PUBLIC SECTOR EFFICIENCY

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The purpose of this presentation is…

- to offer a definition of public sector efficiency
- to set out why public sector efficiency is important
- to spell out the challenges to measuring public sector efficiency
- to set out what the data show in broad terms
- to summarise the key drivers of public sector efficiency and some case studies of what can be done, and
- to offer some brief thoughts on future work
What do we mean by public sector efficiency?

Public sector efficiency refers to the process of turning public money into desired outcomes.

**The Public Sector/Service Production Process**

A simplified model of how public money is turned into inputs, outputs and outcomes.

- **Economy**: How cheaply are the inputs being purchased?
- **Productivity**: How much output is produced for each unit of input?
- **Effectiveness and resilience**: How do the outputs affect desired outcomes?
- **Technical Efficiency**: How well are inputs turned into outputs?
- **Allocative Efficiency**: Are the right outputs being produced?

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**Public Sector Efficiency**

Relevant to the entire process of turning public money into desired outcomes.
What do we mean by public sector efficiency?

Public sector efficiency can be defined in two distinct ways: technical and allocative.

**Technical efficiency**

*‘Doing things right’*

Doing the things we currently do either at less cost, or getting more outputs from what we currently do at the same cost, or some combination of the two.

**Allocative efficiency**

*‘Doing the right things’*

Finding wholly different ways of achieving desired outcomes – at less or substantially less cost. Service transformation is crucial to allocative efficiency and unlocking transformational improvements in efficiency.
Why is public sector efficiency important?

It matters to the difference the public sector and public services make to outcomes the public and policy makers are concerned about:
- Health
- Educational attainment
- Public safety
- Etc.

It matters to productivity in the wider economy

Giordano et al’s IMF working paper suggests firms in an Italian province with above median public sector efficiency achieve higher levels of output per Euro spent on salaries (+11%)

It matters to the burden of taxation and fiscal sustainability

The more efficiently services are provided, all other things being equal, the greater the fiscal sustainability


Public Sector Net Debt as a % of GDP in the UK under different rates of public sector productivity growth

Source: Office for Budget Responsibility, 2013
What are the challenges in measuring public sector efficiency?

Analysing public sector efficiency poses a number of measurement challenges

**Problems**

- **Consistency**: How do we ensure consistency in measuring costs?
- **Costs into volumes**: How do we turn cost and price data into volumes of inputs and outputs?
- **Quality**: How do we define and measure the quality of outputs?
- **Attribution**: How can we attribute changes in outcomes to changes in outputs? Especially when changes in outcomes may take time to happen

**Potential Solutions**

- **ONS Guidance**: The ONS has produced guidance on what data is needed to construct a cost weighted index of inputs and outputs that can be used to construct an efficiency index.
- **Quality adjustment & public goods**: When outcomes are affected by many factors (e.g. health), quality adjustment can be used to account for the effectiveness of the outputs produced. A range of methods exist to measure quality, e.g. QALYs, or client satisfaction. Where the outcome is a public good (e.g. defence) assessing the impact of outputs on outcomes is more difficult, and may require an interdisciplinary approach – for example, using an independent risk based assessment.

While all efficiency data available are imperfect and subject to caveats, none of the problems around defining and measuring efficiency are insurmountable.
What public sector activities are we interested in?

Public sector activities can be broken down into three broad categories: back office, transactional and front line

- **Back office** services including Human Resources and Finance.
- **Transactional** services including benefit administration and tax collection.
- **Front line** public services including schools, policing, health, social care, etc.

The efficiency of back office and transactional services is more readily measurable (if not without challenges) but by far the greatest public sector spend is on frontline services.
What do the data show?
(a) Across the public sector as a whole

Over the longer term, private sector productivity has grown faster than public sector productivity, but since 2010 the reverse has been true.

Productivity, Index 1997=100

Productivity, Index 2010=100

Total economy productivity
Inputs: Hours worked
Outputs: Gross Domestic Product

Market sector productivity
Inputs: The volume of labour (adjusted for the skill mix of the workforce), and the volume of capital used.
Outputs: Total economic output of the market sector (measured by Gross Value Added, GVA).

Total public services productivity
Inputs: Inputs can be broken down into three components. They are labour, intermediate consumption (expenditure on goods and services) and consumption of fixed capital.
Outputs: are measured in one of 4 ways:
(a) outputs are assumed to equal inputs (e.g. defence spending) – 38% of total
(b) quality adjusted outputs equal inputs – 3%
(c) quantity alone – 12% (e.g. social security administration and children’s social care)
(d) quality adjusted – 47%

Source: ONS
https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/datasets/growthratesandindicesfortotalpublicserviceoutputinputsandproductivitytable1
Much of the historic productivity increase has been driven by reduced average length of hospital stay and shifting activity to day cases. This allows fewer beds and nurses per episode, though the average acuity of patients in hospital increases.

A combination of pay restraint, improved labour productivity, centralised procurement, reduced use of agency staff, the abolition of some tiers of management and greater use of generic drugs have delivered significant efficiency savings over the past 7-8 years.
Analysis of the technical efficiency of local government: What we’ve done

The Ministry of Housing, Communities and Local Government has recently analysed, in some detail, the technical efficiency of local government. This focused on local authority expenditure on different services per unit of output, adjusted for quality, i.e. a lower unit cost represents (all else being equal) greater efficiency.

The analysis compares a local authority with similar local authorities for service quality to assess the potential for efficiency savings. A ‘similar local authority’ is defined by controls for service quality, wage levels and property costs.

The analysis controls for different local authority wage and property costs by including an Area Cost Adjustment. The quality measures include, for example: children entering a child protection plan for a second time, social care quality adjusted life years and roads considered in need of maintenance.
Analysis of the technical efficiency of local government: What we’ve found

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Net current expenditure (16/17)</th>
<th>Share of efficiency savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Social Care</td>
<td>£15bn</td>
<td>31%</td>
</tr>
<tr>
<td>Children’s Social Care</td>
<td>£9bn</td>
<td>19%</td>
</tr>
<tr>
<td>Environmental protective and cultural services excl. waste &amp; buses*</td>
<td>£4bn</td>
<td>10%</td>
</tr>
<tr>
<td>Highway maintenance</td>
<td>£2bn</td>
<td>10%</td>
</tr>
<tr>
<td>Waste*</td>
<td>£3bn</td>
<td>9%</td>
</tr>
<tr>
<td>Planning &amp; Development</td>
<td>£1bn</td>
<td>8%</td>
</tr>
<tr>
<td>Corporate &amp; Democratic*</td>
<td>£1bn</td>
<td>4%</td>
</tr>
<tr>
<td>Homelessness</td>
<td>&lt;£1bn</td>
<td>3%</td>
</tr>
<tr>
<td>Fire &amp; Rescue</td>
<td>£2bn</td>
<td>3%</td>
</tr>
<tr>
<td>Subsidised buses</td>
<td>£1bn</td>
<td>2%</td>
</tr>
</tbody>
</table>

*Does not account for quality. For the purposes of illustration efficiency estimates have been halved.

The scope for efficiency improvements has been estimated assuming all authorities operate at the median level of efficiency of similar authorities.
The scope for efficiency savings is not, however, evenly distributed across local authorities. The authorities with the greatest potential for efficiency savings vary from service to service.
Our analysis also suggests that those authorities that are relatively less efficient tend to be those that are less resilient in terms of financial sustainability.

Local Authority financial sustainability is measured using two metrics:

(i) Financial reserves as a % of non-discretionary spending (Reserves)

(ii) Level of spending on non-discretionary activities as a % of total core spending power (Responsibilities)

*Core spending power measures the core revenue funding available for local authority services, including Council Tax and locally retained business rates. Spending on non-discretionary activities can exceed 100% of core spending given funding from other sources and reserves.
Drivers of public sector efficiency – the key factors

Markets & Competition
- New entry competition/market creation
- Intelligent outsourcing
- Cost benchmarking
- Strengthened incentives

Service re-design & alternative delivery mechanisms
- Prevention/early intervention
- Front-line service integration
- Reconfiguring services
- Empowering users: Co-production & co-design

Hard budget constraints + spending flexibility
- Holding down pay
- Pay systems
- Shared services
- Sharing best practice
- Workforce capability & leadership
- Organisational structure
- Effective use of ICT
- Channel shift
- Technological advances
- Effective use of data

There is no efficiency ‘silver bullet.’ There are many levers that need to be pulled to improve public sector efficiency.
Some case studies

• Public Service Data Dashboards
• Benchmarking: The Model Hospital
• The London Rough Sleeping Social Impact Bond
• The Troubled Families Programme
• Preventative Health Care
• Predictive Analytics
Public Service Data Dashboards

What are they?

- A means of providing information on inputs, outputs and outcomes in one place
- Numbers that Government departments recognise
- Timely data drawn together by the Office for National Statistics. Incorporating impartial guidance on interpretation and comparison of statistics
- Outcomes which map broadly to Government’s single departmental plans

Which drivers of public sector efficiency do they address?

- Effective use of data
- Effective use of ICT
- Cost benchmarking

What do they show?

Key data for four Departments: Department of Work and Pensions, Department of Health and Social Care, Department for Education and Ministry of Justice.

Source: ONS
The Model Hospital is a free online digital service for National Health Service staff and leaders to help identify performance variation and local opportunities to improve both productivity and quality on the National Health Service front line.

It breaks down key metrics across all the activity of an NHS service provider.

What is it?

Which drivers of public sector efficiency does it address?

- Sharing best practice
- Effective use of data
- Cost benchmarking

What are the benefits?

Helping to deliver an estimated £1.45bn of savings from 2017-18

The model hospital online service allows a service provider to access the efficiency gains they could realise if they performed as well as the median or better hospitals in their ‘peer group’ (hospitals with most similar attributes and context).

Source: NHS Improvement.
The London Rough Sleeping Social Impact Bond

What is it?

The London rough sleeping SIB was a four year programme designed to bring new finance and new ways of working to improve the outcomes for a cohort of rough sleepers whose needs were not being met by existing services.

It aimed to test if outcomes could be improved through a payment by results structure.

Which drivers of public sector efficiency does it address?

- Strengthened incentives
- Front-line service integration
- Effective use of data

How was it evaluated?

Comparison of outcomes using administrative data for SIB cohort and control group. Assessment of impact on rough sleeping and wider outcomes.

Findings

The results show that, when compared to a well-matched comparison group, the intervention significantly reduced rough sleeping over a two year period.

On average the intervention group (the SIB group) had significantly fewer episodes of rough sleeping compared to the comparison groups.

After two years: the mean number of rough sleeping contacts for the SIB group was 9.2 compared to 13.9 for the comparison group. 40% of the SIB cohort did not sleep rough at all in the two years after the start of the intervention compared to 33% of the comparison group.

The Troubled Families Programme

What is it?

A programme that aims to help families placing high costs on public services.

Programme runs between 2015-2020

Reaching 400k families

Adults or children involved in crime or anti-social behaviour

Children not attending school regularly

Adults out of work

Children who need help or are in need of or subject to a child protection plan

Families affected by domestic violence and abuse

Parents and children with a range of health problems

Which drivers of public sector efficiency does it address?

Prevention/early intervention

Reconfiguring services

Effective use of data

Workforce capability & leadership

Front-line service integration

Strengthened incentives

Sharing best practice
How has it been evaluated?

**Impact Analysis** using linked administrative datasets to gather outcome data on both an intervention group and comparison group.

**Cost Benefit Analysis**, applied to the Impact Analysis findings, using unit cost data on different services and other evidence to estimate public value and fiscal benefits.

What is the scale of the administrative linked data?

*In December 2017, around 295K families were matched to administrative datasets...*

295,435 families in total

248,528 families in the intervention group

46,907 families in the comparison group

864,205 individuals in the intervention group

170,080 individuals in the comparison group

Which data is being linked?

- **CRIME**
  - convictions
  - pupil referral unit
  - sentence type
  - sentence length
  - educational attainment (KS1/2/3 scores)
  - special educational needs

- **EDUCATION & CHILD SAFEGUARDING**
  - pupil referral unit
  - school absence
  - exclusions
  - type of benefits
  - employment
  - tax credits
  - pensions
  - nature of health problems

- **EMPLOYMENT & BENEFITS**
  - pay & tax

+ data from every upper tier local authority
Smaller proportion of Looked After Children in intervention group than comparison group.

Smaller proportion of adults given custodial sentences in the intervention group in the two years after joining the programme.

<table>
<thead>
<tr>
<th>Anytime within two years after programme:</th>
<th>Custodial sentence</th>
<th>Cautioned</th>
<th>Convicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of adult offenders on the programme</td>
<td>1.2%</td>
<td>1.9%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Proportion of adult offenders in the comparison group</td>
<td>1.6%</td>
<td>2.2%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Difference</td>
<td>-0.4***</td>
<td>-0.3</td>
<td>-0.3</td>
</tr>
</tbody>
</table>

Note: statistically significant difference; *** p value <0.001.

These impacts are sufficient to produce outturn monetised benefits greater than the costs.
Preventative Health Care

What is it?

Preventative health care is about stopping problems (e.g. by vaccination or stopping smoking); spotting problems early (e.g. screening for illness); and maintaining independence (e.g. rehabilitation). The National Health Service currently spends around £97bn on treatment and £8bn on preventative care.

Which drivers of public sector efficiency does it address?

Cost benchmarking  Prevention/ early intervention  Technological advances  Effective use of data

What are the benefits?

It promotes improved allocative efficiency – shifting resources to more effective interventions.

To become more technically efficient, we need to reduce input costs and / or inputs per unit of output.

NHS total factor productivity growth has outperformed the wider public sector and UK economy in the last 20 years.

To become more allocatively efficient, we need to produce more effective outputs and fewer of the less effective ones.

It costs the National Health Service ~ £15k to produce one QALY. By contrast public health interventions have a QALY of around £8k – though there is large variation.

Sources: Marginal cost per Quality Adjusted Life Year (QALY) (York University research); Owen et al (2017) - https://www.ncbi.nlm.nih.gov/pubmed/28977629
Predictive Analytics

Which drivers of public sector efficiency do they address?

- Prevention/early intervention
- Effective use of data
- Effective use of ICT
- Technological advances

What is it?

Aim

To improve the effective targeting of services towards vulnerable children and other groups

Method

Develop predictive risk modelling tools to assist child welfare screening and other decisions

What are the benefits?

At least 53 local authorities and 14 police forces are using predictive algorithms in the UK for applications as varied as traffic management and identifying children at risk of neglect or abuse. By allowing earlier intervention and better targeting of interventions they help to improve outcomes for citizens, reduce costs and improve efficiency.

Photo: Cate Dingley for The New York Times


### Assessment of the scope for improving efficiency further

**Drivers of efficiency**

<table>
<thead>
<tr>
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<th>Short term</th>
<th>Medium term</th>
<th>Long term</th>
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<tbody>
<tr>
<td>Hard budget constraints and spending flexibility</td>
<td>££££</td>
<td>£££</td>
<td>£</td>
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<tr>
<td>Markets and competition</td>
<td>£££</td>
<td>££££</td>
<td>££</td>
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<tr>
<td>Service redesigns and alternative delivery mechanisms</td>
<td>£££</td>
<td>££££</td>
<td>££</td>
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<tr>
<td>Organisation and workforce</td>
<td>££££</td>
<td>£££</td>
<td>££</td>
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<tr>
<td>Technology, data and targeting</td>
<td>£</td>
<td>££</td>
<td>££££</td>
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**Short term:** Implemented in the next 1 to 2 years

**Medium term:** Implemented in the next 5 years

**Long term:** Implemented beyond the next 5 years

£ limited scope for efficiencies,
££ some scope for efficiencies,
££££ substantial scope for efficiencies

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Our analysis of past trends and future scope suggests:

- Hard budget constraints and organisational and workforce changes – including pay constraint – are powerful drivers in the short run.
- Service re-design and more competition matter in the medium term.
- Technology and data are longer term drivers.

However, there is potential for these drivers to be mutually reinforcing.
(a) Public Value and the Public Value Framework:

What is it?

A new framework to build a stronger public value and efficiency culture at all levels across the public sector. It is currently being piloted and the framework refined.

Government departments will be required to report on public value performance and the improvements they will make against the framework in their 2019/20 Single Departmental Plans.

Public value is expected to play a key role in the 2019 Spending Review

(b) Public Sector Efficiency Group

What is it?
A cross-departmental analysts’ group that meets every 3-4 months, comprising of colleagues across Whitehall with an interest in public sector efficiency.

What does it do?

i) Bring together evidence on efficiency trends and drivers.
   - UK and international evidence ➔ Literature reviews
   - Departments’ efficiency stories ➔ Department papers
   - Advice from experts and practitioners ➔ Experts workshops

ii) Draws out insights for achieving further efficiency improvements.

iii) Disseminates findings from key pieces of analytical work and research and produces reports.

(c) Promoting data analytics and evidence of what works across the wider public sector

The Ministry of Housing, Communities and Local Government and the Cabinet Office have established a local authority what works and data analytics network. There are now also 12 Office of Data Analytics across local government.

(d) Office for National Statistics

Ongoing work by the ONS Public Sector Efficiency Measurement Unit to improve data and statistics.