of social care (adults), environment, use of resources and benefits. Crime has a consistent negative effect on the overall CPA score and all its service blocks, except benefits where crime has a positive but insignificant effect on CPA. Similarly, deprivation in the domain of living environment has a negative effect on overall CPA and all its service blocks, except social care (children and adults) and environment. Only in these two latter CPA blocks is it that deprivation in living environment seems to have a positive and significant effect. Income deprivation has a negative and significant effect on CPA in the service blocks of education and social care (children), a positive and significant effect in the service block of housing, and a positive and not significant effect on the rest of service blocks.

Our statistical analysis looked in more detail at the relationship between the deprivation domains and the CPA scores, not only by type of authority but also by service block. However, scope reasons prevent us from reproducing the resultant correlations here, because

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[3] 'Shire' County councils are not assessed in the Housing and Benefits service blocks, thus no CPA scores are available for them.

seven domains of deprivation need to be analysed for their effect on five types of authorities across six service blocks. A more detailed analysis of this issue must therefore be reserved for a separate publication.

Dependent Variable CPA 2002-2004 (log)	Model 1 Overall CPA	Model 2 Education	Model 3 Social Care A	Model 4 Social Care C	Model 5 Environment	Model 6 Lib & Leisure	Model 7 Resources	Model 8 Housing #	Model 9 Benefits #
Quantity of service need 2002 (log)	-0.103***	-0.202***	0.085**	-0.205***	-0.167***	-0.172***	0.078	-0.277*	0.086
	(0.025)	(0.035)	(0.029)	(0.027)	(0.037)	(0.022)	(0.044)	(0.115)	(0.158)
Age diversity 2002 (log)	1.336***	0.430	-0.071	1.162	5.099***	3.427***	0.581	-0.704	-0.266
	(0.300)	(0.299)	(0.527)	(0.600)	(0.343)	(0.688)	(0.528)	(0.499)	(0.521)
Ethnic diversity 2002 (log)	-0.016	-0.036**	-0.013***	-0.008	-0.036	0.007	0.019	0.076***	-0.060***
	(0.011)	(0.014)	(0.004)	(0.014)	(0.030)	(0.010)	(0.014)	(0.010)	(0.016)
Social class diversity 2002 (log)	-0.630*	0.118	0.247	-0.833	-4.723***	-2.969***	-0.359	1.012*	0.574
	(0.298)	(0.304)	(0.542)	(0.574)	(0.364)	(0.670)	(0.498)	(0.466)	(0.475)
Discretionary expenditure 2002-2004 (log)	0.186	0.219	0.414	-0.025	0.089	0.475*	-0.067	0.105	0.174
	(0.220)	(0.126)	(0.222)	(0.208)	(0.697)	(0.236)	(0.399)	(0.172)	(0.357)
Population 2002-2004 (log)	0.006	-0.043*	-0.011	0.002	0.038	0.039***	0.021	0.014	-0.006
	(0.008)	(0.017)	(0.021)	(0.013)	(0.035)	(0.008)	(0.014)	(0.028)	(0.031)
Population density 2002 (log)	0.003	0.003	-0.001	-0.022	0.056	0.030***	-0.010	-0.025	-0.001
	(0.007)	(0.003)	(0.007)	(0.016)	(0.049)	(0.008)	(0.015)	(0.019)	(0.012)
Adult education, skills and training deprivation 2004 (log)	-0.038***	-0.062***							
	(0.010)	(0.013)							
Education, skills and training deprivation 2004 (log)			-0.028	0.013	0.221***	0.029	-0.058	-0.072*	-0.160***
			(0.019)	(0.042)	(0.067)	(0.056)	(0.037)	(0.028)	(0.033)
Barriers to housing and services deprivation 2004 (log)	0.005	0.063***	-0.066***	0.003	-0.088***	-0.024	0.042**	0.108***	-0.083***
	(0.007)	(0.013)	(0.014)	(0.016)	(0.018)	(0.016)	(0.015)	(0.020)	(0.020)
Crime deprivation 2004 (log)	-0.056***	-0.059***	-0.148***	-0.005	-0.098***	-0.086***	-0.100**	-0.000	0.046
	(0.009)	(0.012)	(0.010)	(0.099)	(0.024)	(0.008)	(0.033)	(0.028)	(0.161)
Living environment deprivation 2004 (log)	-0.041***	-0.021	0.101***	0.047	-0.134**	-0.242***	-0.069***	-0.194***	-0.084*
	(0.011)	(0.014)	(0.016)	(0.036)	(0.049)	(0.019)	(0.016)	(0.029)	(0.039)
Income deprivation 2004 (log)	-0.028	-0.097**	0.029	-0.131***	-0.143	-0.008	0.010	0.108*	0.117
	(0.028)	(0.033)	(0.044)	(0.022)	(0.088)	(0.090)	(0.054)	(0.048)	(0.082)
Type of Local Authority (County Councils base group, except for Housing & Benefit: Inn. L.									
Inner London Boroughs	0.044	0.023	0.185***	0.331***	-0.290	0.039	-0.060		
	(0.026)	(0.053)	(0.047)	(0.036)	(0.252)	(0.060)	(0.043)		
Metropolitan Districts	0.025	0.046	0.072**	0.067**	-0.145	-0.085*	0.060	-0.148***	0.047
	(0.020)	(0.028)	(0.024)	(0.022)	(0.123)	(0.035)	(0.032)	(0.009)	(0.085)
Outer London Boroughs	-0.040	0.009	-0.030	0.066	-0.379*	-0.019	-0.044	-0.256***	0.010
	(0.027)	(0.061)	(0.039)	(0.066)	(0.190)	(0.049)	(0.030)	(0.011)	(0.028)
Unitary Authorities	-0.008	-0.012	-0.001	0.087***	-0.170	-0.027	0.042*	-0.194***	-0.098
	(0.021)	(0.046)	(0.029)	(0.020)	(0.101)	(0.028)	(0.019)	(0.033)	(0.086)
Political Control (Conservatives Base Group)									
Labour	0.012	0.014	-0.002	0.030	-0.002	-0.020	-0.022	0.201**	-0.105***
	(0.026)	(0.027)	(0.034)	(0.044)	(0.045)	(0.022)	(0.029)	(0.071)	(0.031)
Liberals	-0.027	-0.011	-0.089	-0.030	-0.023	0.104**	-0.085	0.103	-0.223***
	(0.026)	(0.029)	(0.052)	(0.050)	(0.087)	(0.038)	(0.049)	(0.083)	(0.016)
Independent	-0.149**	-0.076*	-0.082	-0.326***	-0.117	-0.274*	-0.507**	0.055	-0.645
	(0.055)	(0.033)	(0.165)	(0.055)	(0.133)	(0.129)	(0.177)	(0.138)	(0.440)
No Overall Control	-0.007	-0.009	-0.037	-0.018	-0.045	0.012	-0.047**	0.201**	-0.157***
	(0.021)	(0.023)	(0.030)	(0.057)	(0.025)	(0.032)	(0.016)	(0.063)	(0.033)
Number of obs	443	443	443	443	443	443	443	340	340
Number of groups	148	148	148	148	148	148	148	114	114
R-squared	0.999	0.975	0.944	0.908	0.863	0.916	0.973	0.857	0.905

Standard errors in parenthesis. Significance levels: * $p<0.05$, ** $p<0.01$, *** $p<0.001$.
Housing and Benefit service blocks exclude County Councils from the analysis

Table 3: Effects on CPA scores 2002-2004 by CPA service block

A final word should be said about the effect of discretionary expenditure. To recall, discretionary expenditure refers to financial resources spent by local authorities beyond that which central government deems appropriate to meet local service needs and disperses as grants (as calculated through the Standard Spending Assessment SSA, which in 2003 was replaced by the Formula Spending Share FSS). Local authorities may have access to revenue sources other than central grants, such as parking fines, which they can put to various uses: reducing local council tax levels; building up reserves by saving the revenues; or spending them in order to provide better local services. In the case of the latter it may be argued that rich authorities, i.e. those with access to additional revenue sources, are able to 'buy' better CPA scores.

An analysis to test such a hypothesis was conducted by Andrews *et al.* (2005, p. 647), with CPA scores for 2002 only. Against their own initial prediction they concluded that CPA scores were negatively affected by discretionary resources and that "authorities that spend above their SSA perform more poorly". They attributed this conclusion *inter alia* to the fact that "high spenders [are] genuinely inefficient and spend more per unit of service output of a given quality" (p. 651). We were unable to reproduce the variable used by Andrews' *et al* for 'discretionary resources'. We have measured 'discretionary expenditure', which captures not the resources available, but the resources spent: a council may spend a lot because it can (e.g., because it has buoyant independent tax and charge revenue) or because it wants to (e.g., for electoral or ideological reasons), and it may do so irrespective (up to a degree) of the amount of discretionary resources it has available.

The testing of the hypothesis with our model produces a result that differs from Andrews *et al*. By using CPA scores for 2002, 2003 and 2004 we add additional observations to the analysis, the result of which is reproduced in figure 3. We calculate discretionary expenditure as a ratio of total service expenditure divided by SSA (or FSS) and arrive at ratios between 0.91 and 1.35. In other words, in order to provide their local services, authorities spend between 91 and 135 percent of the grants they received from central government.
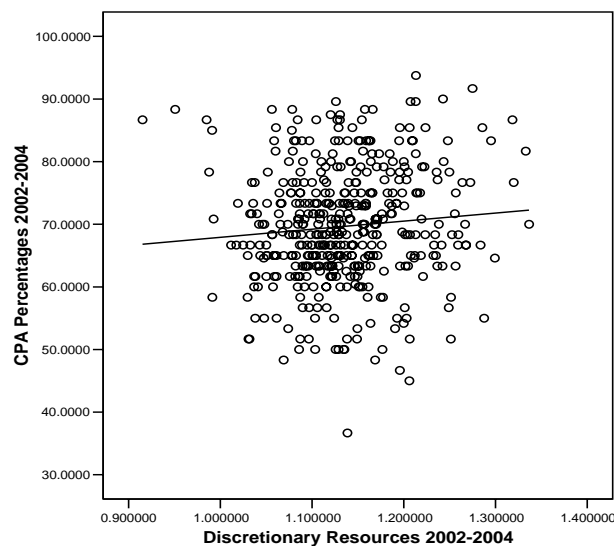

Figure 3: The effect of discretionary expenditure on CPA performance

The scatter plot indicates that there are a few authorities, in the top left corner, that manage to achieve high CPA scores despite spending less than the SSA/FSS would require them to do. However, these few outliers cannot alter the regression line for all 443 observations sloping upwards, with a significant *correlation coefficient* of 0.09. That is to say, higher-spending authorities have (slightly) higher CPA scores.

Similar to our analysis on deprivation above, the analysis of the effect of discretionary spending can be carried out in more detail as well: additional preliminary results show that discretionary expenditure has a different effect depending on the type of authority that is scrutinised. The hypothesis that high-spending authorities are either rich (spending because they can) or ideologically committed (spending because they want to) implies not a linear but a quadratic relationship between discretionary expenditure and CPA score. What is more, for some types of authorities the regression line is inverse, an observation that certainly merits further examination in a separate publication.

Conclusion

The objective of this article was to assess the effect of external factors on CPA scores across local authorities. The variance in CPA performance was modelled as a function of the demographic characteristics, seven deprivation domains, political control, type of authority, and discretionary expenditure by local authorities. The CPA scores from 2002 to 2004 were positively affected by discretionary expenditures incurred by local authorities, that is to say authorities can 'buy' better scores by spending beyond the level regarded as appropriate by central government.

The effect of deprivation on CPA scores, in turn, is less straight forward. When grouping all LAs together, deprivation in the domains, education, crime and living environment had a significant negative effect on overall CPA score, in other words,

the higher the deprivation in these domains, the lower the CPA score obtained. However, these effects can vary by type of local authority and CPA domain, which reflects the fact that the degree of deprivation, too, varies across type of authority.

Our results can guide policy makers in how best to adjust CPA scores and ratings for external effects, particularly those related to deprivation. This article has identified which CPA service blocks are affected by which type of deprivation in which type of authority, and measures can be introduced to uplift CPA scores accordingly.

The lessons of this research apply to any regime which seeks to control subnational public bodies by performance indicators and inspector assessments. Radical sceptics believe that, because of Goodhart's Law ('When a measure becomes a target it ceases to be a valid measure'), the enterprise is doomed from the start. Less extreme critics may still note that:

- when one and the same performance indicator (e.g., school examination results) is used to measure both deprivation and council performance, deeply perverse outcomes are possible;
- in evaluating external constraints (such as deprivation) it is important to choose the right levels of disaggregation. Effects which may appear when all authorities are considered together may disappear when classes of authorities are treated separately, and *vice versa*. Effects which appear in bivariate analysis may disappear in multivariate analysis.
- the Persson-Tabellini hypothesis that single-party government improves fiscal performance is not supported in this body of data.

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