Incentive Schemes for Local Government

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Introduction

In recent years, explicit incentive schemes for public organisations, based on quantitative measurement of outputs, have become increasingly commonly used in the UK. For example, school league tables, hospital star ratings, and various schemes for local government, such as Comprehensive Performance Assessment (CPA), have been introduced in the last twenty years or so. Moreover, with few exceptions, schemes of this type have been little used outside the UK.[1] Finally, the schemes just noted have only been introduced in England, creating the possibility of using other regions of the UK as control groups to study their effects.

The focus of our work is on CPA, the most important scheme of this type for local government.[2] This scheme, introduced in 2001, rated local governments in England on the quality of service in six major areas: education, housing, social care, environment, libraries and leisure, and use of resources. Hundreds of performance indicators and a variety of audit and inspection reports were collected, summarised, weighted, and categorised so as to arrive at final star ratings between 0 and 4 stars.

As well as an evaluation scheme, CPA was also an incentive scheme. The stated objective of the CPA was to target support at those councils that need it most, and to offer a number of benefits for better-performing councils, including the elimination of "ring-fencing" grants, and a three-year exemption from subsequent audit inspections.[3]

Moreover, because the results of the CPA were widely disseminated in the media, it was also an exercise in providing voters with more information about the performance of their local council, both absolutely, and relative to other councils. In turn, this, in principle, provides indirect incentives for good performance. Indeed, there is evidence that councils which performed poorly on CPA were punished by voters at subsequent elections.[4]

CPA is of particular interest because it is, to our knowledge, the only explicit evaluation scheme to date, worldwide, that numerically scores and rewards elected representatives, as opposed to public service managers. The purpose of this paper is to assess the impact of CPA on local government in three dimensions: quality of service delivery, taxation policy, and the efficiency with which services were provided.

Figure 1 below shows the average CPA score achieved by English local authorities from the beginning to the end of the CPA experience together with average real current expenditure per capita by local government. There is clearly a steady upward trend in average CPA star ratings. Indeed, in 2009 the Audit Commission officially declared that the CPA had done its job stimulating a continuous improvement in local government performance (Audit Commission 2009). However, Figure 1 also shows that local government expenditure rose simultaneously, more or less in line with CPA scores.

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[1] There are exceptions: in the US, for example, the No Child Left Behind legislation punishes schools financially for poor test results, which are made public to parents.

[2] This report summarises findings from our paper, Lockwood and Porcelli (2013).

[3] "High scoring" councils were councils that were performing well under CPA and would consequently enjoy reduced audit and inspection regimes, and their associated fees, and be granted greater flexibility and borrowing freedoms by central government. At the other end of the performance spectrum, a combination of audit, inspection and other improvement work was to be commissioned as an outcome of the CPA process, with the aim of transforming failing or poorly performing authorities" (Audit Commission 2009).

[4] Revelli (2008) finds that an increase in one star rating increases the probability that the incumbent party retains control of the council by seven percentage points, and Boyne et al. (2009) find "a low CPA score (0 or 1 star) increases the likelihood of a change in political control".

So, the key problem is that we do not observe the counterfactual; given the large increases in local government spending over this period, it may be that service delivery would have improved anyway, even in the absence of the CPA. To address this, we treat the CPA as a natural experiment by exploiting the fact that it was only introduced in England, whereas in Wales, where the structure of local government is the same, a much weaker performance management scheme was introduced (Haubrich and McLean 2006b; Martin, Downe and Grace 2010). In particular, in Wales, there were no quantitative rankings, much less information published, and authorities also had a say with regard to the type of inspections they would like to see for specific services. So, we use local authorities in Wales as a control group when assessing the impact of CPA on the treatment group, the English councils.

What would we expect the effects of a scheme such as CPA to be on service quality, tax levels, and efficiency? In Lockwood and Porcelli (2013), we develop a simple two-period political agency model to focus specifically on the effect on taxation, spending and efficiency of an incentive scheme that both rewards service quality and provides information about this quality to voters. In any period, the quality of a public good or service is determined by a given politician's ability, efforts and tax revenue. In this environment, efficiency measures the level of service quality that can be produced at a given level of tax revenue. Voters value service quality and dislike taxes, and thus they care about both service quality and efficiency. The incumbent faces an election against a randomly selected challenger at the end of the first period.

Our key predictions (explained below in section *The effects of CPA – the theoretical predictions*) are as follows. The larger the direct reward, or the better the information provided by the incentive scheme, the more the incumbent politician taxes, and the higher the effort s/he makes. While greater effort is not surprising, the prediction of higher taxation, which voters dislike, is a distinctive feature of our theoretical analysis. As both effort and taxes rise, service quality is unambiguously increased by an incentive scheme. However, the effect of either a larger direct reward or better information on efficiency is ambiguous, because inputs, purchased using tax revenue, are also higher.

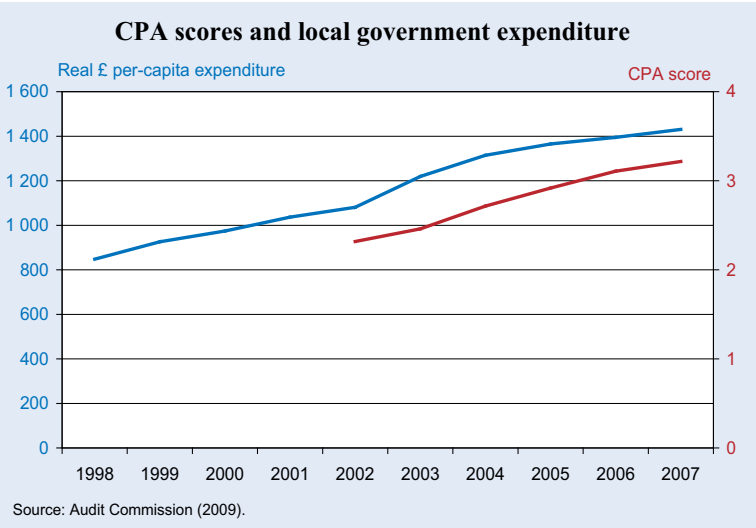
We then test these predictions using Wales as a control group. Our results broadly confirm the predictions of the theory, as described in more detail below.

The CPA – a brief overview

Local governments in England and Wales are of two types, unitary and two-tier. Unitary councils are responsible for primary and secondary education, social care, housing and housing benefit payments, waste disposal, transport, environment, planning, and culture. Two-tier governments are composed of an upper tier, counties, and a lower tier, districts. Counties have all the responsibilities of unitary authorities, except for housing and housing benefit, and environment, where responsibilities are shared with district councils.

In this institutional setting, the precursor to CPA, introduced in the Local Government Act 1999, was the "Best Value" framework, which, according to the UK government, "provides a framework for the planning, delivery and continuous improvement of local authority services. The overriding purpose is to establish a culture of good management in local government for the delivery of efficient, effective and economic services that meet the users'

Figure 1



Source: Audit Commission (2009).

needs."[5] A key part of this framework were the Best Value Performance Indicators (BVPIs), which were numerical scores measuring the quality of the above services on various dimensions. Importantly for our purposes, BVPIs were calculated for both English and Welsh councils.

CPA, which started in the 2001/02 financial year, represented a move to a stricter assessment regime within the general Best Value framework. In the first three rounds, the method for assessing the current performance of a council was as follows. Council performance was assessed in seven categories: social care; environment; libraries and leisure; use of resources; education; housing; housing benefit payments.[6] Where available, performance was assessed through already existing judgements from inspectorates and auditors, such as those by the Office for Standards in Education (Ofsted) and by the Department for Education and Skills (DfES) for education. These judgements were augmented with BVPIs. All this information was aggregated to obtain a score of between 1 and 4 for each of the service blocks (with 1 being the lowest and 4 the highest). The performance scores were then aggregated across service blocks to produce a performance rating of between 1 and 4 for each authority.[7] This score was then combined with an estimate of the councils' ability to improve (1 to 4) to produce the final CPA score.

In 2005, a new methodology, the "harder test", was introduced. The current performance of the council was assessed in the same categories with the exclusion of education, which was dropped. The main innovation, however, involved the aggregation procedure, where the ability to improve was replaced by the corporate assessment, a three year period assessment of the council's ability "to lead its local community having clearly identified its needs and set clear ambitions and priorities" (Audit Commission 2009).

So, what are CPA scores really measuring? Along with some commentators such as McLean, Haubrich and Gutiérrez-Romero (2007), we take the view that CPA is a hybrid measure, partly measuring levels of service quality (thorough the BVPIs), partly measuring operational efficiency (use of resources) and partly broader aspects of corporate health or effectiveness (ability to improve). In fact, Porcelli (2010) shows that councils' efficiency is only moderately correlated with CPA scores (a Spearman correlation of around 0.30), and inefficient local authorities can "buy" better CPA scores when favoured by a good local context.

Moreover, as McLean et al. (2007) point out, there may also be "categorisation errors" in the aggregation procedure in Table A3, where fine numerical scores are compressed into just four categories. So, we take the view that CPA scores measure both service levels (output) and efficiency, and do so with some error.[8] In this paper, we are not interested in CPA as a measurement system, but as an incentive scheme. That is why we construct our own, independent, measures of output and efficiency for local councils, with the aim of studying the effect of the CPA regime on those measures, along with taxation.

The effects of CPA

The theoretical predictions

How might CPA be predicted to affect the behaviour of local governments in England? As discussed, CPA was a scheme that provided information to the voters (and also, possibly to the elected officials) of a jurisdiction about the quality and quantity of various "outputs" of local government. CPA may therefore be expected to cause these outputs to rise relative to those councils in Wales, our control group. However, funding from central government did not simultaneously become more generous in England relative to Wales. So the implication is that to fund this extra expenditure, taxes will rise in the "treatment group" i.e. in English local authorities. Finally, as argued above, CPA rewarded councils for overall increases in output, rather than increases in the efficiency with which inputs were used, so we should not expect to see any particular increase (or decrease) in the efficiency with which any council in England produces these services relative to a similar council in Wales.

[5] http://www.idea.gov.uk/idk.
[6] The CPA did not evaluate transport and planning.
[7] The scores were weighted so that the scores for education and social services count four times, housing and environmental services twice, with the remaining blocks counting only once. These were then added up to produce a performance score of between 15 and 60 points, or 12 and 48 points for shire county councils (because they do not provide, and are therefore not assessed on, housing or benefits services).

[8] Another possible source of error is that there is evidence that councils in areas where the population is more deprived or ethnically diverse achieve lower scores (Andrews 2004; Andrews et al. 2005; Gutierrez-Romero, Haubrich and McLean 2010): this may partly be due to higher (unobserved) costs of providing services in these environments.

Our full paper shows formally that the overall effect on efficiency is ambiguous, and identified conditions under which efficiency can increase or decrease.

Testing the theory using Wales as a control group

Our empirical approach is to estimate the impact of CPA on efficiency in a quasi-experimental setting through difference-in-difference estimation, using Wales, where CPA was not used, as a control group. Welsh local government performance was assessed by an evaluation program called the Welsh Program for Improvement (WPI) since 2001.[9] We believe that Welsh councils can be used to address the counterfactual question of what would have been the path of English councils after 2001 if CPA league tables had not been produced, for the following reasons:

Firstly, Welsh and English local authorities have the same structure and functions. Secondly, the average values of our control variables and the input and output variables used to construct our service quality and efficiency indices are very similar in the two countries. Thirdly, as documented by Haubrich and McLean (2006b), WPI was, compared to CPA, a much less prescriptive and elaborate assessment regime since only confidential assessments were produced, the evaluation criteria were based only on local self-assessment without quantitative rankings, and no formal rewards or punishments were specified. Finally, we have to address the question of whether the lack of "treatment" of Welsh local authorities was a truly exogenous event, or whether it was specifically related to the performance (in the setting of taxes or provision of public services) of Welsh councils. Firstly, the ability of Wales to determine a separate regulatory regime was ultimately determined by the creation of self-government in Wales, and in particular the creation of the Welsh National Assembly in 1998. Ultimately, support for devolution was determined by cultural factors, and can reasonably be regarded as exogenous. Secondly, as Haubrich and McClean (2006a) make clear, the main reason why the Welsh government did not adopt CPA was due to the smaller size of the country, which again is exogenous; "the relationship between auditor, local government department, and authority can be more intimate than in England".

[9] Information and data about the Welsh Program for Improvement can be accessed on the web site of the Wales Audit Office www.wao.gov.uk.

Measuring tax revenue, output, and efficiency

Here, we discuss our choice of measures of taxes, output and efficiency for English and Welsh councils over our sample period 1997–2007. The data sources for these measures, and full details of how they were constructed, are to be found in our paper, Lockwood and Porcelli (2013).

The only tax instrument for local councils in the UK is a property tax; unlike in many other countries, there are no local income or sales taxes. The appropriate measure of tax is property tax revenue. This is measured by the tax requirement in the official statistics (CIPFA 2008a), which is total current spending in the financial year, minus revenue from the revenue support grant and other grants, and revenue from the business tax rate. We deflate this by the CPI to get real values.[10]

We use the tax requirement, both as a raw figure, and normalised in several ways. Specifically, we divide the tax requirement by the number of equivalent standardised properties (so-called "band D dwellings") to obtain an effective council tax rate. Finally, we also measure tax revenue as a percentage of the tax requirement to the budget requirement, where the latter is actual current expenditure that has to be financed by formula grants (which includes the police grant) and property tax revenue.

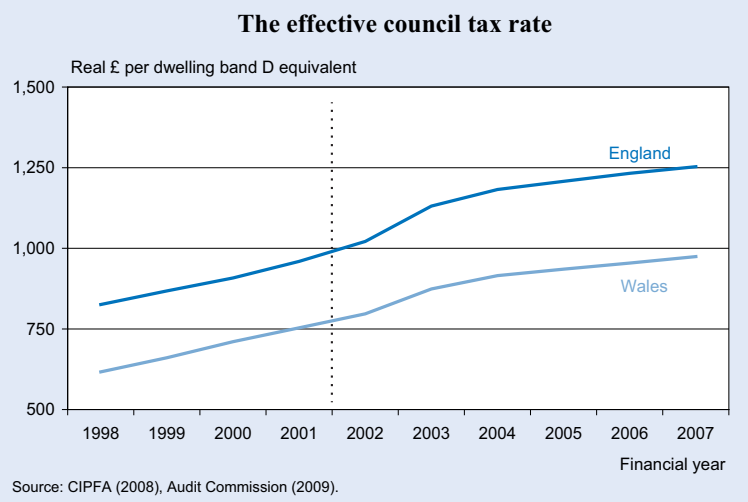
Next, we turn to the measurement of service quality. We need to construct a consistent index of service quality across both English and Welsh local governments. To this end, the BVPIs published by the Audit Commission for England and the Audit Office for Wales are the best source of information for two reasons: firstly they are broadly accepted by the local governments as measures of output quality; and secondly we are very confident about the comparability of these measures across local authorities since BVPIs were also chosen as one of the building blocks of the CPA procedure.

The first problem to solve was the absence of BVPIs for housing and housing benefit in case of the counties, where this function is managed by districts. As the efficiency analysis, further described below, analysis requires a balanced production function

[10] Note that in England and Wales, local authorities can borrow only to finance capital spending, not current spending, and thus the difference between current spending and formula grants must be own revenues, principally the council tax.

with the same inputs and the same outputs for all units in all years, the only possible solution was to drop this sector from the efficiency analysis. A further problem is the short life of many BVPIs. Despite the fact that there are over 250 BVPIs published on the website of the Audit Commission, almost all of them were subject to some changes after three or four years, and in many cases they were replaced with new indicators. There is also the problem that after 2001–02, BVPIs were defined and measured separately in both England and Wales, and there was very little overlap. In the end, only five indicators could be used to measure the quality of output consistently for England and Wales; these measure aspects of education, social care of the elderly and children, waste disposal, and social services. However, it is important to note that expenditure on these categories accounts for fully 57 percent of total local government expenditure on average.

Figure 2



Source: CIPFA (2008), Audit Commission (2009).

Four of the five BVPIs are already expressed as percentages; and we also converted the fifth, social services to a percentage. We then calculated our output index as the weighted average of these five indices, where the weights used were the relative expenditure on the five services in real GBP per capita; all monetary amounts were deflated using the 2005 CPI. The source for the expenditure data is the Finance and General Statistics (FGS) and Local Government Comparative Statistics (LGCS), available on the website of the Chartered Institute of Public Finance and Accountancy (CIPFA) from the 1997/98 to the 2007/08 financial years (CIPFA 2008a and CIPFA 2008b).

Our efficiency index, denoted e_{it}, (where t refers to the time period, and i to the local council) is constructed using data envelopment analysis (DEA).[11] This method reduces the multiple inputs and outputs of any council in any given year to a single index. As output measures, we use the same five BVPIs used to construct the output index. As inputs, we use the expenditures already mentioned, corresponding to those outputs. Further details are given in our working paper, Lockwood and Porcelli (2011).

[11] DEA was first developed by Charnes, Cooper, and Rhodes (1978); a survey can be found in Ali and Seiford (1993).

DEA generates two indices. The first, the input index, e_{it}^{IN} , which lies between zero and one, has the following intuitive interpretation. If council i was using the available technology efficiently at time t, its inputs could all be scaled down by a fraction 1- e_{it}^{IN} and it would still be able to produce the same vector of outputs. The second, the output index, e_{it}^{OUT}, which also lies between zero and one, has a similar interpretation: if council i was using the technology efficiently at time t, its outputs could all be scaled up by an amount $1/e_{it}^{OUT}$-1, whilst using the same vector of inputs.

The input-based and output-based approaches to the evaluation of efficiency do not need to produce the same results; this will only occur in the restrictive case of constant returns to scale. Hence, in our analysis, the use of two indices can be considered as a sort of robustness check.

Empirical results

Taxes

Firstly, we look at the effect of CPA on increase council tax revenues. Figure 2 shows that the effective property tax rate (the tax requirement per standardised property) exhibits a clear increase in England relative to Wales after 2002. This is in line with what we would expect, based on our theoretical reasoning.

Of course, such a figure is only suggestive. A more formal analysis of the data is given in Table 1. The first two columns show the average values of the

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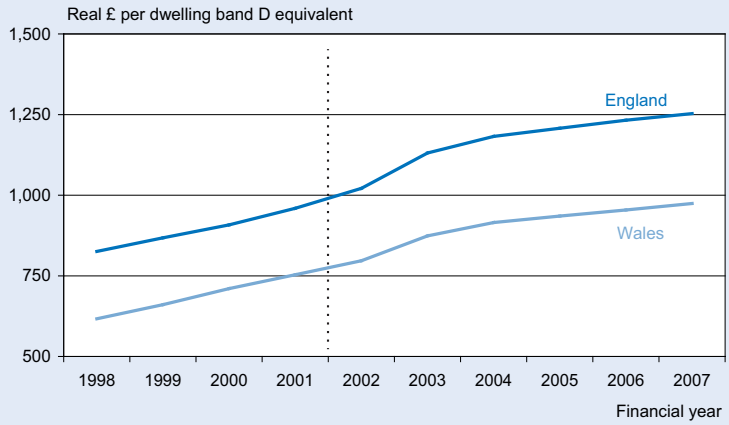
Figure 2

The effective council tax rate



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effective property tax rate before and after the reform in both England and Wales. The third column shows the differences between the two, which are both positive. This is not surprising; we would expect taxes to rise over time, even in real terms. Finally, the last column shows that tax growth was significantly higher in England than in Wales during the period of CPA. In other words, there is evidence that CPA had asignificant positive impact on the effective property tax rate, raising it by an average of about GBP 52.

Of course, Table 1 reports just a simple difference in means, and there may be other factors driving relative changes in council taxes in England and Wales. In our full paper, we control for a large number of these factors. The first set of factors are demographic variables, such as the percentage of the total population below the age of 16 and above the age of 75, the percentage of population that declare itself religious, the percentage of white people, the population density, the percentage of households who own their house, and finally the tax base of the property tax (the number of band D equivalent dwellings per capita).

The second category includes a set of dummy variables to capture the impact of the ruling party and the features of the electoral system ("all out" election every four years, or "by thirds" system which involves more frequent elections). The third group of variables is related to the structure of the local economy and includes: the amount of real per-capita revenue support grant received every year by each council,[12] average household disposable income, the percentage of the workforce claiming unemployment-related benefits, the percentage of people below 65 claiming disability living allowance, the percentage of VAT tax payers in the financial and real estate sector, the percentage of highly-qualified workforce, and the percentage of the workforce that is self-employed.

We also control for business cycle effects or other unobserved time variation via year dummies. Finally, we consider the data as a panel i.e. we have four time observations before CPA, and six after, rather than just averaging observations before and after CPA.

After introducing these controls, we find that the effect of CPA on the council tax rate is slightly smaller, at GBP 46, corresponding roughly to a four percent increase in England relative to Wales. We also consider the effect of CPA on our two other measures of council tax revenues, the tax requirement per capita, and the tax requirement as a percentage of the budget requirement. The introduction of CPA raised the tax requirement by about GBP 23, or seven percent in England relative to Wales. Finally, it raised the tax requirement as a percentage of the budget requirement by about six percent in England relative to Wales.

Table 1

The effect of CPA on the effective rate of property tax

	Average pre-CPA	Average post-CPA	Difference	Difference-in-Difference
England	872.60	1,171.26	298.65	51.60***
Wales	662.15	909.20	247.05	

* significant at 10%, ** significant at 5%, *** significant at 1%
Source: The authors.

Outputs

We now turn to look at the effect of our output index, which is a variable normalised between 0 and 100, as described above. Figure 3 shows clearly that the output index rose faster in England than in Wales after the introduction of CPA.

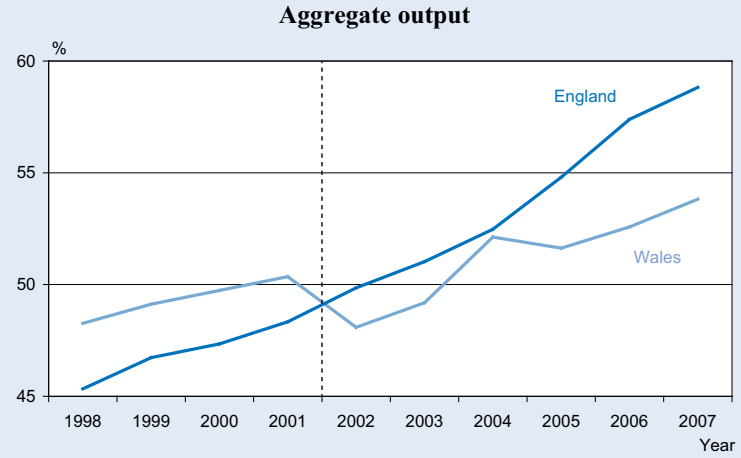
Again, we can investigate this further via a formal statistical analysis, which is presented in Table 2. The first two columns show the average values of the output index before and after the reform in both England and Wales. The third column shows the differences, which are both positive. That is, over time, councils in both England and Wales have managed to increase metrics such as exam performance, percent-

[12] It is important to stress that both the English and the Welsh grant system were based on the same rules during the period of our analysis. Differences only appeared in the English system after 2007. In particular, in both countries the system is formula based; grants can consequently be considered exogenous in relation to the behaviour of local governments, since they are mainly determined by local demographic and income characteristics.

age of waste recycled, etc. Finally, the last column shows that output growth was significantly higher in England than in Wales during the period of CPA. In other words, there is evidence that CPA had a significant positive impact on the output index, raising it by an average of about five percent

After introducing the large number of control variables already discussed, via multiple regression, we find that the effect of CPA on the output tax index rate is slightly smaller, at about four percent

Figure 3



Source: The authors.

Table 2

The effect of CPA on the output index

	Average pre-CPA	Average post-CPA	Difference	Difference-in-Difference
England	46.35	53.87	7.51	4.98***
Wales	48.85	51.39	2.53	

* significant at 10%, ** significant at 5%, *** significant at 1%
Source: The authors.

Efficiency

Let us now look at the effect of CPA on our efficiency indices. Figure 4 shows the path of the efficiency index in England and Wales (where the index is the average between the input and output approach) between 1997 and 2007. In both countries the initial decreasing trend in efficiency reversed its course after the introduction of CPA, and although the initial gap between Welsh and English councils is almost closed in the last year of the sample, there is no clear evidence that CPA has a positive impact on the efficiency of English local authorities.

Again, we can investigate this further via a formal statistical analysis, which is presented in Table 3 below. This analysis indicates two things: firstly,perhaps surprisingly, efficiency of provision of services has fallen over the CPA period in both England and Wales. Given that outputs have been rising, this implies that taxes and grants have been rising even faster. Secondly, there seems to have been no significant difference in the rate of change of the efficiency index in England and Wales.

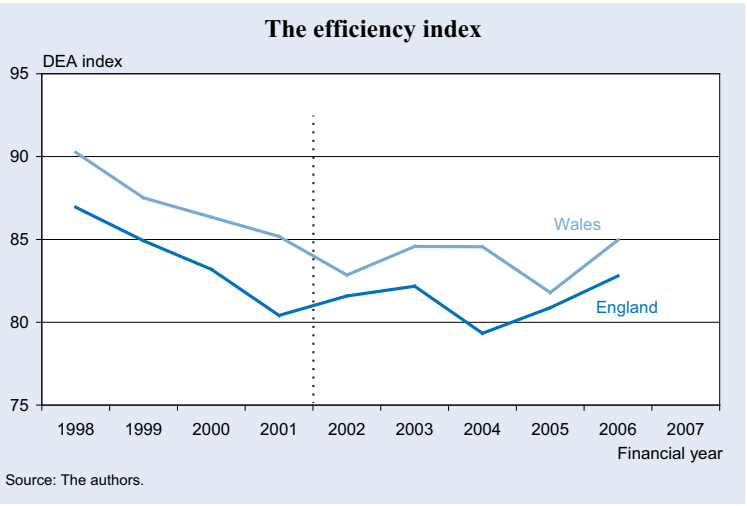
Robustness checks

A number of econometric robustness checks are reported in the paper. Here, we highlight two of these checks. One is to allow for council-specific time trends (see, for example, Friedberg 1998). To avoid collinearity problems, we add linear time trends for each type of council (London borough, Metropolitan district, County, Unitary authority, Welsh Unitary authority). The addition of these effects does not generally significantly change our regression results.

A second check, which is always important in a quasi-experimental setting, are placebo tests. Here, we run some placebo tests on the timing of the treatment. Specifically, we re-estimate the effect of CPA on output, tax and efficiency, assuming that the CPA program started in some other year than the year in which it actually occurred i.e. the fiscal year 2001/02. The results of these tests are also available on request, but we summarise them here. In the placebo treatments where CPA was introduced "before" 2001/02, either the treatment effect is insignificant or it has the opposite sign to that predicted by the theory i.e. negative effects on taxes and output. In the

placebo treatments where CPA was introduced "after" 2001/02, the treatment effect is mostly insignificant. However, we do observe significant positive treatment effects on taxes in cases where the placebo is one year after the true date of introduction. This could simply reflect the fact that councils reacted slowly to the introduction of the new regime.

Figure 4



Source: The authors.

Table 3

The effect of CPA on the efficiency index

	Average pre-CPA	Average post-CPA	Difference	Difference-in-Difference
England	84.41	81.33	-3.08	1.18
Wales	88.04	83.77	-4.26	

* significant at 10%, ** significant at 5%, *** significant at 1%
Source: The authors.

Electoral competition and CPA

The effects of electoral competition on policy-makers' behaviour are widely studied in the literature on political science, and increasingly also by economists. The study most closely related to ours in this respect is Besley and Preston (2007), who construct a measure of electoral districting bias for English local authorities. They find some evidence that a larger bias for the incumbent party (which protects the incumbent from electoral competition) gives the party a greater opportunity to pursue its policy preferences, which are lower expenditure and lower local government employment in the case of Conservatives, and the reverse in the case of Labour.

In our setting, it is plausible that CPA will have a larger effect on councils where electoral competition is low i.e. one party typically has a large majority of seats on the council. This is because such councils are initially not subject to much pressure to increase efficiency. So, in particular, we might find that efficiency is higher under CPA for low-competition English councils.

To test this, we define an English council to have "low electoral competition" if the winning party had a margin of victory over five percent. We can then Table 4 shows the change in the council tax rate, the output index, and the efficiency index over the CPA period (relative to the non-CPA period) for low-

Table 4

The effect of CPA on English councils with low electoral competition

	Change over CPA period		
	Council tax rate	Output	Efficiency
England (low competition)	286.70	8.30	-2.69
Wales	239.82	1.91	-4.17
Difference	46.87	6.38**	1.47***

* significant at 10%, ** significant at 5%, *** significant at 1%
Source: The authors.

competition English councils, and Welsh councils, the control group. The last line of the tables shows the differences between low-competition English councils, and Welsh councils in taxation, output, and efficiency.

Table 4 shows very clearly that low electoral competition has, in line with the theory, a significantly positive impact on both output and efficiency, but has no significant effect on tax. This result is robust to the inclusion of other control variables, and year dummies. However, there is no significant effect of CPA on tax levels.

So, the results indicate that CPA was a substitute for electoral competition; in councils where electoral competition was initially weak, it appears that CPA significantly increased both output and efficiency leaving the level of the property tax unchanged.

Conclusions

This paper has studied Comprehensive Performance Assessment, an explicit incentive scheme for local government in England, using Welsh local authorities as a control group, exploiting the fact that local authorities in Wales were not subject to the same CPA regime. We estimate that CPA increased the effective council tax rate in England relative to Wales by four percent, and also increased the index of service quality output by about four percent, but had no significant effect on our efficiency indices. Moreover, in line with the theory, there is robust evidence that CPA can substitute for an initial lack of electoral competition in driving up output and efficiency. The main policy implication of these results is that an incentive scheme like CPA can fail to stimulate higher local government efficiency because is too output-oriented; incentive schemes should be designed to place substantial weight on efficiency, and not just reward output.

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