

Measuring, negotiating and improving productivity in the public services

Defining public sector productivity: What issues are at stake?

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Productivity

Productivity is commonly understood as...

- The relation of input to output
- Productivity increases when input falls in relation to output or output grows in relation to inputs
- Productivity can be increased by a *reduction of inputs* and/or an *extension of outputs*

Productivity

Productivity is measured...

- Tangible output
- Value added
- Quantifiable output aspects (e.g. consumer satisfaction)

Productivity

Labour productivity

Relation of labour input (per capita or per hour) to output

Capital productivity

Relation of capital input (units of capital) to output

Total- or multifactor productivity

Total inputs (capital, labour and intermediary inputs) to outputs

Efficiency

Maximum outputs are achieved with minimum inputs

Technical (operational) efficiency

The maximum output which is technically possible with a given set of inputs

Allocative efficiency

A specific mix of inputs (resources) to achieve a given output

Economic (cost) efficiency

A combination of technical and allocative efficiency with the objective to achieve more output with less input

Efficiency and effectiveness

- **Efficiency** refers to the relation between input and output, but says nothing about the usefulness of output in the sense that it satisfies individual or social needs
- **Effectiveness** means that inputs are not only used to produce outputs but to achieve particular goals - i.e. to fulfil certain needs

Efficiency and effectiveness

Inputs = the resources (labour, capital, intermediary inputs) to produce outputs and outcomes

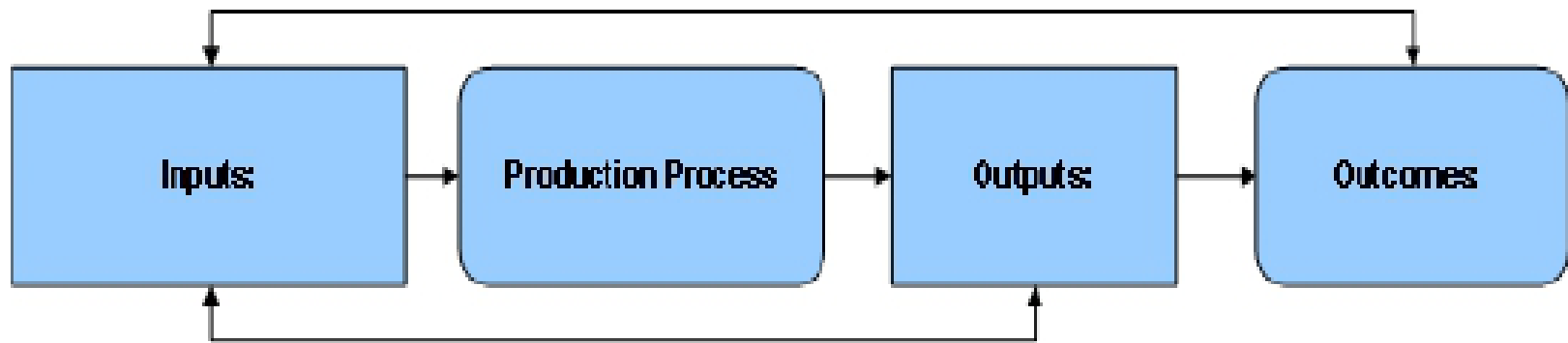
Outputs = services produced by (public) service providers (governments)

Outcomes = the extent to which outputs fulfil social and individual needs

Quality = the degree to which outputs contribute to outcomes

Efficiency and effectiveness

$$\text{Effectiveness} = \text{Outcomes} / \text{Inputs}$$



$$\text{Productivity} = \text{Outputs} / \text{Inputs}$$

Performance

- Performance refers to the achievement of certain outputs
- Performance is measured by specific performance indicators
- Performance indicators are based on quantifiable output
- Performance typically focus on maximisation of output rather than on minimisation of inputs

Measuring public sector productivity - challenges

- Public services rarely produce tangible outputs
- Without market prices there is no value added either
- Sometimes it is even difficult to define a clear unit of output
- Output can vary independently from inputs
- Output can have different qualities
- What counts is outcomes rather than outputs

Measuring public sector productivity - methods

- Inputs: Costs (for labour, capital, intermediary inputs)
- Activities: Quantifiable outputs
- Output: A combination of quantifiable outputs and costs
- Methodology: Weighted output index

Measuring public sector productivity - methods

Table 7
Measuring police output: recorded crimes (England and Wales)

	Weights *	Thousands						
		1995	1996	1997	1998	1999	2000	2001
Violence against the person	30%	473.9	517.6	551.2	516.6	561.5	596.0	637.8
Sexual offences	3%	31.3	31.9	34.6	36.0	37.4	37.4	40.4
Robbery	5%	68.7	72.5	65.7	65.9	79.9	92.4	114.8
Burglary – dwelling	8%	644.3	596.1	521.7	480.4	450.3	412.9	423.5
Burglary – commercial & other	4%	590.8	557.7	501.4	481.6	467.9	440.7	444.4
Theft of motor vehicle	6%	517.7	479.7	418.1	394.2	379.0	347.8	330.8
Theft from vehicle	3%	825.7	793.8	721.4	689.6	673.4	639.5	648.8
Theft – other	14%	1204.1	1153.7	1115.3	1112.1	1163.2	1185.7	1268.6
All other notifiable crime	13%	263.5	268.9	275.3	326.5	386.1	387.0	382.7
Criminal damage	5%	977.1	988.0	928.8	886.8	929.2	956.5	1038.4
Drug offences	10%	134.2	142.9	147.8	139.2	125.4	115.6	119.4
Total	100%	5731.3	5603.0	5281.2	5129.0	5253.2	5211.5	5449.6
Weighted Index		100	100	98	95	100	102	107

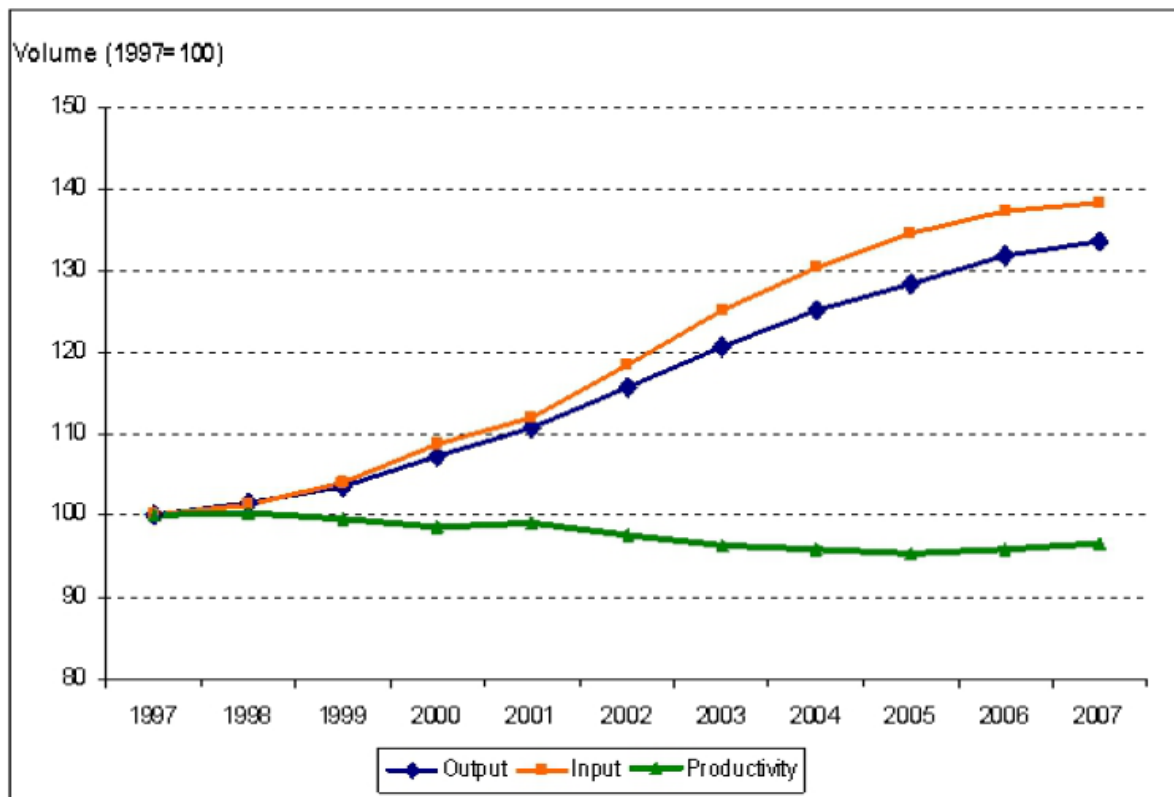
* relative cost of investigating each type of crime

Measuring public sector productivity - methods

Table 1 Cost weighted output index, Laspeyres index

Setting	2003/4- 2004/05	2004/5- 2005/6	2005/6- 2006/7	Average
Hospital activity	2.56%	5.48%	2.80%	3.62%
Outpatient activity	10.14%	9.87%	-6.86%	4.39%
Mental Health care services	11.44%	9.50%	4.83%	8.59%
Community care services	315.53%	10.25%	-0.65%	108.38%
Primary care consultations	-0.21%	5.63%	2.70%	2.71%
Primary care consultations & prescribing	4.33%	6.99%	4.47%	5.26%
All other NHS activity	17.13%	3.14%	22.07%	14.11%
Total NHS	27.88%	6.48%	5.84%	13.40%
Total NHS excluding prescribing	31.79%	6.22%	5.82%	14.61%
Hospital, outpatient, mental health and primary care consultations	5.10%	6.49%	0.74%	4.11%

Measuring public sector productivity - methods



Measuring public sector productivity - problems

- Output indices are necessarily incomplete
- Quality issues may not be sufficiently accounted for
- Possible accounting problems
- Transformation of activities into costs and costs into activities
- Output as potential activities
- Outcome is more important than output

Measuring public sector productivity - problems

“The challenges related to the measurement (of productivity) can only be solved after outputs have properly been defined. Many of the proposed productivity measures . . . are quite market driven and are therefore not applicable to public organisations. The problem related to the definition of outputs has been bypassed by introducing monetary measures of outputs that are supposed to include both tangible and intangibles elements of outputs. However, a new approach is needed . . .”

Jääskeläinen & Lönnqvist 2011.

Measuring outcomes?

- Outcomes cannot be measured in money and not only quantitatively
- Outcomes typically depend on a variety of factors
- Outcomes can only be assessed over time
- Outcomes can depend on active cooperation between service providers and service users
- Outcomes strongly depend on quality

Measuring quality

- Creation of quality indicators
- Quality cannot be measured in money and perhaps not even quantitatively
- Quality depends on individual judgment and individual judgment depends on expectations
- Expectations depend on democratic discussion processes (What services, what quality, what costs?)

Measuring quality

Table 2 Quality-adjusted cost weighted output index, Laspeyres index

Setting	2003/4- 2004/05	2004/5- 2005/6	2005/6- 2006/7	Average
Hospital activity	5.66%	7.48%	4.88%	6.01%
Outpatient activity	10.23%	9.96%	-6.81%	4.46%
Mental Health care services	11.83%	9.42%	4.82%	8.69%
Community care services	315.53%	10.25%	-0.65%	108.38%
Primary care consultations	0.34%	6.06%	3.21%	3.21%
Primary care consultations & prescribing	4.51%	7.16%	4.67%	5.45%
All other NHS activity	17.13%	3.14%	22.07%	14.11%
Total NHS	28.82%	7.11%	6.08%	14.00%
Total NHS excluding prescribing	32.89%	6.96%	6.11%	15.32%
Hospital, outpatient, mental health and primary care consultations	6.76%	7.48%	1.08%	5.10%