



European
Research Area

EUROPEAN POLICY BRIEF



*An EU-funded collaborative
project involving eight
organisations across Europe*

Output and productivity growth in the healthcare sector: a study of four European countries

6/3/13

INTRODUCTION

Context – the importance of the healthcare sector

Healthcare expenditures have been growing rapidly in European countries over the past few decades and this is likely to accelerate given ageing populations. Ensuring efficient delivery of health services is therefore a priority. Even though there is a vast research literature on specific health conditions, there are only a few studies that examine the services provided by the health sector as a whole and to date very little international comparative research. This research is a first attempt to compare health sector performance across countries.

Countries differ in the systems they employ to deliver health services, including the extent of government involvement in providing and/or funding these services, the types of conditions treated (e.g. chronic illness or routine procedures), where they are provided (e.g. in-hospital treatment versus outpatient care) and who provides the services (e.g. the mix between physicians and other health professionals). All of these factors are likely to impact on attempts to raise the productivity of the services but in ways that are difficult to evaluate. A prerequisite to understanding these drivers of productivity growth is to have robust measures of performance of the healthcare sector across countries.

Measuring performance in the healthcare sector

The aim of the research is to provide international comparative measures of output and productivity growth in the health sector. As well as providing an overview of performance, an important objective of the research was to investigate the measurement difficulties that arise and inform work by national accounts statisticians. In this work, the growth in the volume of output is measured as a unit cost weighted activity index, with quality adjustments based on in-hospital survival rates. This is compared to the growth in labour input, measured as earnings weighted growth in numbers of persons employed. The research was undertaken comparing four countries, Germany, Hungary, Spain and the United Kingdom, covering the period 2003-2009.

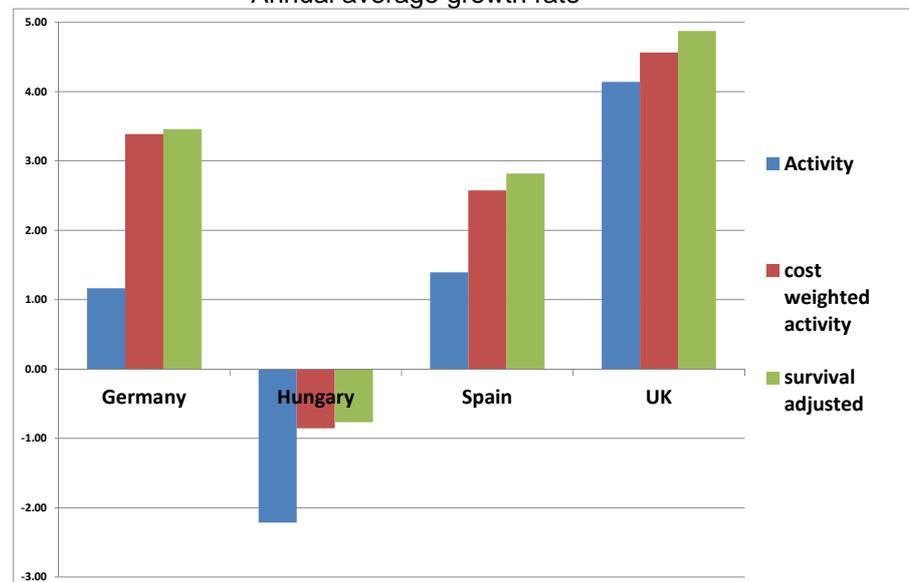
KEY OBSERVATIONS

Output growth is concentrated in relatively high cost procedures

Chart 1 illustrates the average annual growth in three output measures for in-patient hospital treatments, activities (total number of patients treated), cost weighted activity and the latter adjusted for changes in survival rates. There is large variation across the four countries in output growth with the UK showing the fastest growth and Hungary negative change over this time period.

Adjustments for survival lead to small positive impacts on output growth

Chart 1. Output growth, In-patient hospital treatments, 2003-2009*
Annual average growth rate



*2004-2008 for Germany

However there are some similarities – in all four countries cost weighted activity growth is higher than the growth in total patient numbers, implying growth is faster for relatively high cost procedures. The difference is most

pronounced in Germany and least visible for the UK. Higher growth in cost weighted activity than for patient numbers is likely to be due to the increasing share of the elderly in total patient numbers apparent in all four countries, whose treatments tend to be more costly than for other segments of the population. The chart also shows a slight positive impact from the survival adjustment with the greatest impact of this occurring in the UK.

Output growth by broad disease shows the UK outperforming other countries for some important conditions

Examination of output growth by broad disease categories shows similar growth rates across all groups for Germany but more variability in the remaining three countries. The UK output growth is much higher than other countries in Musculoskeletal system treatments (which includes hip and knee replacements etc.), with growth rates of about 6% per annum compared to just over 2% in Germany and Spain and 0.5% in Hungary. Similarly the UK outperforms the other countries in treating diseases of the respiratory system. However the growth of output in the UK is similar to Germany in treating primary cardiac conditions, with about 3% output growth, whereas growth is almost zero for this important group of conditions in Spain and Hungary. The UK shows much greater change in survival rates in both respiratory and cardiac treatments than other countries.

Output growth in other health activities are more difficult to measure

In addition to in-patient hospital treatments, international comparisons require estimates of other activities of the healthcare sector. Primary care is not measured robustly in any country and so was excluded from the analysis. Other activities include outpatient treatments, long term care and mental health treatments as well as various testing and diagnosis procedures – these represent about 50% of total expenditure excluding primary care. The importance of their inclusion is illustrated by the numbers for Hungary where there was a major restructuring of the health system mid-decade which transferred many hospital patients to other parts of the healthcare system. Failure to include these other activities leads to the perception of a worse performance in Hungary than was in fact the case. Including rehabilitation and mental health leads to small positive growth rather than the negative change shown in Chart 1. The project highlighted the severe difficulties in comparing these other outputs across the countries.

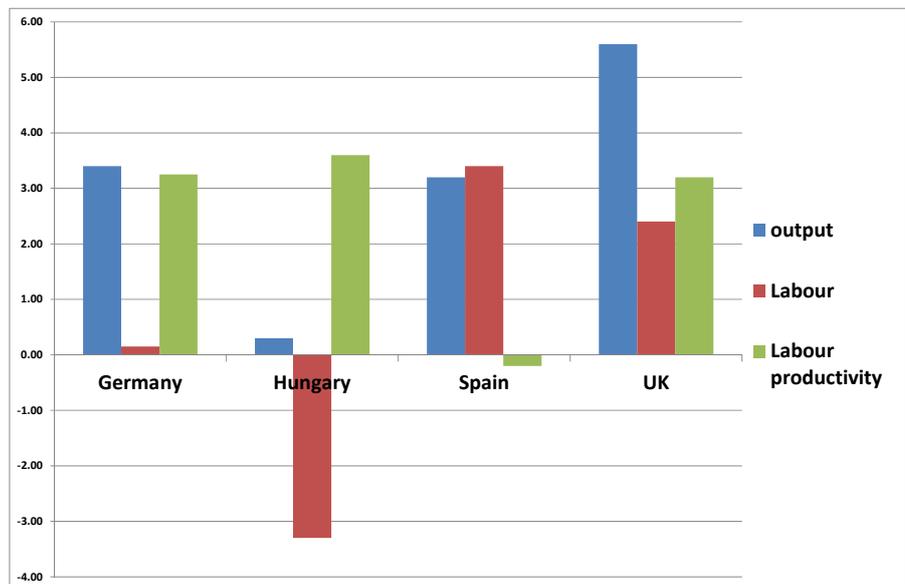
The number of high cost physicians has been growing faster than other workers.

The research attempted to compare labour productivity growth across the countries by matching labour input to the output measures, either in-hospital outputs for Germany, or a broader definition of output for the remaining countries. In all countries there has been a trend in the period covered to employ proportionally more relatively high cost physicians so adjusting employment to take account of composition of the workforce is

important. Chart 2 compares labour productivity - quality adjusted output growth relative to quality adjusted labour input across the four countries. Germany, Hungary and the UK experienced similar rates of labour productivity growth but whereas in Germany and the UK this was accompanied by strong output growth, in Hungary this was achieved through large reductions in labour input. In contrast, in Spain the growth in labour input slightly outpaced the growth in labour input leading to declines in labour productivity.

Labour productivity growth was similar at above three percent per annum in Germany, Hungary and the UK but slightly negative in Spain.

Chart 2. Growth in Output, Labour Input and Labour Productivity, 2003-09*



*2004-08 for Germany

KEY POLICY MESSAGES

This first attempt to compare performance of the health sector across European countries suggests some significant differences in the period covered by this study. Although the research was hampered by the quality of the underlying data, it demonstrates that such exercises are feasible and could potentially be important in understanding the drivers of productivity growth in the delivery of healthcare.

As most European countries are currently trying to incorporate quantity based measures of the volume of healthcare output in national accounts, the main outcome of this research is to highlight the difficulties in doing so in a way that makes sense in international comparisons. In particular there is a need for much more information on activities other than in-patient treatment in hospitals.

Project papers

Hüttl, A., Mas, M., Nagy, A., O'Mahony, M., Schulz, E and Stokes, L. (2012), 'Output and productivity growth in the healthcare sector: a study of four European countries', INDICSER Discussion paper DP34 www.indicser.com

Hüttl, A. and Nagy, A. (2012) 'Volume and productivity of the Hungarian inpatient health care – a case study', INDICSER Discussion Paper 27. www.indicser.com

Schulz, E. (2012) 'Approaches to calculate CWOI for DRG hospitals in Germany', INDICSER Discussion Paper 28. www.indicser.com

RESEARCH PARAMETERS

Aims and methodology of the project

The objective of the INDICSER project is to develop indicators which provide information on the performance of service sectors in the EU. At the heart of the project are concerns that such indicators should be valid in terms of concepts, measurement methods and feasibility, but should also have value in terms of their usefulness for policy. Therefore the approach adopted is to include both an EU-wide application of existing concepts and develop and experiment with new concepts. This will be carried out within an overall coherent structural framework designed to provide information on the key determinants of growth and productivity.

The indicators are divided into two broad areas: market services, whose performance is crucial to growth in the EU relative to its competitors; and non-market services, mostly government-run, where it is important that taxpayers can assess how far public spending is effective, as well as non-market services' contribution to the economy. For market services the project will construct indicators that describe trends in growth and productivity in service sectors and indicators that are useful in analysing determinants of growth, such as innovation, ICT, intangible capital, competitive environment and foreign presence.

In view of the global financial crisis, financial services will be covered in greater detail with new output measures developed and applied to a large set of EU countries. For non-market services much of the analysis will focus on indicators for health and education, where significant new research is required on both the conceptual framework and practical implementation. Finally, the project will also develop experimental indicators which might be useful in the future, covering insurance, collective services, distributive trades and research sector output.

PROJECT IDENTITY

Co-ordinator

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This Policy Brief was drafted by Mary O'Mahony (University of Birmingham)

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Funding Scheme

FP7 Socio-economic Sciences and the Humanities
Research area: Indicators for the European service sector (SSH-2009-6.2.1.)
Topic: Improved ways of measuring both the potential for and impact of policies
Collaborative Project (small or medium-scale focused research project)

Duration

1 January 2010 – 31 December 2012 (36 months)

EU Contribution

€2,350,000

Website

www.indicser.com

For more information

Contact Mary O'Mahony, indicser@contacts.bham.ac.uk

Further reading

Dawson, D., Gravelle, H., O'Mahony, M., Street, A., Weale, M., Castelli, A., Jacobs, R. Kind, P., Loveridge, P., Martin, S., Stevens, P. and Stokes, L. (2005) 'Developing new approaches to measuring NHS outputs and productivity', Final Report to the Department of Health, Centre for Health Economics (York) and National Institute of Economic and Social Research.

OECD (2010) *Towards Measuring the Volume Output of Education and Health Services : A Handbook*, OECD Statistics Directorate, Working Paper No. 31, STD/DOC(2010)2, April.