

Do mergers affect hospital outputs and outcomes? Evidence from the English secondary care sector

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Hospital consolidation (1960-2018)

Several waves of hospital consolidation have dramatically reduced the number of providers operating in England from 400 in 1960, serving an average population of 100,000 people, to about 150 in 2018, serving an average population of 450,000 people.

Impact of hospital consolidation

Such reshaping of course has posed questions of quality of services provided, performance of hospital providers, efficiency in terms of economies of scale and scope.

Goal of the research

To investigate whether merging activity has had any significant effect on hospital outputs and outcomes.

Research questions

- 1) Has the level of *hospital outputs* improved as a result of hospital merger? How?
- 2) Have *hospital outcomes* enhanced as a result of hospital merger? How?

Methodology

We adopt a DID matching model in order to estimate the average effect of a merger on the level of activity of merged hospitals, and a fixed effect ordered logit model (FE-OL) with blow up and cluster (BUC) estimator in order to estimate the effect of a merger on the performance of merged hospitals.

We use three types of analysis with fixed effect to identify the average effect of a merger and to explore the robustness of our results: fixed effects, wave

analysis (group effect) and event study (anticipation effect).

Data

Our data include 1-year pre-treatment policy (year 2000) and 8 years of data post policy. The dataset contains 1,581 observations for: 195 hospitals in year 2000, 186 in year 2001, 175 in 2002, 172 in years 2003, 2004 and 2005, 171 in 2006 and 169 hospitals in years 2007 and 2008.

Variable definitions

Dependent variables - hospital outputs:

Number of inpatient spells, number of elective admissions, number of emergency admissions, number of patients attending the first outpatient appointment, number of patients attending first A&E, number of day cases

Dependent variables - hospital outcomes:

Hospital performance, built combining the star rating performance index with either the quality of services index or the use of resources index.

Policy variables

Variable *merged* equals 1 if the hospital is the result of a merger in a given year, and it is zero otherwise (snapshot effect). Variable *merged_forward* that is equal to 1 in the year the new merged hospital starts its activity and subsequent years, and zero otherwise (persistent effect).

Controls

A considerable number of variables accounting for hospital characteristics.

Basic results for fixed effects

	merged	merged forward
Inpatients	+ NS	+ S
Elective inpatients	+ NS	+ S
Emergency Inpatients	+ S	+ S
Outpatients	+ S	- NS
A&E	- NS	+ S
Daycases	+ NS	+ S
Elective/ Emerg. Ratio	- NS	- S
Inpatients/ Outp. Ratio	- NS	+ S
Daycases/ Outp. Ratio	+ NS	+ S

	merged	merged forward
Performance 1	+ NS	+ NS
Performance 2	- S	+ S

Results on the wave analysis and the event study do not change, but for outpatients because hospitals can easily reschedule diagnostic care appointments. Detailed results are available upon request.

Conclusions and Recommendations

Our results suggest that hospital mergers may have a positive effect not only in terms of quantity of services provided, but also in terms of different combinations of services provided and in terms of hospital performance.

Our research questions have obvious policy relevance as measuring output and outcome make providers more accountable and the NHS more transparent.