8. Public services performance

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Summary

- The output of public services is complex, multi-dimensional and difficult to measure.

- Using National Accounts measures, the output of the health and education sectors has been rising but productivity has not. However, these output measures may not be accurately capturing changes in the quality of services. Accounting for quality change typically increases measured output growth.

- Short-term falling productivity may not, however, be a problem. Increased output, even without productivity gains, may be desirable, and productivity improvements may be difficult to achieve in some sectors.

- To get an accurate picture of performance, measures should, as far as possible, incorporate non-targeted outputs in addition to those that are subject to performance targets.

8.1 Introduction

Spending on public services – notably health and education – has risen strongly since 2000, as Chapter 7 discusses in detail. So it is a natural time to ask, 'What has this delivered?'. This is not an easy question to answer objectively. This chapter attempts to do so by providing evidence on recent trends in the output and productivity of the health, education and social security administration sectors, which together comprised nearly one-third of total public spending in 2005–06. It also discusses difficulties in measuring the output of public sector services.

When considering what increased spending on public services has delivered, it is useful to step back and ask, 'What would we like it to deliver?'. A standard answer for the NHS might begin by suggesting a need for a greater volume of *inputs*, such as doctors, nurses and medical equipment, so as achieve a higher level of *output*, such as faster and higher-quality treatment. Higher levels of output could then improve health *outcomes*, which could include life expectancy and quality of life. For the education sector, society again might want more inputs, such as teachers and school buildings, in order to deliver higher levels of output, such as high levels of achievement across the board. This could then help deliver improved outcomes, which could include higher earnings later in life and improved social skills.

Evidently, both the outputs and outcomes we want from our public services are complex and multi-dimensional, including many attributes that are difficult to measure. Establishing the precise links between public service outputs and outcomes is also clearly a very difficult task. These observations permeate all of our discussions.

As well as providing a greater volume of output, we might also want a more 'productive' public sector. Bringing together both inputs and outputs, productivity boils down to capturing how effectively inputs are transformed into output, such as healthcare received by patients. More specifically, it relates a measure of the *volume* of output delivered to a measure of the *volume* of inputs used to do so. Productivity measures can be used to assess whether, for a given amount of resources, service providers are delivering increases in output over time or, put another way, whether they are able to deliver the same quality of service using fewer resources. Measuring productivity in the private sector is challenging in itself, but the public sector brings its own challenges, which, as alluded to above, centre on the completeness of the measurement of outputs.[1]

The government hopes that the efficiency of public services can be improved through the delivery of the recommendations of the recent Treasury-sponsored Gershon Review. However, as described in Box 8.1, it will be very difficult to establish whether or not the objective of nearly £21.5 billion of savings by 2007–08 is delivered, and the extent to which this was due to the implementation of the Gershon Review as opposed to efficiency improvements that would have happened even in the absence of the study.

The productivity of public sector services is, however, only one factor in determining how effectively public money is being spent. Society may prefer public sector providers to deliver more services or improvements in quality even at the expense of a decrease in productivity. Equally, an increase in productivity may not be welcome if it came at the expense of a decrease in the outputs of public services. Moreover, we might expect falling productivity and rising output to go hand in hand if particular public services are subject to decreasing returns to scale. However, falling productivity unaccompanied by any increase in outputs might raise concerns, as might significant discrepancies in productivity across providers in the same sector. Productivity also differs from a cost–benefit analysis, which might be used to assess the 'value for money' of a new government programme.

A further issue regards the fact that many of the measures of the outputs of public services are subject to targets. One might speculate that improved performance on targeted outcomes could have come at the cost of worsening non-targeted outcomes, if resources have to be diverted away from non-targeted outcomes towards the production of targeted ones. On the other hand, non-targeted outcomes might improve if they are delivered jointly with those subject to performance targets. Under either scenario, using these targeted measures as outputs, without taking into account the change in non-targeted measures, would lead to total outputs and therefore productivity being mismeasured.

The chapter is structured as follows. In Section 8.2, we discuss issues arising in the measurement of the output and productivity of public sector services. In Section 8.3, we present evidence on trends in output and productivity for the health, education and social security administration sectors. Section 8.4 concludes.

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[1] For more detailed discussion of the measurement of public sector productivity, see H. Simpson, 'Productivity in public services', CMPO Working Paper 07/164, 2006.

Box 8.1. The Gershon Review and public sector efficiency

In August 2003, Sir Peter Gershon, then Chief Executive of the Office for Government Commerce (OGC), was asked by the government to lead a cross-cutting review of public sector efficiency. Accepting his conclusions, the Chancellor promised in the 2004 Spending Review to deliver efficiency gains of just under £21.5 billion a year by the end of the spending review period in 2007–08 – implying average productivity increases of 2½% a year.[a] The Treasury has now set a target for spending departments for productivity improvements of 3% a year over the 2007 Comprehensive Spending Review period to 2010–11.[b]

The Treasury claims to have been making steady progress towards the £21.5 billion Gershon target, with efficiency gains worth £2.0 billion by March 2005, £4.7 billion by September 2005, £6.4 billion by December 2005, £9.8 billion by March 2006 and £13.3 billion by September 2006.[c] Stephen Timms, Chief Secretary to the Treasury, told MPs in December 2006 that of the gains achieved by September 2006, £5.5 billion came from procurement ('getting better values from goods and services bought by government'), £2.4 billion from productive time ('freeing up more time for frontline service delivery') and £1.5 billion from policy, funding and regulation ('streamlining government machinery').[d]

External experts have complained that the Treasury does not provide adequate information to judge whether these figures are reliable. Referring to gains claimed in the 2005 Pre-Budget Report, the National Audit Office (NAO) said last February:

In many of the projects we examined we saw that good progress towards delivering efficiency savings is being made. However… there were still significant risks that efficiencies were not being measured accurately and in many cases departments could not be sure that service quality had not deteriorated as a result of efficiency-related reforms… In some sectors there are time lags in reporting where some data is collected only once a year, meaning that there could be further gains beyond the £4.7 billion reported. Given these difficulties we conclude that the £4.7 billion of efficiency gains should be considered provisional and subject to further verification.[e]

The Treasury said in the 2006 Pre-Budget Report that the OGC had developed a framework, in consultation with the NAO, that 'has improved the way the Government is able to measure and assess efficiency gains'.[f] Future NAO reports will presumably indicate to what degree it believes we can have greater confidence in Treasury estimates of efficiency savings as a result of this new framework.

[a] Source: P. Gershon, *Releasing Resources to the Front Line: Independent Review of Public Sector Efficiency*, HM Treasury, London, 2004 (http://www.hm-treasury.gov.uk/media/B2C/11/efficiency_review120704.pdf).
[b] Page 133 of HM Treasury, *Pre-Budget Report 2006*, December 2006 (http://www.hm-treasury.gov.uk/pre_budget_report/prebud_pbr06/prebud_pbr06_index.cfm).
[c] Sources: Successive Budgets and Pre-Budget Reports; HM Treasury, *Releasing the Resources to Meet the Challenges Ahead: Value for Money in the 2007 Comprehensive Spending Review*, Cm. 6889, July 2006 (http://www.hm-treasury.gov.uk/media/67B/68/csr07_releasingresources1_130706.pdf).
[d] *Hansard*, 7 December 2006, col. 435.
[e] Page 29 of National Audit Office, *Progress in Improving Government Efficiency*, HC802-I, Session 2005–2006 (http://www.nao.org.uk/publications/nao_reports/05-06/0506802i.pdf).
[f] Page 140 of HM Treasury, *Pre-Budget Report 2006*, December 2006 (http://www.hm-treasury.gov.uk/pre_budget_report/prebud_pbr06/prebud_pbr06_index.cfm).

8.2 Measuring public sector output and productivity

It is not easy to measure the output of a hospital – the amount of healthcare received by patients – or of a school – the amount of education received by pupils. The type of information available to measure output, typically counts of activities such as medical treatments or counts of service users such as numbers of pupils, may not be comprehensive enough to reflect all of the outputs of public services that are valued by society. For example, just as people are willing to buy contents insurance even if they never make a claim, they may also place a value on hospital treatment or help from the police being available should they need to use it. Output measures based on observable activities might be potentially misleading in cases where an important part of the service is hard to measure, such as fire or crime prevention. A decrease in the number of fires extinguished might incorrectly imply a fall in output, if the measure used did not encompass any offsetting increase in the extent of fire prevention activity. For other public services such as defence that are consumed collectively by society, no activity or output measures may be available at all.

Using measures of activities, such as counts of medical interventions, can also make it very difficult to measure improvements in the *quality* of service provided. For example, if scientific advances meant that fewer medical interventions were required to successfully treat a particular condition, this might be wrongly recorded as a decrease in output. One way around this is to try to incorporate information on *outcomes* such as levels of health or crime which will capture quality. But this poses a difficult measurement problem – how can we isolate, say, improvements in health that are due to public healthcare provision and not to other factors such as changing diet?

Using information on a comprehensive range of activities may be the best approach, but to measure the output of a whole sector such as education, it is often necessary to combine these various activities into a single output measure. The issue then is how to do so. Ideally, different outputs would be weighted together using information on the marginal social valuation of a unit of each output as a weight (e.g. the value of an extra GCSE grade compared with the value of an extra A level grade). In constructing aggregate measures of output for market sectors, prices provide the necessary information on marginal valuations of different goods and services and serve as weights. However, most public services are provided free at the point of use, so no price information is available to reflect the relative values of the various activities. Potential solutions include using information on the costs of different activities as weights or, for example in the health sector, aggregating different treatments using information on how each affects individuals' quality and length of life, captured by 'Quality Adjusted Life Years'.[2]

A recent review of the measurement of government output and productivity for the National Accounts, the Atkinson Review, made a number of recommendations for the measurement of output for public services.[3] Table 8.1 summarises some of the methods used (at that time) by

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[2] See D. Dawson et al., 'Developing new approaches to measuring NHS outputs and productivity, Final Report', CHE Research Paper 6 / NIESR Discussion Paper DP.264, 2005 (http://www.niesr.ac.uk/pdf/nhsoutputsprod.pdf).

[3] T. Atkinson, *Atkinson Review: Final Report – Measurement of Government Output and Productivity for the National Accounts*, HMSO / Palgrave Macmillan, 2005
(http://www.statistics.gov.uk/about/data/methodology/specific/PublicSector/Atkinson/final_report.asp).

the Office for National Statistics (ONS) and some of the recommendations from the final report. Many of the recommendations involve increasing the comprehensiveness of the output indicators collected for each service, improving the weights used to aggregate the different indicators and incorporating better measures of quality change. For example, with regard to quality change in the case of education, suggestions included using information on

Table 8.1. Measuring the output of public sector services: recommendations from the Atkinson Review

Function	Main components of measure	Main recommendations going forward
Health	Hospital cost-weighted activity index, Family Health Services (number of GP consultations etc.).	Better measures for primary care. Movement towards measuring whole courses of treatment. Ideas for measuring quality change.
Education	Pupil numbers – quality adjustment of 0.25% to primary and secondary schools. Cost weights by school type (nursery, primary, secondary and special schools).	Measure pupil attendance not pupil numbers. School cost weights to be updated annually. Update the quality measure for schools and develop a new extended measure, which might include measuring the value of education through increased earnings. New measures of output for initial teacher training and publicly funded nursery places.
Administration of social security	Number of benefit claims for 12 largest benefits. No allowance for collection of contributions.	Update the index for social security administration to include a wider range of benefits and more accurate measures of unit costs. Include an adjustment for accuracy and timeliness.
Administration of justice	Number of prisoners, legal aid cases, court cases and probation cost-weighted activity index.	More detailed measures for the criminal justice system, with possible quality adjustment to reduce value accorded to overcrowded prison cells. Further development of measures of the output of the criminal justice system as a whole.
Fire	Number of fires, fire prevention and special services. Then split into further sub-categories. Weights proportional to average staff hours spent on each sub-category.	Measure output on basis of weights that reflect the cost to the community of fire (damage to life and property).
Personal social services	Children and adults in care and provision of home helps. Cost-weighted index.	Wider and more detailed coverage in the measure of adult social services output. Extension of children's social services output measure. Development work on quality adjustments.

Source: Adapted from table 2.1 plus later chapters of T. Atkinson, *Atkinson Review: Final Report – Measurement of Government Output and Productivity for the National Accounts*, HMSO / Palgrave Macmillan, 2005 (http://www.statistics.gov.uk/about/data/methodology/specific/PublicSector/Atkinson/final_report.asp).

examination results at different ages and considering an adjustment to reflect the valuation of education for future earnings.

Constructing productivity measures also requires information on inputs, which is typically easier to come by, but issues still arise with regard to measuring quality. For example, measures such as simple headcounts of staff can be improved by taking account of numbers of hours worked and the skills of those employees.

In the case of some public services, the individuals using them can in a sense be thought of as inputs themselves, which has implications for the measurement of output and productivity. It might be desirable for productivity comparisons across different hospitals or schools, say, to take account of the characteristics of individuals using the service, such as their underlying health or initial numeracy skills. One way to do this would be to only compare providers operating in similar environments – for example, to compare the productivity of hospitals serving areas with similar demographic characteristics. An alternative would be to adjust the output measures used, using 'value added' measures of education outputs to take account of the fact that different schools may have intakes of pupils of different abilities.

8.3 Trends in public sector performance

This section documents and discusses trends in output and productivity in three areas of public spending – health, education and social security administration.

Health

Figure 8.1 shows index measures of NHS outputs and two measures of inputs for the NHS, with base year 1995 = 100. The two indices of the volume of inputs are ONS upper- and

Figure 8.1. Measures of health outputs and inputs, 1995=100
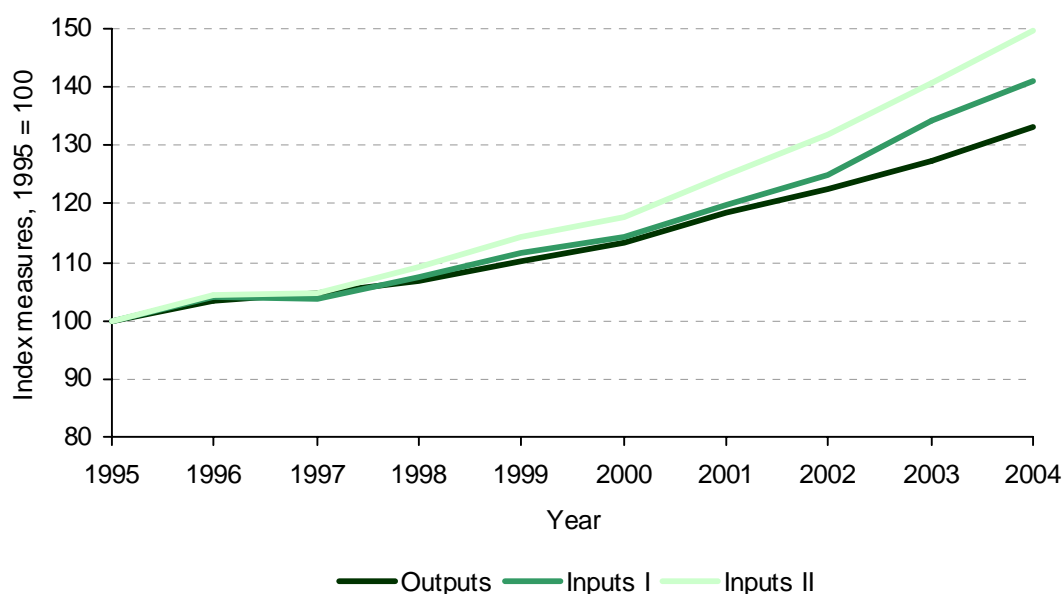
Sources: Output measure is National Accounts 2005. Input measures I and II are lower and upper bounds from table 13 of ONS, 'Public service productivity: health', *Economic Trends*, 628, 26–57, March 2006 (http://www.statistics.gov.uk/articles/economic_trends/ET628_Productivity_Heath.pdf).

lower-bound estimates. Even on the lower-bound estimate, it is clear that the growth in the volume of inputs outstrips the growth in the volume of outputs using this National Accounts measure.[4] But before inferring that productivity has fallen in later years, it is important to note that this output measure does not take account of potential quality improvements.

The Department of Health (DH) recently commissioned a study to investigate potential improvements to the measurement of the output and productivity of the NHS.[5] As shown in Table 8.1, the main measure of the output of the NHS is a cost-weighted index of activities covering hospital, primary care and community health services. The study makes methodological recommendations and suggestions for data collection to enable the construction of an output index using value weights based on health outcomes associated with different activities, using information on the effect of each activity on quality-adjusted life years, together with a value on waiting times.

The study also suggests ways of adjusting cost-weighted output measures for quality by incorporating factors such as survival rates, waiting times and patient satisfaction. Using data from 1999 onwards and incorporating these and other DH quality adjustments leads to an increase in the measured growth rate of output. Using this quality-adjusted output series, the ONS estimates that over the period 1999 to 2004, productivity growth was on average between –0.5% and +0.2% per year depending on which measure of the volume of inputs is used (using Inputs I versus Inputs II in Figure 8.1).[6]

Following the Atkinson Review, the ONS has also considered, and consulted on, a potential further adjustment to the measurement of the output of public services, concerned with how the value of public services changes in a growing economy – in the specific context of the health sector, whether or not the output of the NHS becomes more valuable in real terms as the economy grows, for example due to individuals valuing being in good health more as the returns to working (real earnings) rise. By making a further adjustment to the output series, allowing it to grow by 1.5% a year (the estimated rise in real earnings), in addition to the quality adjustments mentioned above, leads to estimated productivity growth being greater over the period 1999 to 2004, at on average between 0.9% and 1.6% per annum.[7]

But how informative is a measure incorporating this real earnings adjustment about the performance of the NHS? If the objective is to measure productivity growth for an individual organisation or service to determine whether or not there has been an increase in the efficiency with which it delivers goods and services, then any change in the valuation of that output should only translate into an increase in the real volume of output to the extent that it reflects a quality improvement, rather than any change in valuation driven by factors other than the actions of the service provider. Thus it seems that such an adjustment might only serve to muddy the waters in terms of understanding provider efficiency.

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[4] Health spending has grown particularly strongly since 2000; see Chapter 7.

[5] D. Dawson et al., 'Developing new approaches to measuring NHS outputs and productivity, Final Report', CHE Research Paper 6 / NIESR Discussion Paper DP.264, 2005 (http://www.niesr.ac.uk/pdf/nhsoutputsprod.pdf).

[6] Source: ONS, 'Public service productivity: health', *Economic Trends*, 628, 26–57, March 2006 (http://www.statistics.gov.uk/articles/economic_trends/ET628_Productivity_Heath.pdf).
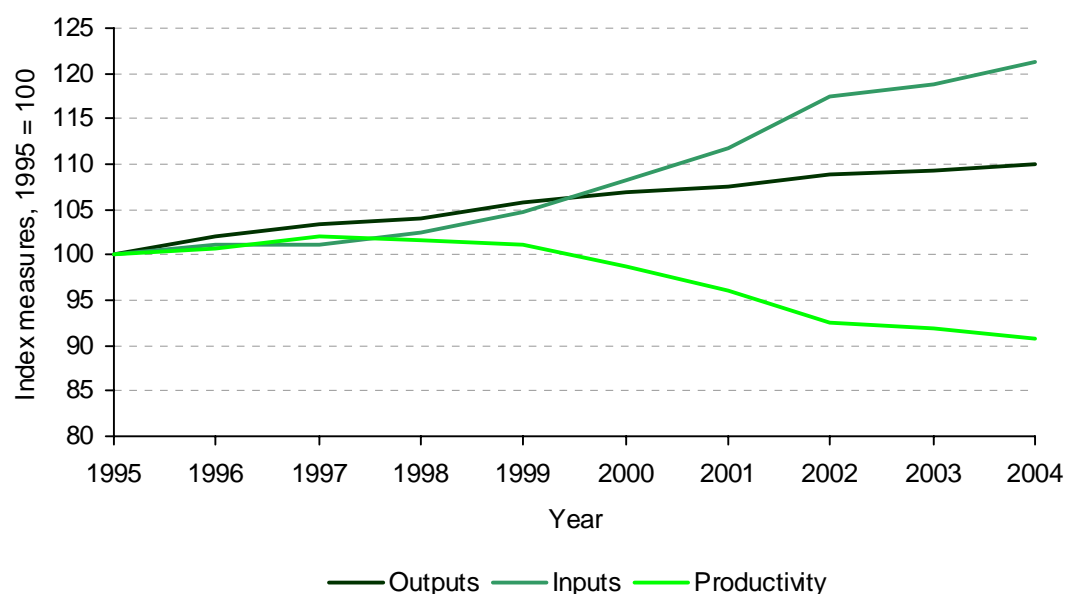
[7] Source: ONS, op. cit.

It is also informative to benchmark estimates of output and productivity growth against trends in related outcomes. For example, statistics from the early 1980s onwards show continued falls in infant mortality rates and increases in life expectancy and in 'healthy life expectancy'.[8] However, for outcomes such as life expectancy, it is difficult to isolate the contribution of the NHS as opposed to other factors such as diet and housing.

In summary, using the measures discussed in this section, the output of the NHS has certainly grown in recent years, and broad outcome measures such as life expectancy have improved. However, the measures do not provide strong evidence of productivity growth.

Education

Figure 8.2 shows index measures of outputs, inputs and productivity (the ratio of the output and input indices) as in the National Accounts for the education sector. For schools, output is measured using pupil attendance (following the Atkinson Review recommendation) with a +0.25% per annum quality adjustment.[9] For nursery schools and classes, output is measured using full-time-equivalent pupil numbers; for nursery free places, it is measured by the number of free places filled. Numbers of students are used to measure the output of initial teacher training courses and health professional courses. These different volume measures of output are aggregated together using costs as weights.[10]

Figure 8.2. National Accounts measures of education outputs, inputs and productivity, 1995=100

Source: ONS, 'Public service productivity: education', *Economic Trends*, 626, 13–37, January 2006 (http://www.statistics.gov.uk/articles/economic_trends/ET626_CeMGA.pdf).

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[8] See ONS, op. cit.

[9] The quality adjustment used here is the estimated trend improvement in GCSE results year-on-year in the mid-1990s, so naturally assumes that GCSE results can proxy for overall quality.

[10] Output is measured as in the National Accounts 2005.

The volume of inputs is measured by deflating nominal government expenditure on education by a series of price deflators (some of which are education-specific, some not).[11] Education expenditure includes expenditure on labour inputs (e.g. teaching and support staff), expenditure on goods and services (teaching aids, electricity, transport etc.) and capital consumption (an estimate of the amount of capital services delivered in each year from durable inputs such as computers and buildings). In terms of expenditure, labour inputs account for around three-quarters of total education inputs.

In each case, the indices are based at 100 in 1995. Over the period, inputs grow strongly, as might be expected given that there were 35,000 more teachers in 2006 than in 1997[12] and schools capital spending in England has grown from £1.4 billion in 1997–98 after adjusting for economy-wide inflation to £4.0 billion in 2004–05. In pure volume terms, overall inputs were about 20% higher in 2004 than in 1997 when Labour came to power.

Output also rises using the National Accounts measure, due mainly to rising levels of pupil attendance over the period. However, for much of the period, annual increases in the input index outstrip the corresponding increase in the output index; hence the index for this measure of productivity is falling for a large part of the period.

However, given that the output series is based on the number of full-time-equivalent pupils in the state sector adjusted by a constant +0.25% per year, the only way the government could have influenced the trend is to alter school attendance levels,[13] since the quality adjustment is constant.

A carefully constructed annual quality adjustment would provide a more accurate measure of performance. Experimental output series of this type have been produced by the ONS.[14] The first output series in Figure 8.3 reweights pupil attendance by the proportion of pupils achieving five GCSEs at grades A*–C each year – this is the GCSE threshold adjusted output series. The second output series reweights pupil attendance by the average progress made by cohorts over the four Key Stages (KS)[15] – this is the adjusted KS progress output series. Also shown on Figure 8.3 is how the output series evolved under the constant quality adjustment of +0.25% per year.

Looking at Figure 8.3, it can be seen that the two quality weighting techniques produce quite different results. The GCSE threshold methodology leads to output rising over the entire period and more quickly than under the old constant quality adjustment. This is primarily due to the fact that the proportion of pupils achieving five GCSEs at grades A*–C has risen much faster each year between 1998 and 2004 – an annualised average of 2.5% per year – than the constant quality adjustment of 0.25%, which is based on the average improvement in the mid-

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[11] For more details, see ONS, 'Public service productivity: education', *Economic Trends*, 626, 13–37, January 2006 (http://www.statistics.gov.uk/articles/economic_trends/ET626_CeMGA.pdf).

[12] Measured as the change in the number of full-time-equivalent teachers in the maintained sector between January 1997 and January 2006 according to http://www.dfes.gov.uk/trends/index.cfm?fuseaction=home.showChart&cid=3&iid=15&chid=58.

[13] For example, by reducing truancy, increasing staying-on rates or attracting more pupils who would otherwise have gone to the independent sector.

[14] ONS, op. cit.

[15] For precise details of how this is calculated, see Department for Education and Skills, *Measuring Government Education Output in the National Accounts*, 2005 (http://www.dfes.gov.uk/research/data/uploadfiles/RW45.pdf).

1990s. This can be seen in Figure 8.4, which shows the proportion achieving five GCSEs at grades A*–C between 1989 and 2006, but only for England. The improvement in this measure during the mid-1990s (e.g. 1994–95) also appears slightly anomalous compared with the much stronger growth over other years. The average annualised growth rate over the whole period from 1989 to 2006 is in fact 3.4%; hence the constant quality adjustment does not appear to be representative of longer historical trends.

Figure 8.3. Experimental measures of education outputs, 1998=100
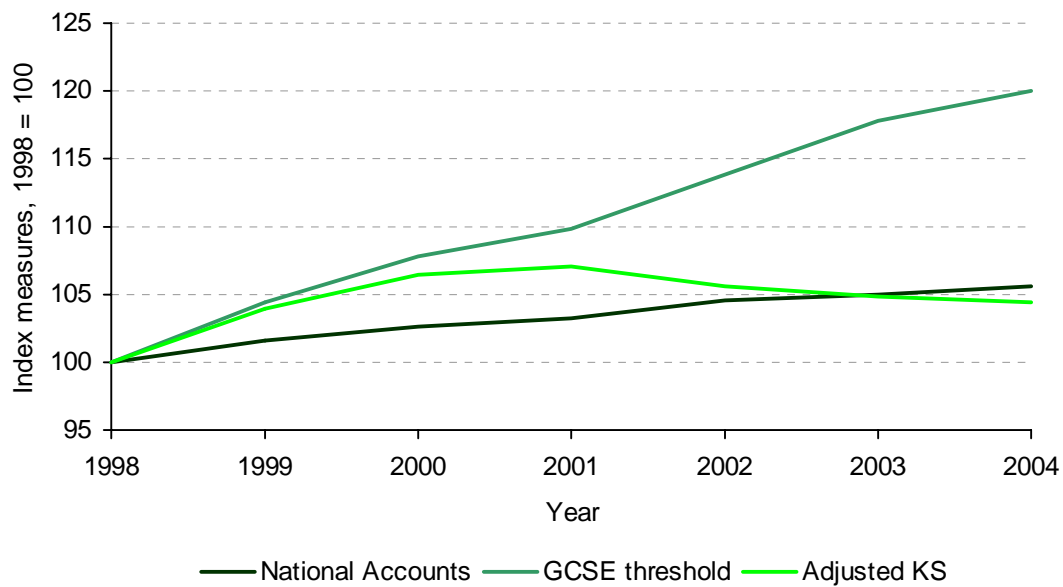
Source: ONS, 'Public service productivity: education', *Economic Trends*, 626, 13–37, January 2006 (http://www.statistics.gov.uk/articles/economic_trends/ET626_CeMGA.pdf).

Figure 8.4. GCSE results: proportion of 15-year-olds achieving five GCSEs at grades A*–C, 1989–2006
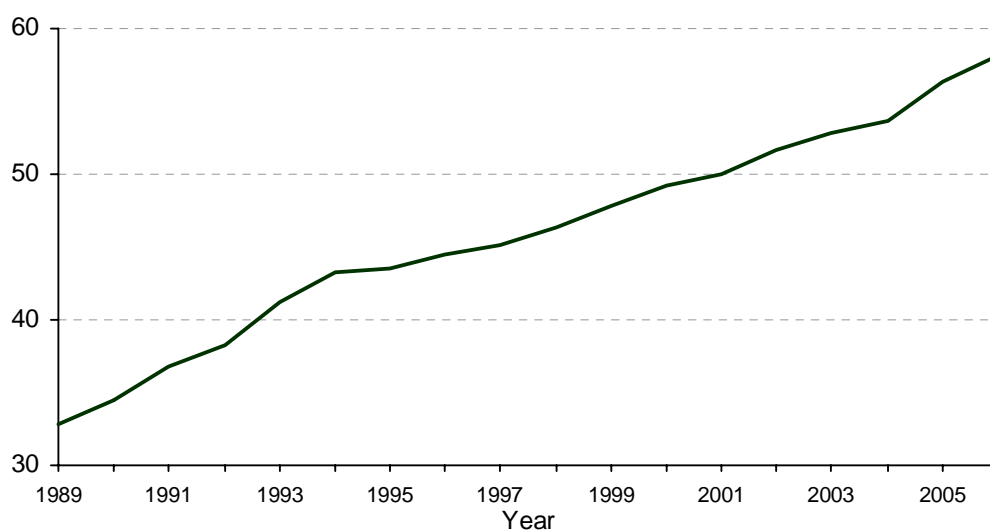

Note: These figures are for England only.
Source: http://www.dfes.gov.uk/trends/upload/xls/5_5t.xls.

The adjusted KS progress methodology shows a quite different pattern from both measures that adjust for quality using solely GCSE results. It shows output rising between 1998 and 2001, then falling slightly between 2001 and 2004, although output still remains higher at the end of the period than at the start. The different output trends are primarily due to different trends in the average progress between Key Stages and the proportion of pupils achieving five GCSEs at grades A*–C. The KS progress quality index used to adjust the output series increased between 1998 and 2001 at an annualised average of 2.1% per year, but then fell at an annualised average of 1.1% per year (driven mainly by lower changes in average points scores between KS2 and KS3, and between KS3 and GCSE).[16]

Figure 8.5 shows productivity as measured using the two experimental series. It shows largely constant productivity according to the GCSE threshold methodology and, from 1999, continually falling productivity with the adjusted KS progress measure. Taking the three methodologies together, it is clear that the trends are highly dependent on the quality adjustment chosen, with productivity either falling or remaining roughly constant.

Figure 8.5. Experimental measures of education productivity, 1998=100
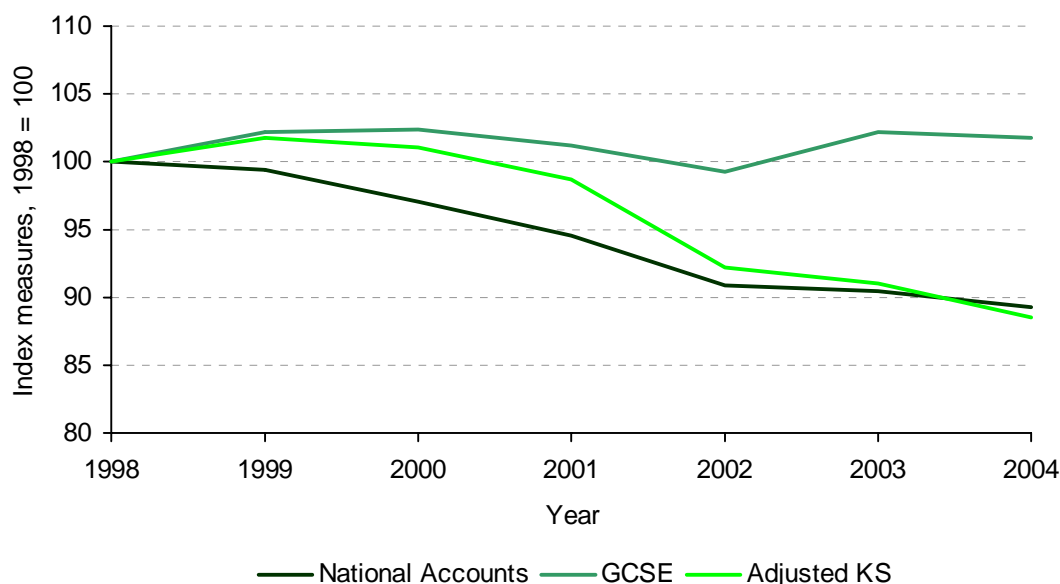
Source: ONS, 'Public service productivity: education', *Economic Trends*, 626, 13–37, January 2006 (http://www.statistics.gov.uk/articles/economic_trends/ET626_CeMGA.pdf).

So, which feels like the better measure to account for changing quality? The constant adjustment by definition does not take into account the fact that quality may have changed at different rates over the period, and does not seem representative of longer historical trends in that particular indicator. Comparing the annual quality adjustments, the adjusted KS progress may have an advantage in that it takes account of more than just one cohort of pupils in each year and covers performance across the whole schooling system rather than just at age 16. However, the ONS also highlights drawbacks with this measure – for example, difficulties in

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[16] See Department for Education and Skills, *Measuring Government Education Output in the National Accounts*, 2005 (http://www.dfes.gov.uk/research/data/uploadfiles/RW45.pdf).

constructing a UK-wide measure due to differences in examination systems in different nations.

Naturally, more general outcomes associated with the education sector are important. These might include higher earnings for individuals, lower crime rates or improved social cohesion. However, even if some of these outcomes are measurable, it can be difficult to identify the exact contribution the education sector makes to them.

In summary, the figures presented show at least modest rises in the output of the education sector in recent years, possibly combined with lower productivity. However, it is worth noting that higher output may be desirable, even if it comes at the cost of reduced productivity. Moreover, it could well be that the higher levels of inputs observed are also improving outputs that are not easily measured. For instance, lower class sizes may not be substantially improving exam results, but they could allow teachers to spend more time with students to develop other skills. One good example would be social skills, which have been found to be important for determining future labour market outcomes.[17] However, by virtue of being difficult to measure, particularly on a UK-wide basis over time, it is very difficult to say what has happened to non-cognitive outcomes over recent years, or whether lower class sizes can improve them for that matter.

Social security administration

Figure 8.6 shows ONS index measures of outputs, inputs and productivity for social security administration (SSA). Note that the relevant expenditure is the cost of *administering* social

Figure 8.6. Measures of social security administration outputs, inputs and productivity, 1998=100
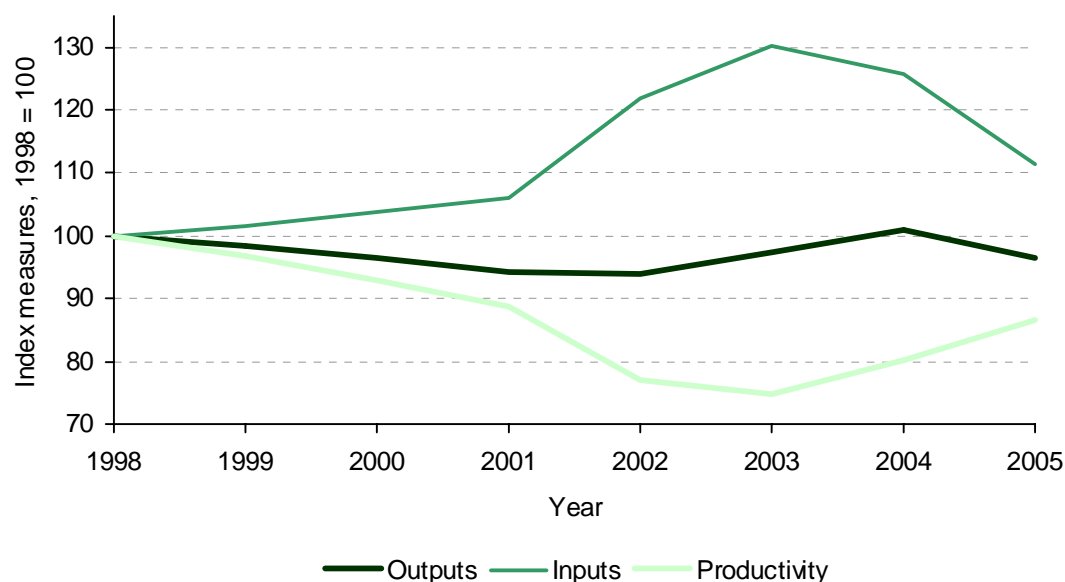
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[17] See P. Carneiro, C. Crawford and A. Goodman, 'Which skills matter?', CEE Discussion Paper CEEDP0059, 2006 (http://cee.lse.ac.uk/cee%20dps/ceedp59.pdf).

security, rather than the total cash value of social security benefits (these are discussed briefly below). For SSA, output is measured as the sum of new claims that have been processed and the load arising from the continuation of existing payments on 24 different SSA activities, including the provision of working-age benefits, disability and carer benefits, pension services, and housing and child benefit. Following the Atkinson Review recommendations, these are weighted by the unit costs associated with each activity in 2004–05 and by estimated unit costs where appropriate. This leads to the cost-weighted activity index shown in Figure 8.6, with base year 1998 = 100.

The volume of inputs is measured by deflating nominal government expenditure on SSA using separate deflators for Department for Work and Pensions (DWP) and non-DWP expenditure. SSA expenditure includes expenditure on compensation of employees (e.g. Jobcentre Plus staff), procurement (office consumables, consultancy services etc.) and capital consumption.[18] In terms of expenditure, labour inputs and procurement account for just less than one-half of total SSA expenditure *each* – capital consumption accounts for only a small proportion. The input series is presented in Figure 8.6 as an index with base 1998 = 100.

Over the entire period, measured output has fallen slightly, whilst inputs have risen, leading to a fall in productivity. This, however, masks quite strong changes within the period. First, inputs rose sharply between 2001 and 2002, almost certainly due to extra inputs required to set up DWP in June 2001 and continued DWP modernisation programmes.[19] Inputs also rose sharply in 2003 to cover the extra costs of administering the new pension credit (introduced in October 2003), which had a wider coverage than its predecessor the minimum income guarantee. Inputs have since fallen back to levels comparable to those in 2001. The fall in output over the period is interrupted by a brief increase in output in 2003 and 2004 associated with the new pension credit (ONS shows that of the 3.4 percentage points of output growth in 2003, 3.9 percentage points can be attributed to the Pension Service, with other items contributing negative amounts).

As a result of these trends in inputs and outputs, productivity is seen to fall between 1998 and 2003, after which it experiences an increase, though still remaining below the 1998 level at the end of the period in 2005.

These estimates of inputs, outputs and productivity do not account for qualitative changes in SSA, which could include the accuracy and speed at which new and existing claims are processed. Evidence from DWP suggests that both of these are improving, and thus trends in output and productivity as presented may be too low once quality improvements are accounted for. Other qualitative changes that it would be sensible to account for include the degree of fraud, customer compliance costs and customer satisfaction levels.

One significant quantitative omission from SSA is tax credits administered by HMRC. These are not included as they are deemed to be part of the tax system. Much evidence suggests that the working tax credit and the child tax credit have been poorly administered compared with

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[18] Note that it is only expenditure on *social security* administration that is counted here; *economic affairs* administration on, for example, welfare-to-work programmes has not been counted.

[19] DWP was formed from the former Department for Social Security and the Employment Service, and since then various DWP agencies have been created such as Jobcentre Plus and the Pension Service.

other benefits, since their introduction in April 2003.[20] However, in terms of staff cost per application, tax credits come out quite favourably (£34) compared with some other major benefits such as income support (£60) and incapacity benefit (£47).[21] This does not necessarily mean that tax credits are actually delivered in a more productive manner, as the quality of administration may be lower. Given that over half of all complaints to HMRC for the last three years were regarding tax credits and that overpayments totalled £1.8 billion in 2004–05,[22] this may well be the case. Moreover, this measure does not account for non-staff expenditure (i.e. spending on items such as computers and buildings), which we know to be quite high for tax credits (£270 million in 2004–05[23]) but do not know for individual DWP benefits such as income support (IS) or incapacity benefit (IB).

Tax credits do not come out as favourably when looking at a measure of total staff costs as a proportion of the value of benefits paid out. For every £1 spent on tax credits, about 1.3p is spent on staff costs, compared with less than 1p for IB and IS, although this is less than the 2p spent on jobseeker's allowance. Once non-staff costs are included, for every £1 spent on tax credits, 3p is spent on administration.[24]

It is also interesting to look at *outcomes* that are to some extent associated with the administration of social security, though more so with the value of benefits delivered, alongside the measures of SSA output. The most prominent of these outcomes are levels of child poverty and pensioner poverty. Child poverty was about 700,000 lower in 2004–05 than in 1998–99[25] – a substantial fall of about 21%, but not large enough to meet the government's target to reduce it by one-quarter in 2004–05 compared with 1998–99. Moreover, measured after housing costs, a pensioner is now less likely to be in poverty than a non-pensioner.[26]

While these are informative, clearly such outcomes are also affected by a range of factors other than the output of the administration of social security and the value of benefits provided – note that entitlement to benefits has increased quite substantially in recent years for both pensioners and families with children. Indeed, it is very difficult to attribute the degree to which changes in these measures are due to changes in the performance of SSA. One should again note a potential tension between outcomes that society values, such as

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[20] See the Comptroller and Auditor General's report on the Inland Revenue's accounts for 2003–04, Inland Revenue, *Annual Report and Accounts*, HC1062, TSO, London, 2004 (http://www.hmrc.gov.uk/pdfs/report2004.pdf).

[21] Note that the figures for tax credits relate to 2004–05 and are taken from House of Commons Committee of Public Accounts, *Filing of Income Tax Self Assessment Returns*, HC681, Session 2005–06 (http://www.parliament.the-stationery-office.co.uk/pa/cm200506/cmselect/cmpubacc/681/681.pdf), whilst the figures for IS and IB relate to 2003–04 and are taken from National Audit Office, *Helping those in Financial Hardship: The Running of the Social Fund*, HC179, Session 2004–05 (http://www.nao.org.uk/publications/nao_reports/04-05/0405179.pdf).

[22] Taken from HMRC, *2005–06 HMRC Resource Accounts and Trust Statement*, HC1159, Session 2005–06 (http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageVAT_ShowContent&propertyType=document&columns=1&id=HMCE_PROD1_025710).

[23] This is calculated by subtracting staff costs as documented in http://www.parliament.the-stationery-office.co.uk/pa/cm200506/cmselect/cmpubacc/681/681.pdf from total administrative costs as documented in http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageVAT_ShowContent&propertyType=document&columns=1&id=HMCE_PROD1_025710.

[24] Taken from HMRC, *Annual Report and Accounts 2004–05*, Cm. 6691, Session 2005–06 (http://customs.hmrc.gov.uk/channelsPortalWebApp/downloadFile?contentID=HMCE_PROD1_025022).

[25] Child poverty measured as the number of children living in households with incomes below 60% of the median before housing costs.

[26] Department for Work and Pensions, *Households Below Average Income 1994/95–2004/05*, 2006, (http://www.dwp.gov.uk/asd/hbai/hbai2005/contents.asp).

reductions in income poverty and inequality, and productivity in the administration of benefits and tax credits. For instance, increasing productivity in administration may help to reduce poverty and inequality. On the other hand, if the use of means-tested benefits implies more complex administrative procedures but is better at directing resources towards those in poverty, a move in this direction might improve outcomes at the potential expense of reduced administrative productivity. The use of means-tested benefits (e.g. pension credit) may also help to improve outcomes such as poverty and inequality with lower increases in benefit expenditure, as compared with what might be necessary with non-means tested benefits (e.g. basic state pension). This is an argument the government used in its 2002 Pensions Green Paper.[27]

8.4 Conclusion

The demands we place upon our public services are many and multi-dimensional, so it is unsurprising that accurately measuring their output is very difficult indeed. Outputs that society values, such as fire prevention, are not easy to quantify, and an absence of price information means that it is difficult to aggregate up individual outputs into a provider- or sector-level measure.

Using National Accounts measures, the output of the health and education sectors has been rising but productivity has not, as increases in the volume of inputs have outstripped measured output growth. The National Accounts output measures are unlikely to be accurately capturing changes in the quality of services. Adjustments for quality change in these sectors typically increase measured output growth, but the exact magnitude of changes appears to be quite sensitive to the specific quality adjustment chosen. However, it is possible that increased output might be desirable even in the absence of productivity gains, and further productivity growth might be difficult to achieve in some sectors.

In general, output measures should aim to be as comprehensive as is feasible – for example, to provide an accurate picture of performance, measures should, as far as possible, incorporate non-targeted outputs in addition to those that are subject to performance targets. The presence of unmeasured outputs, which are nonetheless valued by society, should also be taken into consideration when interpreting performance measures.

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[27] Department for Work and Pensions, *Simplicity, Security and Choice: Working and Saving for Retirement*, Cm. 5677, 2002 (http://www.dwp.gov.uk/consultations/consult/2002/pensions/gp.pdf).