



Outsourcing health-care services to the private sector and treat- able mortality rates in England, 2013–20: an observational study of NHS privatisation

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Outsourcing in England's NHS

Background on independent service provision



- ▶ Around 8% of consultant-led treatments provided by the independent sector in England's NHS;
 - ▶ Increasing from just over 3% in 2011;
- ▶ Healthcare services provided in a mixed-market of public, for-profit and non-profit providers;
- ▶ Patient Choice, commissioning and sub-contracting key ways services are contracted-out;
- ▶ But no previous evidence about the quality outcomes from this trend of privatisation.

Policy Context

How Marketisation leads to Privatisation



- ▶ 90s: Purchaser-provider split; contracting-out FM etc;
- ▶ 00s: Patient choice, ISTCs, PFI, AQP;
- ▶ 2012 Health and Social Care Act
 - ▶ 'Anti-competition' outlawed;
 - ▶ Legal equality between sectors;

"Regulation 10(1) of the Procurement, Patient Choice and Competition Regulations prohibits commissioners from engaging in anti-competitive behaviour when commissioning services unless it is in the interests of NHS health care service users." - Monitor, 2013

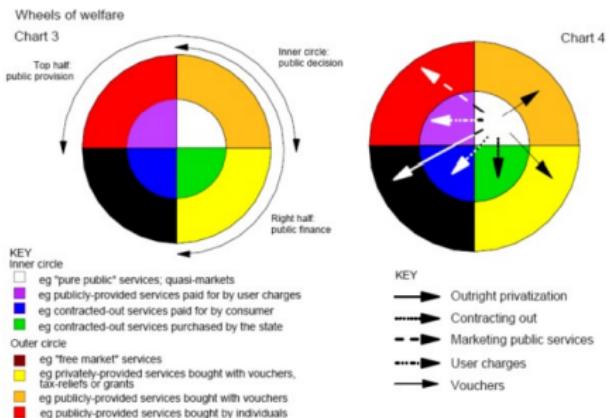
Theories of Privatisation

Taxonomies of privatisation; Wheels of Welfare



- ▶ Divestment, Delegation, Displacement (Savas, 1987);
- ▶ Contracting-out (Burchardt, 2013);

Figure 1.



Theories of Marketisation

Openness, Competition and Management Autonomy



- ▶ Three ideals of marketisation (Krachler et al, 2021);
- ▶ Openness;
"In fact, many potential providers from the private sector ... are actually social enterprises of various kinds, ... It is one of the desirable features of section 75 that it allows competition from these innovative forms of providers" - Le Grand, 2013
- ▶ Competition;
"To take competition to a higher level, the market has to be moved from static competition to dynamic competition – a market with entries and exits." - Niemitz, 2015

Privatisation and quality of care

Existing empirical evidence



- ▶ Comparisons between for-profit and other providers;
 - ▶ 'For-profit gap' identified in the US, social care, children's social care;
 - ▶ But overall mostly no difference in health outcomes in public and private providers in England;
- ▶ Population outcomes reforms;
 - ▶ Mixed evidence with increases in competition (mostly 90s decline, 00s improvement);
 - ▶ But privatisation associated with higher mortality rates in Italy in 90s.

Paper outline

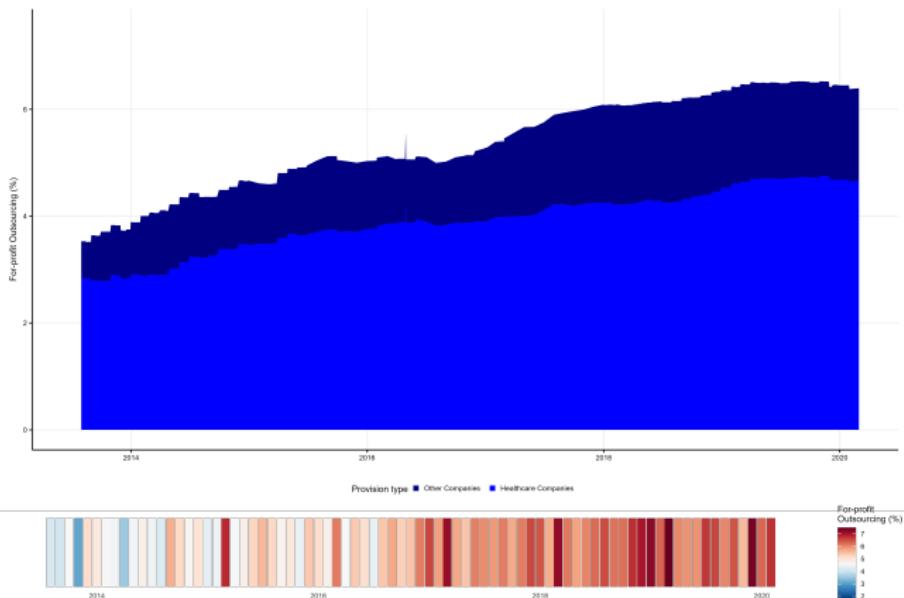
Research Design and Data



- ▶ RQ: Is outsourcing of healthcare services to for-profit providers associated with better quality care?
- ▶ Data: NHS Spend;
 - ▶ Expenditure payments reported by CCGs - classified as % for-profit;
 - ▶ 650,000 CCG expenditures, £200bn total value, 2013-2020;
 - ▶ Rahal, C. & Mohan, J. (forthcoming).
- ▶ Data: Treatable Mortality Rates (ONS);
"Treatable mortality measures the effectiveness of timely healthcare interventions, including secondary prevention and treatment" - ONS
- ▶ Methods: Panel data analysis, multivariate regression.

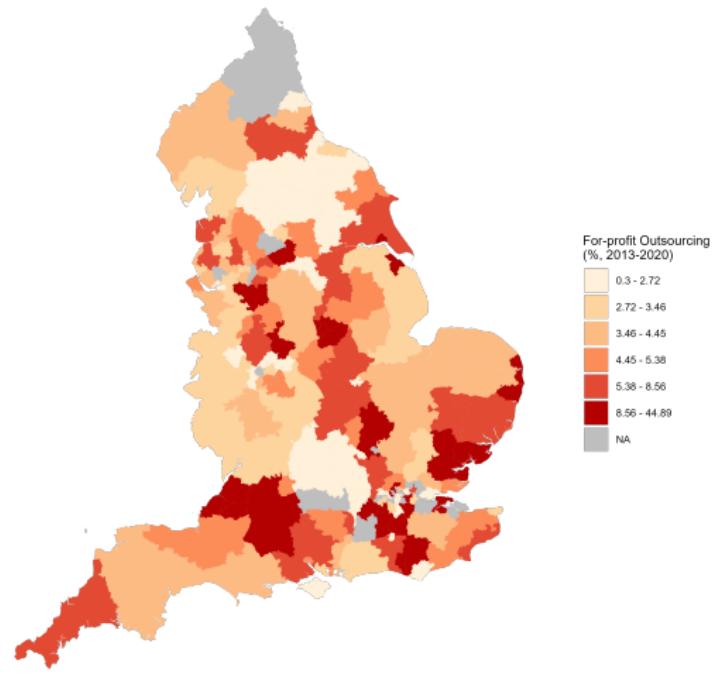
Findings

Descriptive results



Findings

Descriptive results



Findings

Regression results



	Fixed Effects		First Differences		Covariate Balancing (Mort.)	
	In.	Treatable Mortality [.95 ci] p-value	In.	Treatable Mortality [.95 ci] p-value	In.	Treatable Mortality [.95 ci] p-value
For-profit Outsourcing (%)	0.0038 [0.0022, 0.0054]	0.0016	0.0046 [0.0018, 0.0073]	0.0012	0.0039 [0.0021, 0.0057]	0.0028
Num.Obs.	609	609	450	450	553	553
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

Table reports results from multivariate longitudinal regression models.

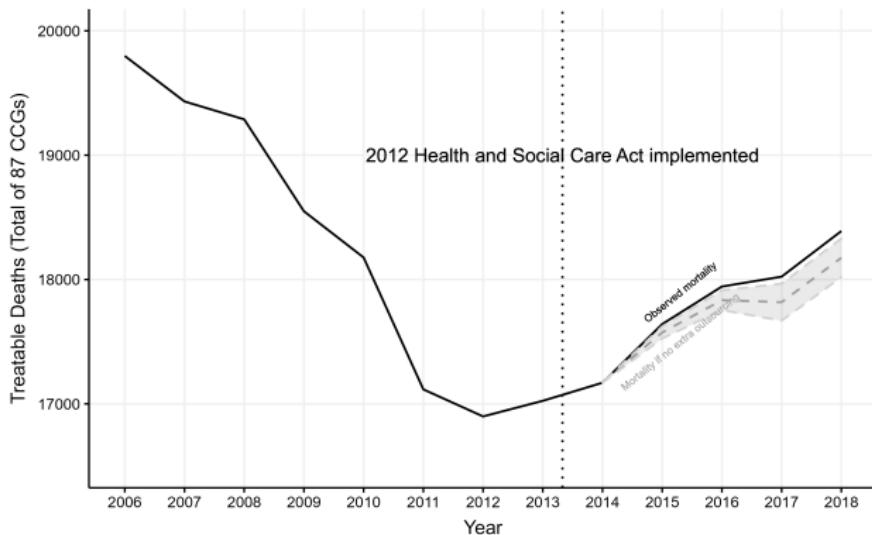
Outsourcing, LA Spend, and CCG Spend have a one year lag.

Robust SEs are clustered at CCG level and use a bias-reduced linearization estimator (CR2)

Control variables include: CCG spend, LA spend, CCG population, Average Income, Degree education (percent), Managerial or professional occupation (percent), Ethnic minority (percent), Unemployment rate (percent) and Claimant Rate (percent)

Findings

Context of worsening NHS



Findings

Sensitivity checks



- ▶ Falsification test;

	ln(P. Mortality)			
	FE	CBPS (1)	CBPS (2)	MLM
For-profit Outsourcing (%)	0.0013 (0.0008) [-0.0006, 0.0031]	0.0009 (0.0008) [-0.0010, 0.0028]	0.0009 (0.0008) [-0.0011, 0.0028]	0.0017 (0.0013) [-0.0009, 0.0043]
Num.Obs.	609	517	553	534
Fixed Effects	Yes	Yes	Yes	No
Clustered Standard Errors	Yes	Yes	Yes	Yes

- ▶ Random error simulation; specification curve; dropping CCGs sequentially

Discussion

Interpretation and policy implications



- ▶ NHS experiencing consistent increases in privatisation;
 - ▶ Delegation and contracting-out or something else?;
- ▶ Increased privatisation corresponding with higher treatable mortality
 - ▶ Knock-on effects or worse quality care?
- ▶ Key limitations are potential for residual confounding and no evidence on mechanisms.

- ▶ Private sector outsourcing from English CCGs has almost doubled since 2013 accounting for over 6% of the spend in 2019.
- ▶ Increases in outsourcing are associated with decreases in the quality of care in the following year.
- ▶ Privatisation correlated with worsening of already declining health outcomes.

Thank you, any questions?

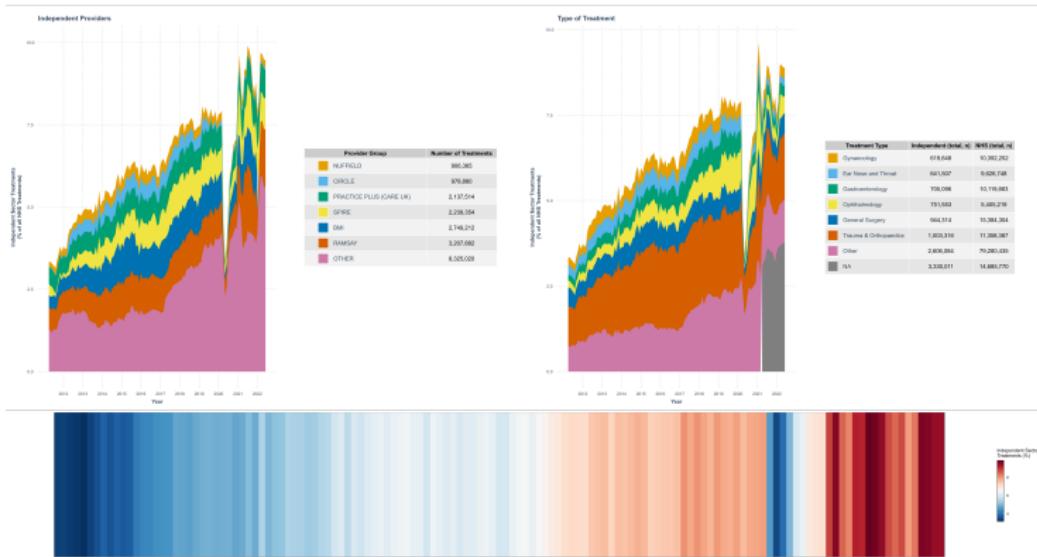
Please reach out to benjamin.goodair@spi.ox.ac.uk or @BenGoodair

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- ▶ Infectious diseases: Scarlet fever, Sepsis, Cellulitis
 - ▶ Neoplasms: Breast cancer (female only), Uterus cancer, Testicular cancer, Thyroid cancer, Hodgkin's disease, Lymphoid leukaemia
 - ▶ Respiratory diseases: Upper respiratory infections, Pneumonia, not elsewhere classified or organism unspecified, Acute lower respiratory infections, Asthma and bronchiectasis
 - ▶ Diseases of the digestive system
 - ▶ Diseases of the genitourinary system
 - ▶ Other: 50% circulatory system diseases; Adverse effects of medical and surgical care; Pregnancy, childbirth and the puerperium

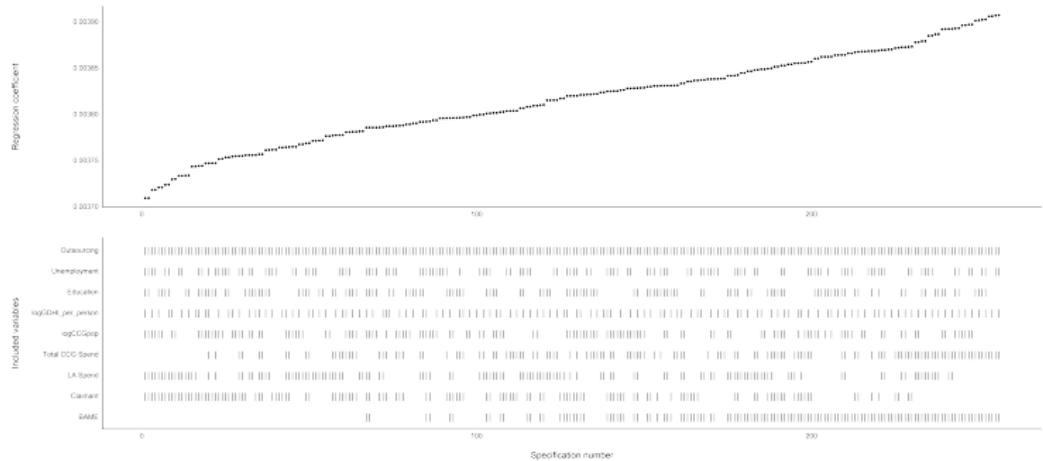
Appendices



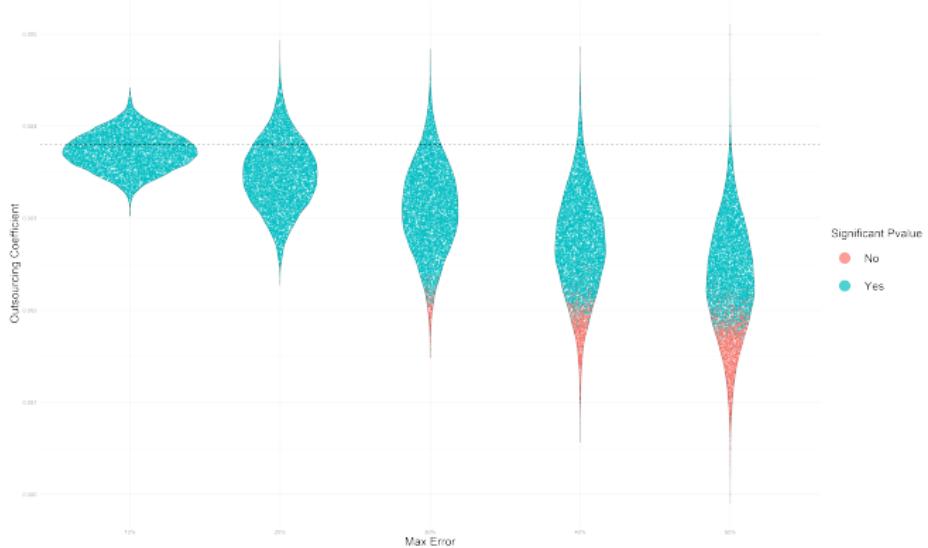
Figure 1. Increased privatisation of the NHS by rising independent sector treatments



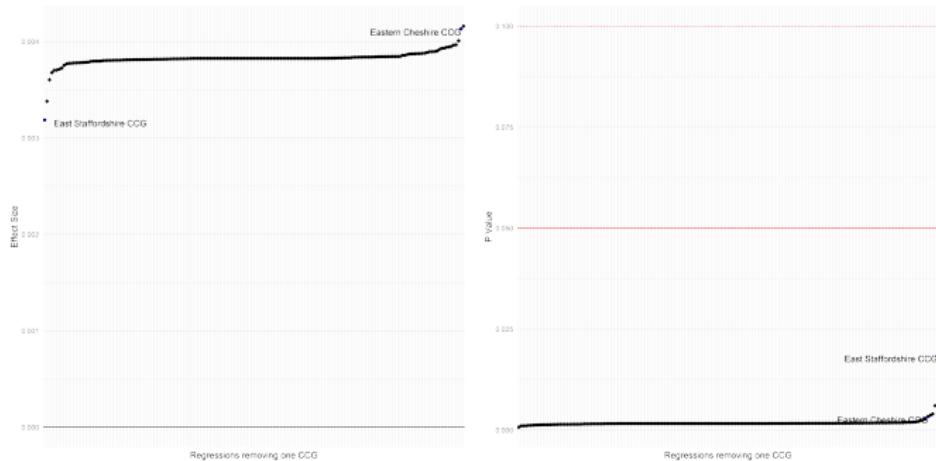
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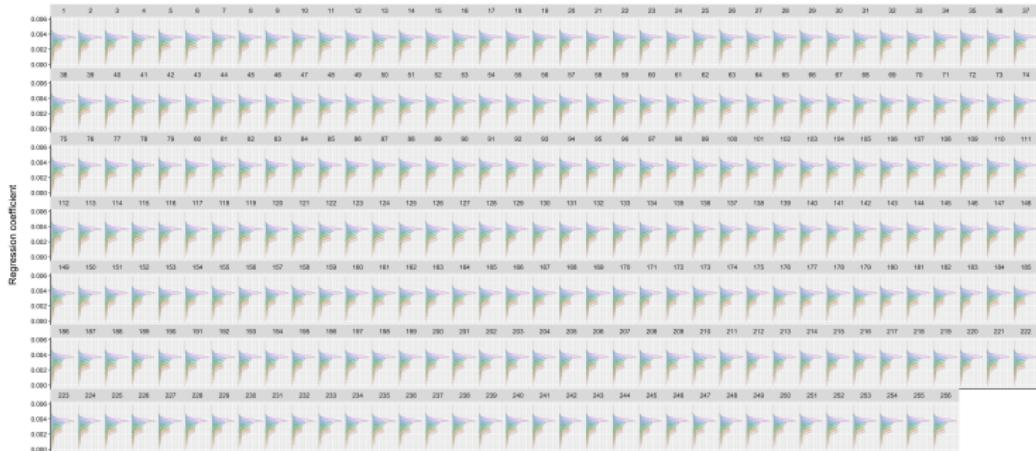
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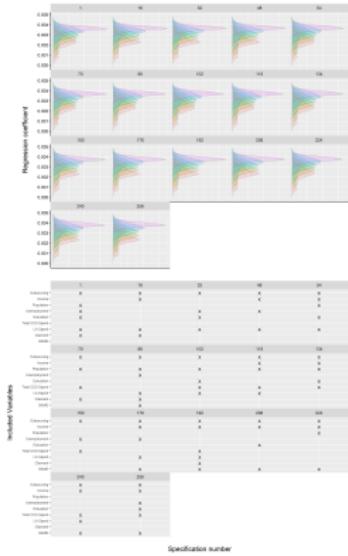
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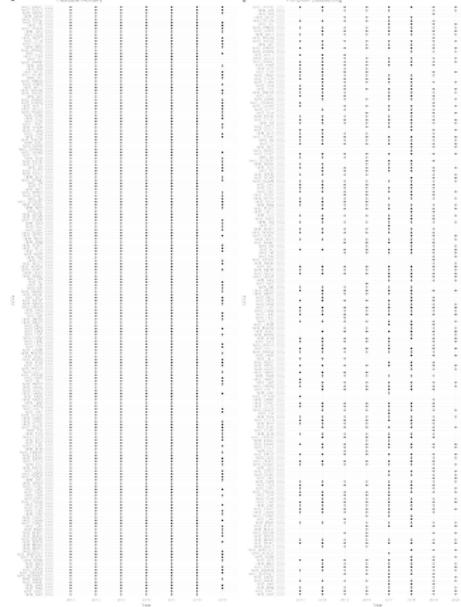
Appendices



Appendices



Appendices



Appendices



	Int'l. Mortality				MLM
	FE	FD	CBPS (1)	CBPS (2)	
For-profit Outsourcing (%)	0.00382*** (0.00083)	0.00458** (0.00082)	0.003772** (0.00092)	0.00399*** (0.00090)	0.00265* (0.00111)
IA Spend (Euros per person)	0.00390 (0.02058)	-0.00231 (0.02427)	0.00168 (0.06302)	-0.00535 (0.01649)	0.03022 (0.01689)
Total CCG Spend (EMUs)	0.00036 (0.00065)	0.00077 (0.00074)	0.00016 (0.00063)	-0.00005 (0.00019)	-0.00003 (0.00012)
Claimant Rate (%)	0.01312 (0.01768)	-0.0004 (0.01731)	0.01168 (0.01756)	0.00981 (0.01799)	0.10356*** (0.01608)
Population size	0.45023 (0.59924)	0.75187 (0.87935)	0.55071 (0.58182)	0.60961 (0.55785)	0.01680 (0.01755)
Unemployment Rate (%)	0.00236 (0.00317)	0.00424 (0.00363)	0.00227 (0.00323)	0.00229 (0.00315)	-0.00216 (0.00306)
Ethnic Minority (%)	0.00204 (0.00307)	0.00392 (0.00187)	0.00107 (0.00206)	0.00133 (0.00202)	0.00773*** (0.00084)
Degree Education (%)	-0.00221, 0.00628 (-0.00081, 0.00785)	-0.00081, 0.00785 (-0.00340, 0.00545)	-0.00050, 0.00785 (-0.00301, 0.00571)	-0.00069, 0.00937 (-0.00609, 0.00937)	-0.00314*** (-0.00314)
Average Disposable H.hold Income	-0.16263 (0.24267)	0.34805 (0.25223)	-0.15460 (0.28198)	-0.10422 (0.27811)	-0.35340*** (0.04471)
Managerial/Professional occupation (%)	-0.00224 (0.00183)	-0.00164 (0.00176)	0.00111 (0.00157)	-0.00125 (0.00150)	-0.00073 (0.00113)
SD (Observations)	608	450	517	553	534
Num.Obs.	608	450	517	553	534
R2	0.040	0.048	0.896	0.893	
R2 Adj.	-0.342	0.026	0.854	0.852	
R2 Marg.					0.717
R2 Conf.					0.813
AIC			-1145.2	-1230.2	-962.6
BIC			516.4	552.7	-894.1
ICC					0.3
Log.Lik.			720.576	772.087	
RMSE					0.08
CCG Fixed Effects	Yes	Yes	Yes	Yes	No
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes	Yes
p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001					
Outsourcing, IA Spend and CCG Spend have a one year lag					

Tr. Mortality, Population and GDHI are log transformed, "Ln" denotes the natural log of outcome variable.

For full model expressions see supplementary material (s3)

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Appendices



	In[T. Mortality]					
	(1)	(2)	(3)	(4)	(5)	(6)
For-profit Human Health Outsourcing (%)	0.005** (0.001) [0.001, 0.008]					
For-profit Professional services Outsourcing (%)		0.003 (0.002) [-0.002, 0.008]				
For-profit 'Other' Outsourcing (%)			0.002 (0.002) [-0.005, 0.009]			
For-profit Building construction and maintenance Outsourcing (%)				0.006+ (0.003) [0.000, 0.012]		
For-profit Social Care Outsourcing (%)					-0.001 (0.012) [-0.020, 0.018]	
For-profit Foundational Services Outsourcing (%)						0.006 (0.002) [-0.006, 0.017]
Num.Obs.	609	609	609	609	609	609
R2	0.031	0.017	0.015	0.021	0.014	0.016
R2 Adj.	-0.354	-0.374	-0.377	-0.368	-0.378	-0.375
CCG Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Outsourcing, LA Spend, and CCG Spend have a one year lag.

In[T. mortality], Population and GDHI are log transformed, 'ln' denotes the natural log of outcome variable.

Robust SEs are clustered at individual level and use a bias-reduced linearization estimator (CR2)

Appendices



	In(T. Mortality)					
	(1)	(2)	(3)	(4)	(5)	(6)
For-profit Hospital Outsourcing (%)	0.006 (0.003) [-0.003, 0.015]					
For-profit Dental Outsourcing (%)		-0.110 (0.265) [-0.486, 0.266]				
For-profit Medical Nursing Homes Outsourcing (%)			-0.040 (0.018) [-0.100, 0.019]			
For-profit Specialist Services Outsourcing (%)				-0.032 (0.020) [-0.079, 0.016]		
For-profit General Medical Outsourcing (%)					0.005* (0.002) [0.001, 0.009]	
For-profit Other health Outsourcing (%)						0.003 (0.003) [-0.003, 0.010]

Num.Obs.	609	609	609	609	609	609
R2	0.018	0.015	0.018	0.018	0.026	0.016
R2 Adj.	-0.372	-0.377	-0.373	-0.373	-0.362	-0.375
CCG Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Outsourcing, LA Spend, and CCG Spend have a one year lag.

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Satterthwaite degrees of freedom used in MLM

Appendices

	CCG	Total Spend (£10Ms)	Private sector spend (£10Ms)	For-profit outsourcing (%)	Total Treatable Deaths	Average Treatable Mortality Rate
1	NHS ASH CCG	89.1967	4.1937	4.7017	479.5	70.7500
2	NHS AWC CCG	121.4167	2.4123	1.9868	688.5	74.9833
3	NHS BAB CCG	138.4894	5.8414	4.2180	1380.0	78.3857
4	NHS BAH CCG	58.8687	3.7538	6.3765	1298.0	83.9857
5	NHS BANE CCG	121.2854	14.1856	11.6961	630.5	67.6667
6	NHS BARK CCG	11.6919	0.7148	6.1133	908.5	113.7714
7	NHS BARNET CCG	134.5444	6.0226	4.4763	1056.0	65.9833
8	NHS BARNS CCG	213.3432	5.2981	2.4834	1682.0	94.8000
9	NHS BASS CCG	63.3614	3.6676	5.7884	812.5	88.3143
10	NHS BED CCG	274.7652	25.5960	9.3156	2105.5	78.6143
11	NHS BEX CCG	106.4552	3.0015	2.8195	882.5	78.4167
12	NHS BIRM CCG	286.9020	14.6588	5.1093	6754.5	99.6571
13	NHS BLACK CCG	1.9550	0.1673	8.5573	1415.5	133.9571
14	NHS BNNSG CCG	235.9059	42.2482	17.9089	4665.5	78.5286
15	NHS BOLT CCG	61.7357	4.2177	6.8318	2034.5	105.6571
16	NHS BRAC CCG	75.8158	2.1120	2.7857	359.0	161.8333
17	NHS BRAD CCG	250.4083	6.8274	2.7265	1659.0	109.5000
18	NHS BREN CCG	3.0066	0.1443	4.7993	1241.0	83.4571
19	NHS BROM CCG	31.8450	3.8672	12.1437	1060.0	66.5000
20	NHS BUCK CCG	7.7327	0.1529	1.9778	2378.0	63.3857

Appendices



	Mean (SD)	Median (IQR)	Source
Treatable Mortality Rate	85.87 (0.62)	83.7 (22.25)	ONS
For-Profit Outsourcing (%)	5.76 (0.38)	4.04 (3.41)	Rahal & Mohan, (2022).[19]
Total CCG Spend (£Ms)	24.3 (0.75)	19.1 (20.48)	Rahal & Mohan, (2022).[19]
Local Authority Spend (per Capita)	1.27 (0.05)	1.5 (1.61)	MHCLG (RSX)
Claimant Rate	2.07 (0.04)	1.83 (1.39)	ONS (Claimant Count)
Population size	285514.3 (6141.27)	239855 (149055)	ONS
Unemployment Rate	5.36 (0.08)	4.9 (2.6)	ONS (APS)
Ethnic Minority (%)	10.31 (0.4)	5.8 (10.3)	ONS (APS)
Degree Education (%)	35.49 (0.34)	34.3 (11.22)	ONS (APS)
Average Disposable H.hold Income	19952.09 (275.28)	18774 (4641)	ONS (GDHI)
Managerial or Professional Occupation (%)	30.34 (0.23)	29.8 (8.3)	ONS (APS)

Appendices

5.15.1 DID Table

ln[T, Mortality]	
	[t]
Treatment	0.311*** (0.0407) [0.0511, 0.2110]
Time	-0.0723 (0.0580) [-0.1791, 0.0318]
Treatment*Time	0.0148 (0.0548) [-0.1003, 0.1211]
Num.Obs.	1092
R2	0.548
K2 Adj.	0.045
AIC	-664.2
BIC	-639.2
F	18.311
RMSE	0.18

* p < 0.1, ** p < 0.05, *** p < 0.01, **** p < 0.001

5.15.2 DID graph

We visualise this relationship below.

