

MANAGEMENT PRACTICES AND PRODUCTIVITY IN HOSPITALS

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**Preliminary – Do not quote without authors’
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MOTIVATION

- **Huge differences in productivity between organizations**
 - Manufacturing productivity (e.g. Foster et al, 2008)
 - Healthcare (e.g. Kessler-McClellan, 2000)
- **Are these related to management practices?**
 - Problem of comparable data across firms (and countries)
- **Private vs. public sector**
 - Are factors influencing management really so different in public sector than private sector?
 - e.g. Competition, skills

WHAT DO WE DO & FIND

- **Methodological**

- Survey tool to measure management (Bloom and Van Reenen, QJE, 2007) implemented on 61% of UK acute public sector hospitals (NHS)
- Hospital performance *correlated* with management scores (e.g. Lower death rates from emergency AMI/heart attack)

- **Substantive**

- Management scores lower in public hospitals than private hospitals & in manufacturing (especially on “people management”)
- Management quality (and performance) positively associated with clinically-qualified managers & competition (especially for private hospitals)

OUTLINE

- 1. “Measuring” management practices**
2. Evaluating the reliability of this measure
3. Describing management across sectors (private/public)
4. Explaining management within sectors (skills & competition)

THE SURVEY METHODOLOGY

1) Developing management questions

- Scorecard for 18 practices (App A) on monitoring, targets and people
- Interview of managers and doctors in orthopaedics and cardiology (under an hour)

2) Obtaining unbiased comparable responses (“Double-blind”)

- Interviewers do not know the hospital's performance
- Interviewees are not informed (in advance) they are scored
- Run from LSE, with same training

3) Getting hospitals to participate in the interview

- All performance indicators from external sources (not in interview)
- Endorsement letter from Department of Health
- Run by 4 MBA-types (loud, assertive & experienced)

SCORECARD COVERS 18 QUESTIONS IN 4 AREAS

Initially Developed by an international management consultancy

All questions & many examples in the paper – in summary:

PATIENT PATHWAY (2 questions) – lay-out of hospital, inventories, how changes in this occurred

MONITORING (6) - tracking, review & evaluation, follow-up etc.

TARGETS (5) - transparent, stretching, inter-connected, time horizon, etc.

PEOPLE (5) - promotions, rewards, fix/fire, retention etc.

Q3 MONITORING - Continuous improvement

Score	(1): No, process improvements are made only when problems occur	(3): Improvements are made in irregular meetings involving to improve performance in their area of work (e.g., ward or theatre)	(5): Exposing problems in a structured way is integral to individuals' responsibilities. Resolution involves all staff groups. Part of regular processes rather than by extraordinary effort
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How do problems typically get exposed and fixed? Talk me through the Process for a recent problem that you faced. Can you give examples?

Q15 PEOPLE - Removing poor performers

Score

(1): Poor performers are rarely removed from their positions

(3) Suspected poor performers stay in a position for a few years before action is taken

(5): We move poor performers out of the hospital/department or to less critical roles as soon as a weakness is identified

If you had a clinician or a nurse who could not do his job, what would you do? Could you give me a recent example? How long would underperformance be tolerated? Do some individuals always just manage to avoid being fixed/fired?

HOSPITAL MANAGEMENT SURVEY SAMPLE

- 161 respondents covering 100 English acute NHS hospital trusts (population sampling frame of 164)
 - Response rates uncorrelated with performance (and other observables)
- Smaller sample of 21 private hospitals
- Include many “noise” controls:
 - interviewer “fixed effects”
 - interview characteristics (e.g. Duration, day, time)
 - interviewee characteristics (e.g. Tenure, job)

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“EXTERNAL VALIDATION” OF THE SCORING

$$HOSPITAL_PERFORMANCE = MANAGEMENT + CONTROLS + error$$



casemix, size, noise
controls

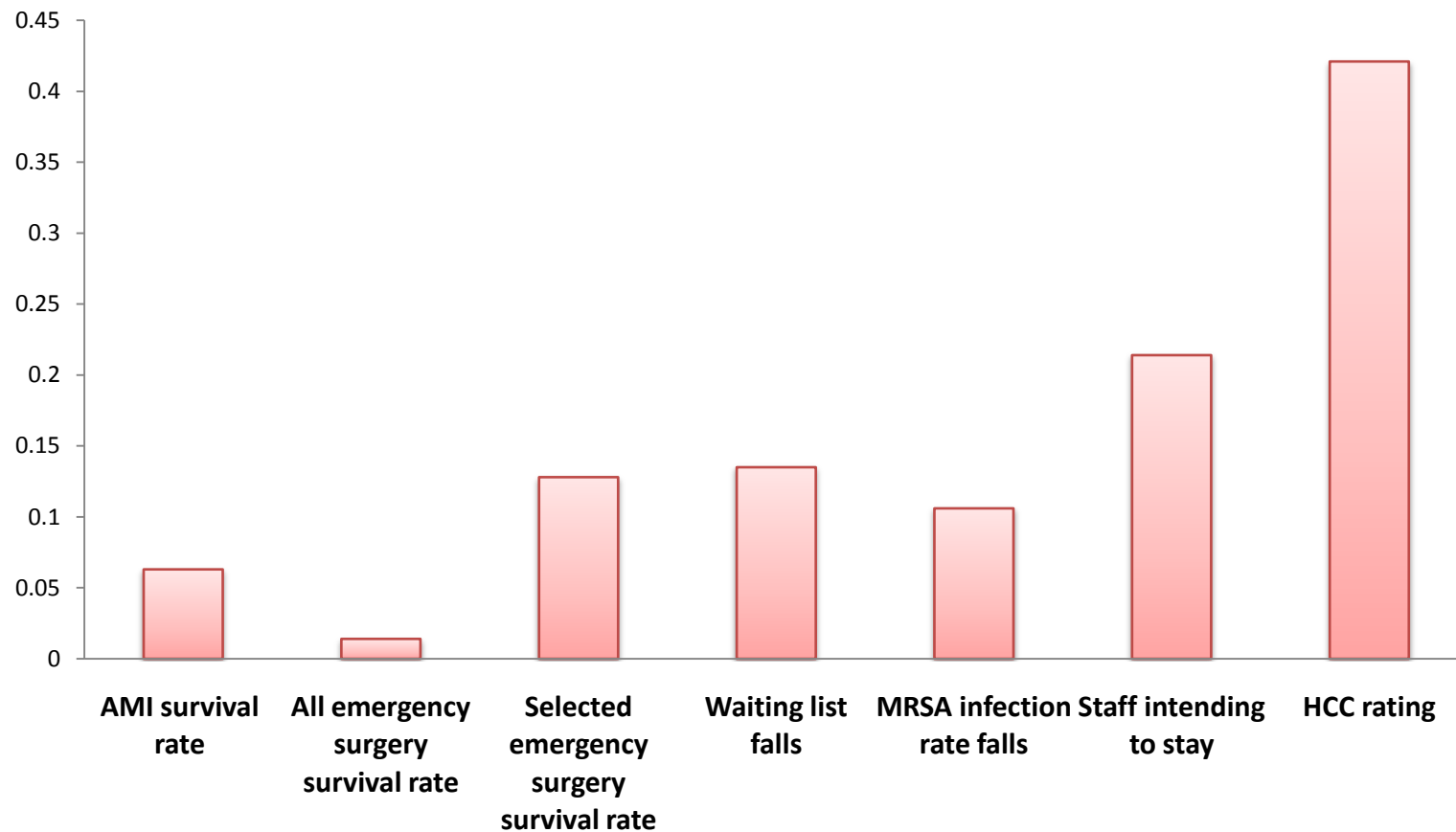
- Performance measures all taken from external sources (NHS public databases)
- Note – **not a causal estimation**, only an association

TABLE 2: HOSPITAL PERFORMANCE AND MANAGEMENT

Dependent variable:	Mortality rate emergency AMI	Mortality rate all emergency surgery	Mortality rate selected emergency surgery	Total waiting list	MRSA infection rate	Staff intend to leave (hospital average)	HCC overall rating
Management Practices	-0.063** (0.024)	-0.014** (0.006)	-0.128* (0.067)	-0.135*** (0.035)	-0.106 (0.092)	-0.214** (0.109)	0.421*** (0.093)
Obs	140	160	153	160	160	160	161

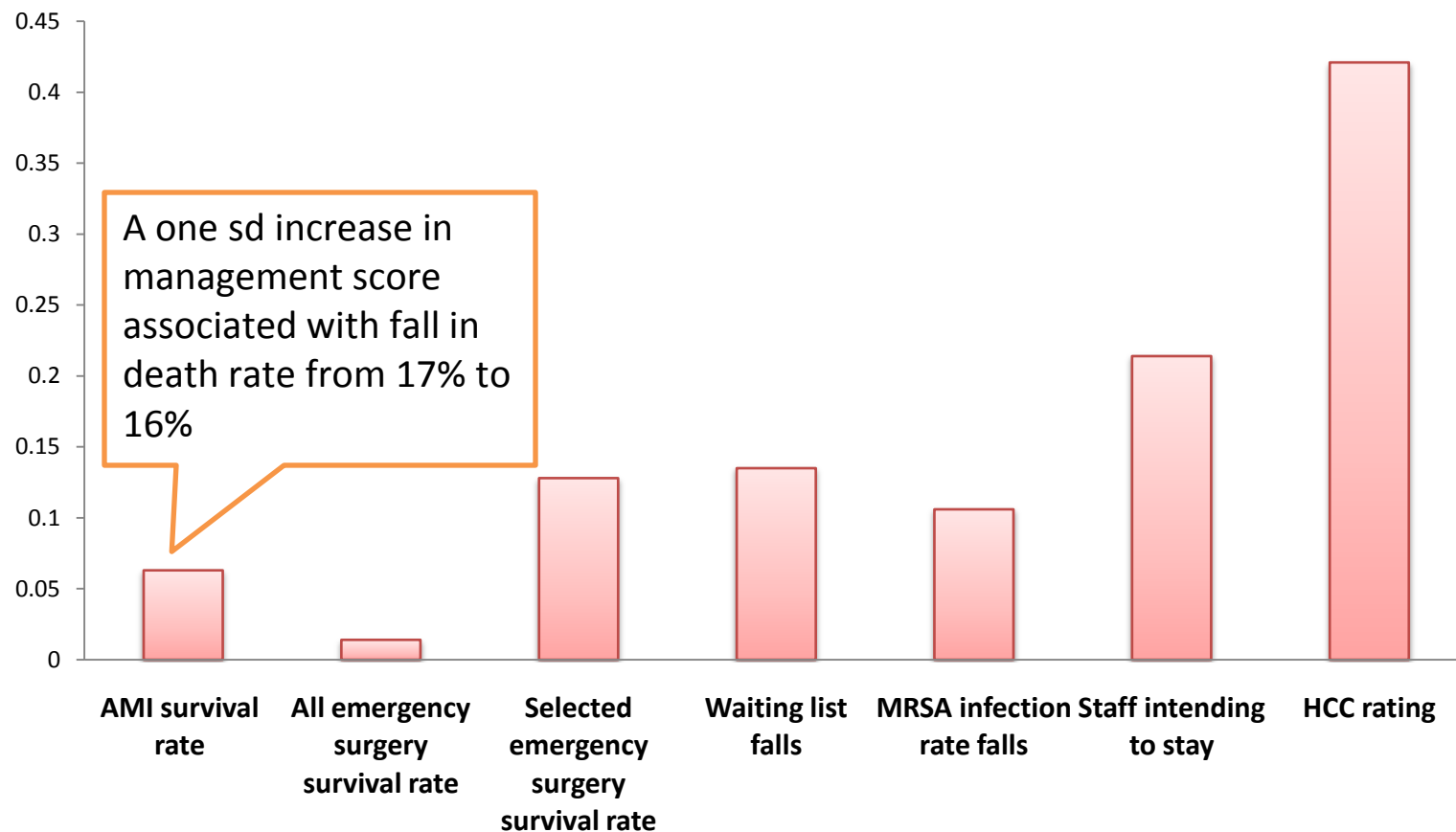
Note: Each cell from a separate regression of performance on Management. All SE clustered by hospital (N=100), management and dependent variables are standardized (mean=0; sd=1); controls: casemix (22 condition-specific age-gender cells, area mortality rate, size, speciality, region, noise (e.g. Interviewer dummies)).

Improving management scores associated with significant improvements in hospital performance



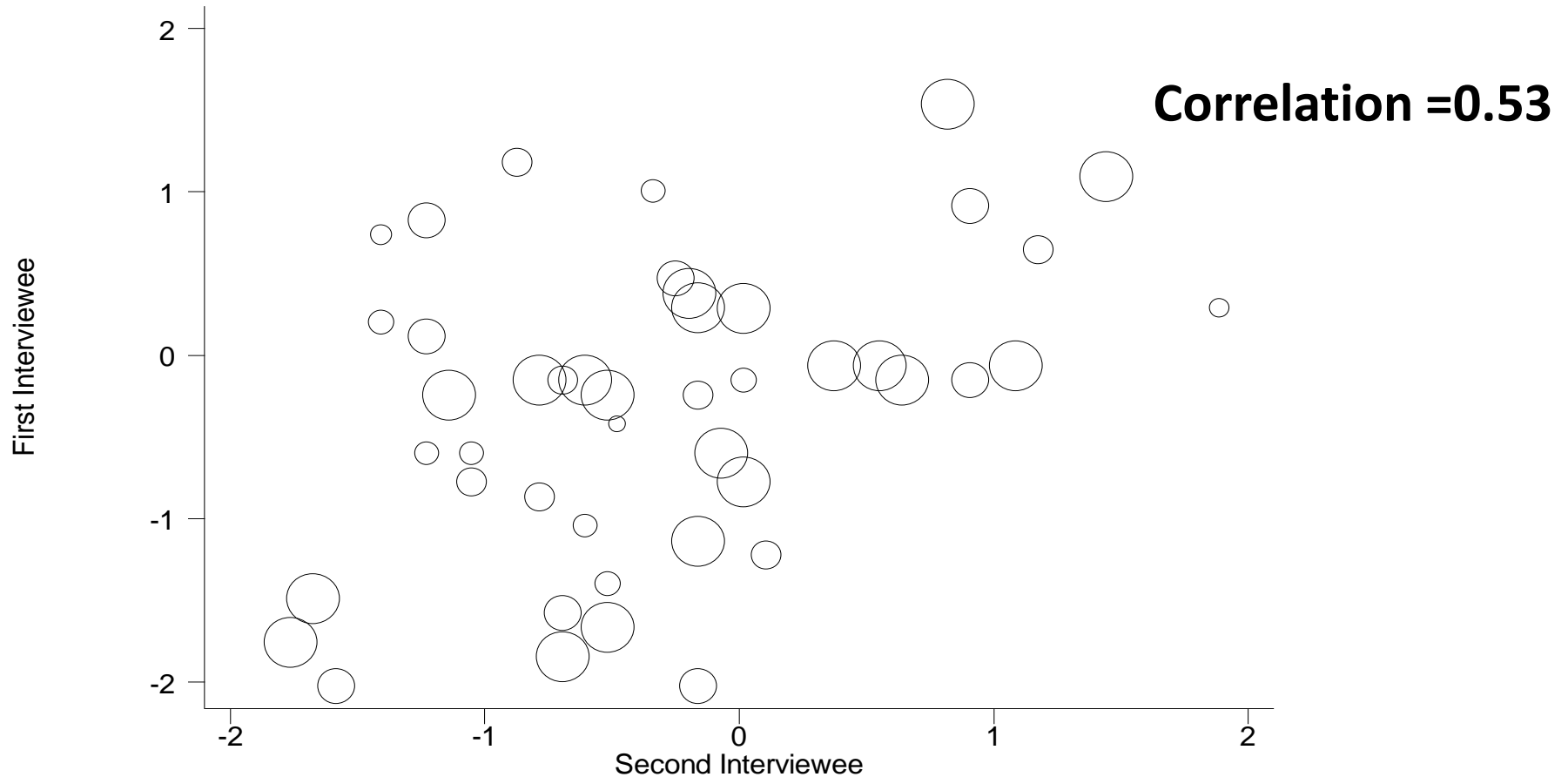
Notes: This shows implied improvement in outcome (in standard deviations) following a one standard deviation increase in the hospital management score

Improving management scores associated with significant improvements in hospital performance



Notes: This shows implied improvement in outcome (in standard deviations) following a one standard deviation increase in the hospital management score (after controlling for case mix, size, region, noise, etc.)

“INTERNAL VALIDATION”: CORRELATION BETWEEN FIRST AND SECOND INTERVIEWEE IN SAME HOSPITAL



Notes: standardized management score (16 questions) for hospitals where there are 2+ interviews. 45 hospital trusts. Weight is inverse of number of sites (unweighted correlation is 0.4). Only trusts where all answers by managers (clinicians)

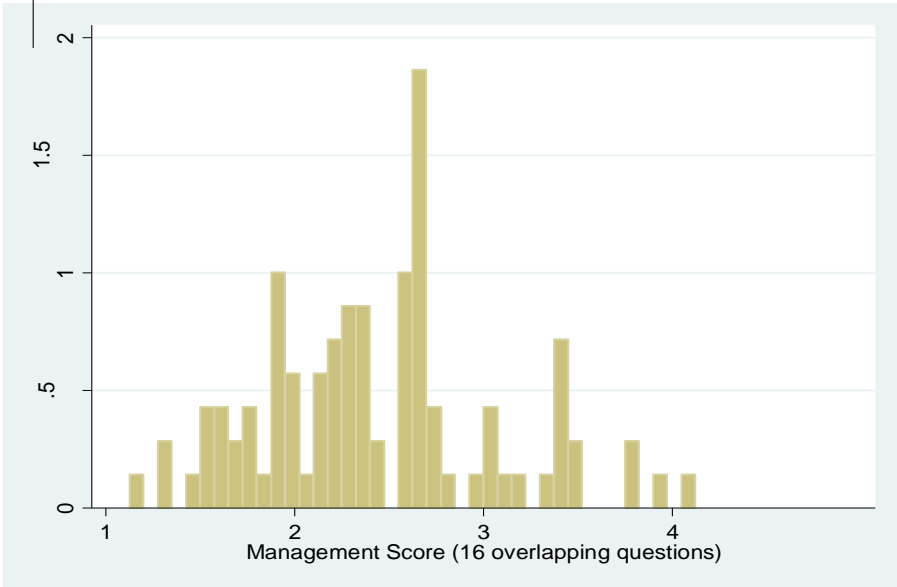
1. “Measuring” management practices

2. Evaluating the reliability of this measure

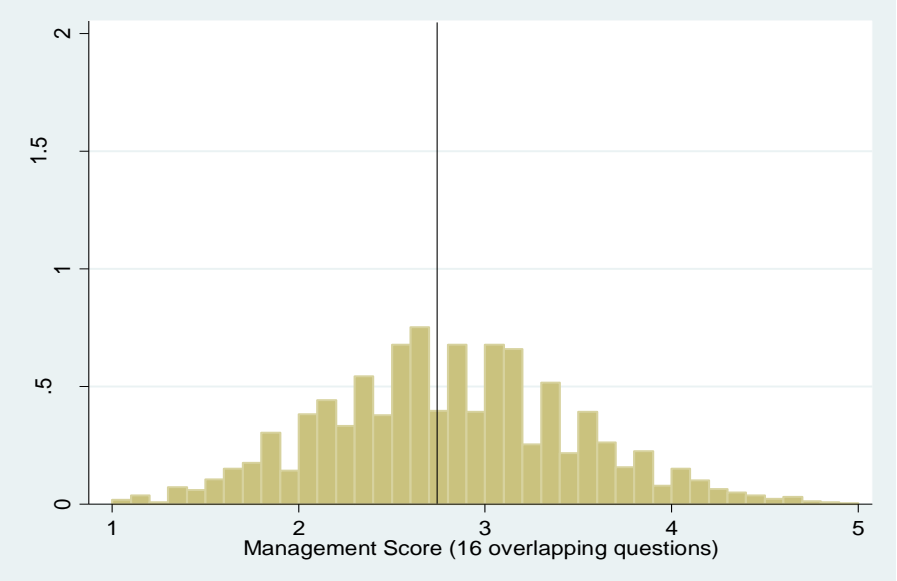
3. Describing management across sectors (private/public)

4. Explaining management within sectors (skills & competition)

FIG 3: MANAGEMENT SCORES LOWER FOR NHS HOSPITALS THAN PRIVATE MANUFACTURING FIRMS

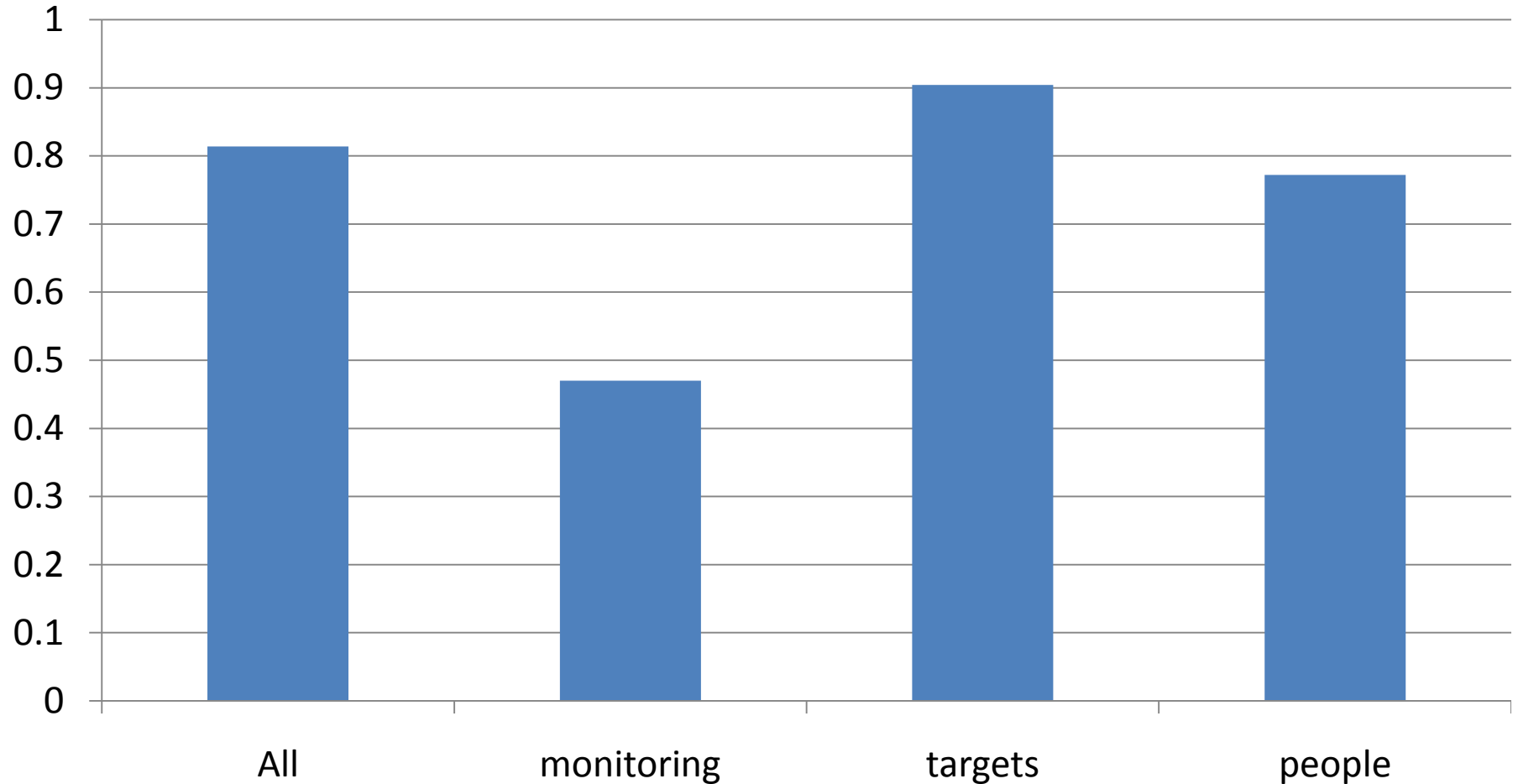


Panel A: NHS hospitals (161)



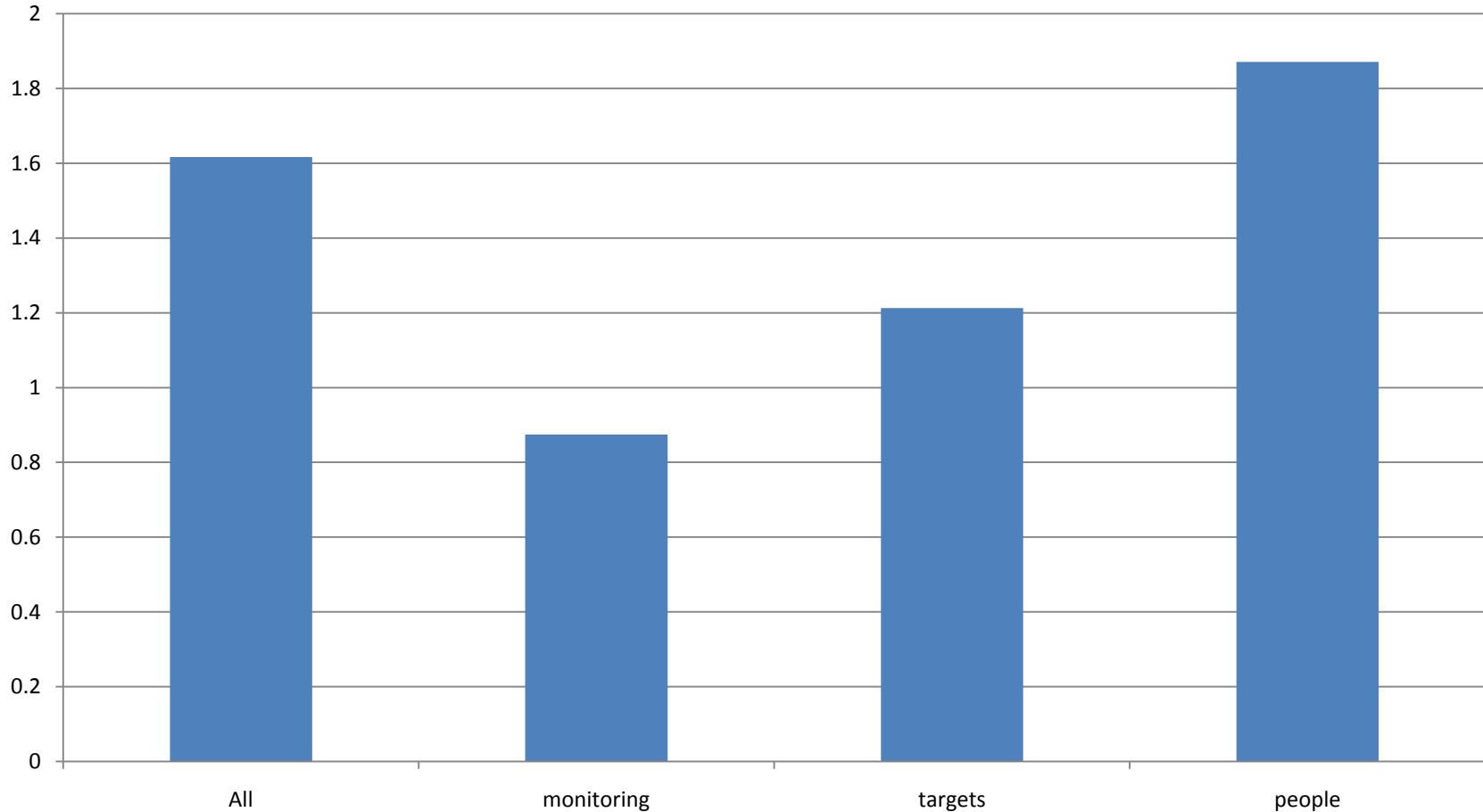
Panel B: UK Private manufacturing Firms (651);
[50-5000 workers,
No multinationals]

Gap in Management Scores: Manufacturing vs. NHS



Notes: 161 public hospitals, 651 manufacturing plants, Management is dependent variable standardized over 16 questions; controls for region, noise (e.g. Interviewer dummies) included.

Gap in Management Scores in Private hospitals vs. NHS



Notes: 161 public hospitals, 21 private hospitals, Management is dependent variable standardized over 16 questions; controls for region, noise (e.g. Interviewer dummies) included.

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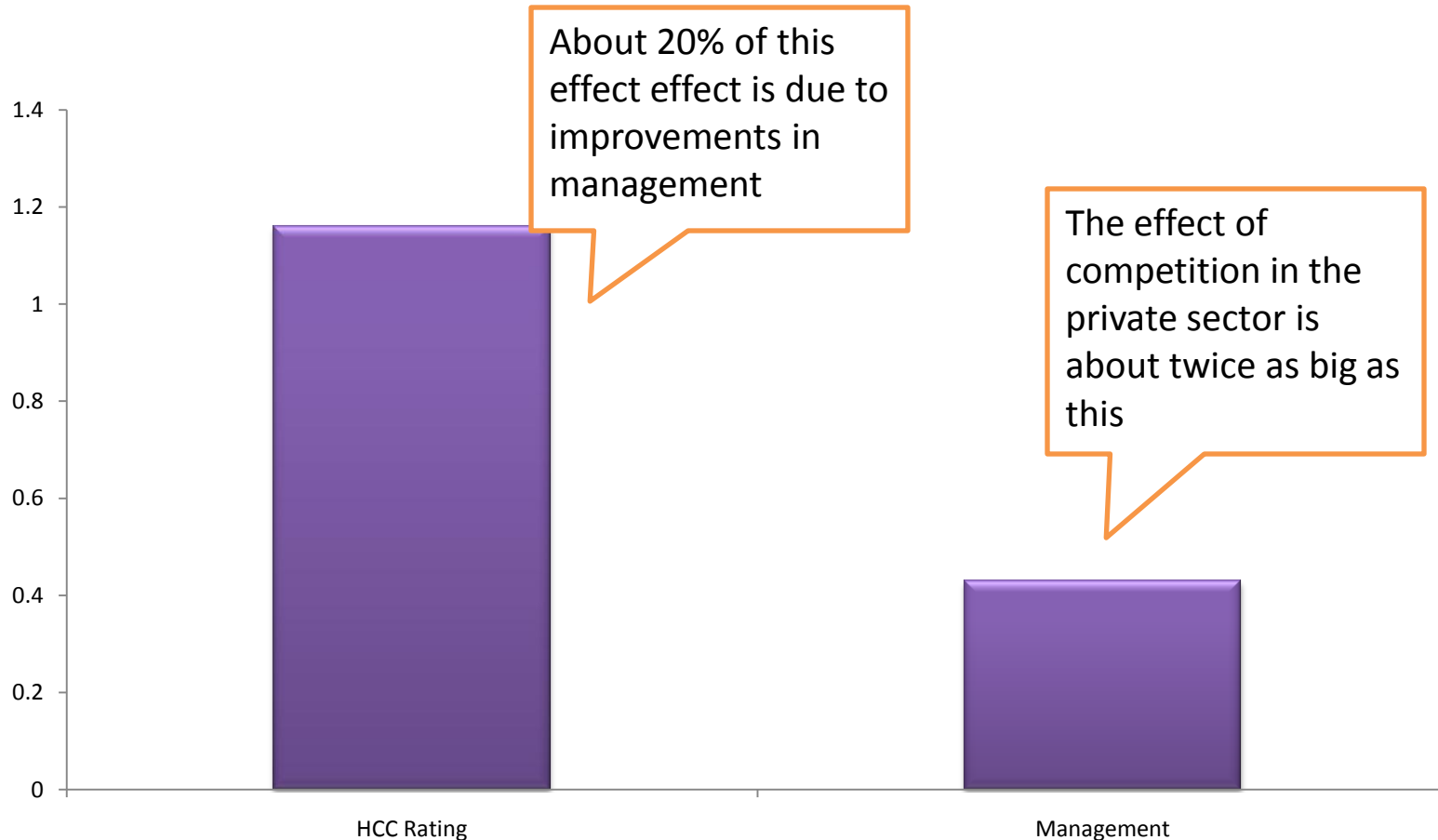
TABLE 4: BETTER MANAGED HOSPITALS HAVE MORE AUTONOMY & CLINICALLY QUALIFIED MANAGERS

Dependent variable:	Management
Foundation hospital (more autonomy)	0.633*** (0.180)
% managers with clinical qualification	0.926** (0.343)

Helps reduce the information & communication gap between senior consultants and management (cf US system & universities)

Notes: 161 public hospital interviews; Management is dependent variable; controls for casemix, region, noise (e.g. Interviewer dummies).

The effect of an increase in competition on NHS hospital performance and management



Notes: Competition is measured by the number of other hospital trusts in a 30km area Around the trust examined

Why could competition have an effect?

- Payment By Results generating a quasi-market?
- Managerial career concerns – better to be close to Other trusts
- Learning
- Something else? Universities?

Conclusions

- Useful tool for management in healthcare – contains information (performance results)
- Lower scores in public sector than private (especially for people management)
- Competition matters for performance & management, especially for private sector
- Next steps
 - What lies behind competition result?
 - Differential responses to health policy “shocks”
 - Cross country comparisons

MY FAVOURITE QUOTES:

Customer involvement

Interviewer : “Do staff sometimes end up doing the wrong sort of work for their skills?”

Manager: “You mean like physicians doing nurses jobs, and nurses doing porter jobs? Yeah, all the time. Last week, we had to get the healthier patients to push around the beds for the sicker patients!”

Back up

TABLE 1: DESCRIPTIVE STATISTICS

Variable	Mean	S.D
AMI Mortality	16.9	11.0
Mortality all surgery	2.56	1.11
Mortality selected surgery	5.20	1.70
Infection rate MRSA	1.57	0.89
waiting list	5,764	3,226
Likelihood of leaving (1-5)	2.667	1.025
Average Health Care Commission rating (1-4 scale)	2.25	0.128
Proportion of physicians in total hospital employment	11	2
Managers with a clinical degree	50.3	31.7
Foundation Trust (hospitals with greater autonomy)	34.2	47.6
No. hospitals in 30km radius	20	27
Respondent in Cardiology	51.6	50.3
Respondent physician	21.1	40.9
Number of patients	15,513	8207
Total employment	3,651	2016

WHY SHOULD MANAGEMENT PRACTICES VARY?

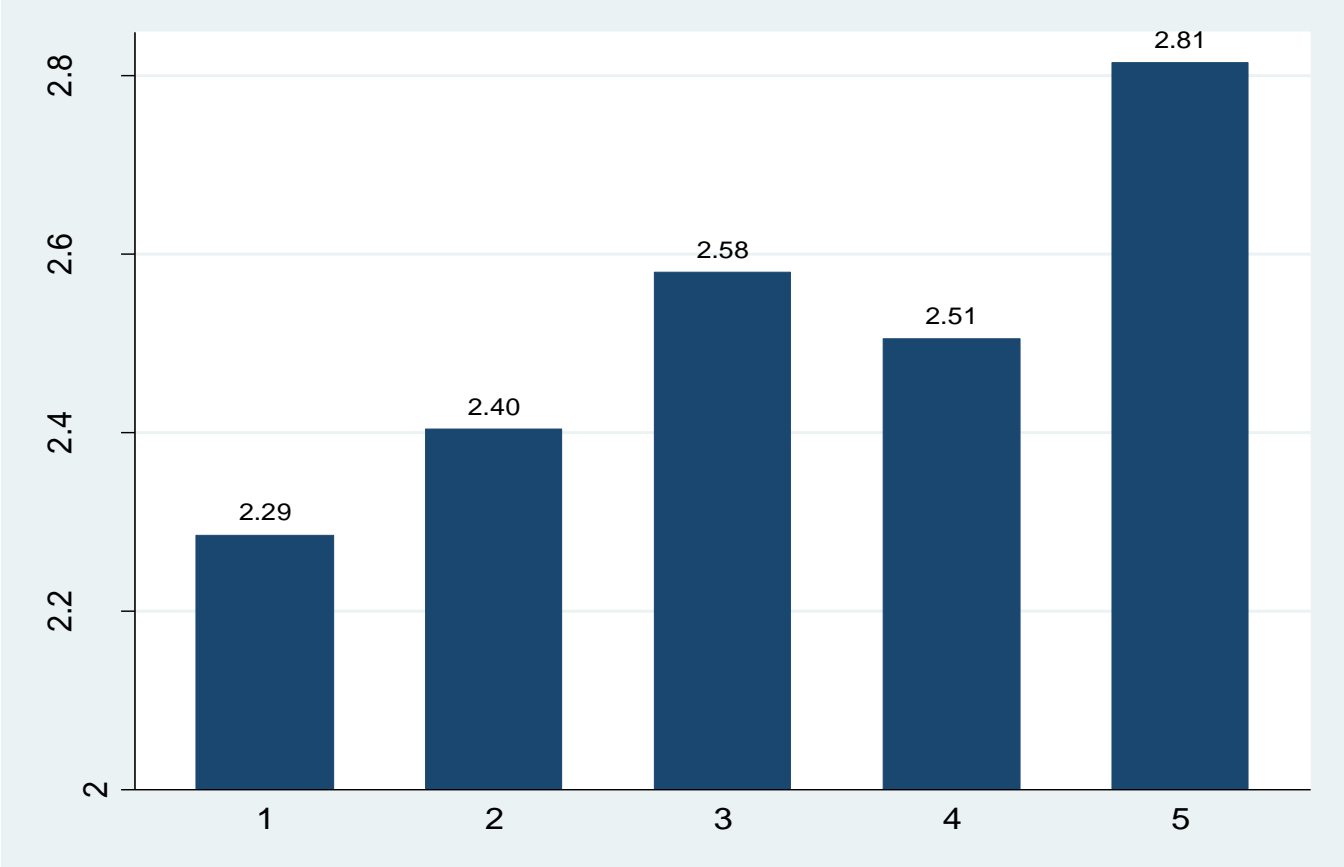
Two models - not mutually exclusive

- *Optimal choice of management practices*
 - Another factor of production
 - No “better” or “worse” style of management – depends on firm’s circumstances

- *Managerial inefficiency*
 - Strictly “better” or “worse” styles of management
 - Part of a firm’s overall productivity

Generally we find some support for both – today focus on “managerial inefficiency” evidence due to time constraints

FIG 2: MANAGEMENT SCORES AND HCC RATING



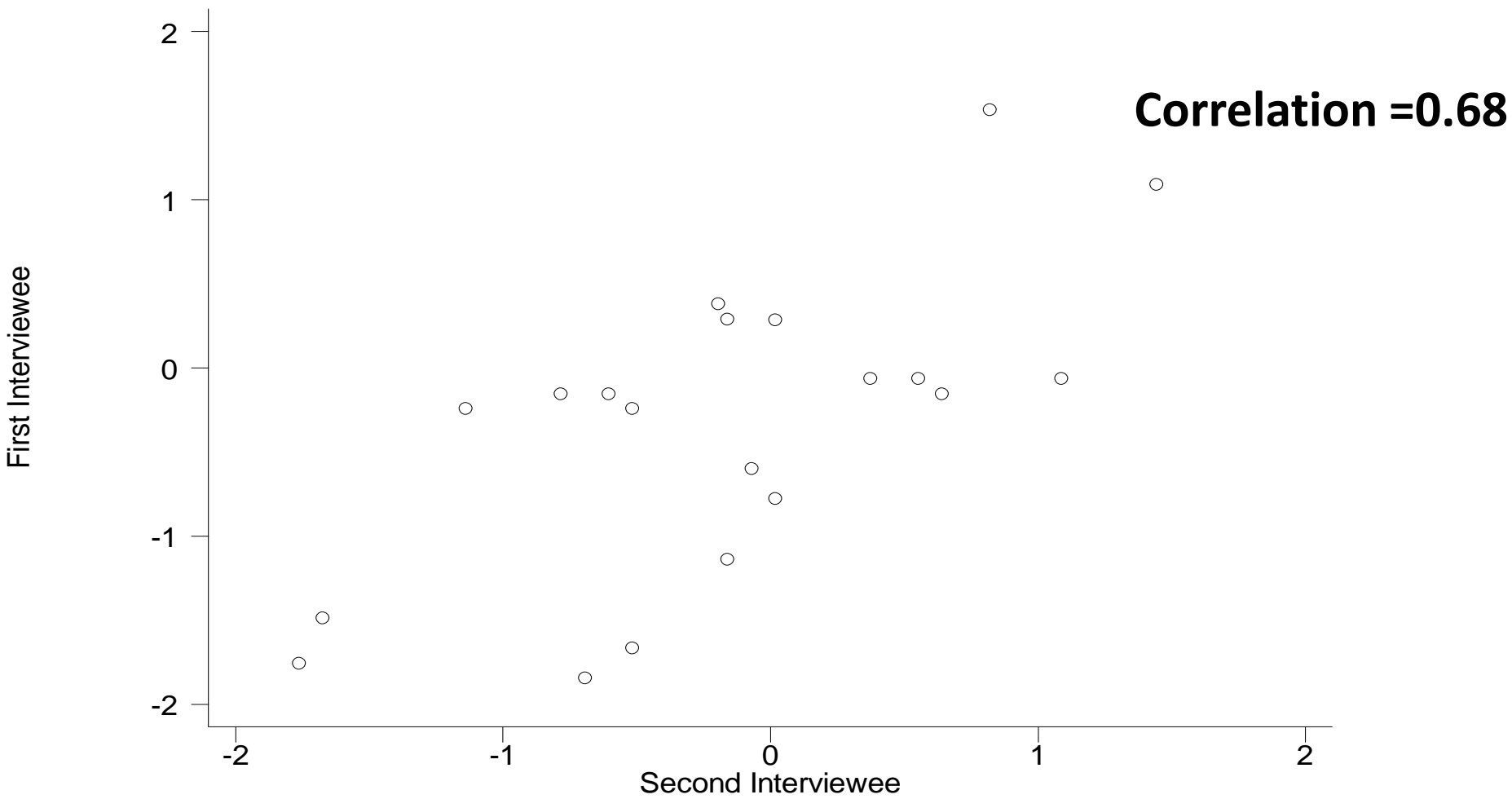
Heath Care Commission RATING

Q8 TARGETS - Target balance

Score	(1): Goals focussed only on government targets and achieving the budget	(3) Goals are balanced set of targets, including (quality, waiting times, operational efficiency, and financial balance). Goals do not extend to all staff groups. interdependency is not well understood	(5): Goals are a balanced set of targets covering all four dimensions (see left). Interaction of these is understood by senior and junior staff (clinicians as well as nurses and managers)
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What types of targets are set for the hospital? What are the goals for your specialty? Tell me about goals that are not set externally (e.g. by the government, regulators).

CORRELATION BETWEEN FIRST AND SECOND INTERVIEWEE IN SAME HOSPITAL (SINGLE SITES)



Notes: standardized management score (16 questions) for hospitals where there Where 2+ interviews. 20 hospital trusts.

Table B3: DISTRIBUTION OF INTERVIEWS BY HOSPITAL

interviews	hospitals	Observations
1	53	53
2	34	68
3	12	36
4	1	4
Total	100	161

Table B4: CHECKING FOR ABSENCE OF SELECTION

Variable	Marginal effect (standard error)
Mortality rate from AMI	0.129(0.161)
Mortality rates from general surgery	0.239(0.334)
Mortality rates from selected high risk surgery	0.017(0.049)
Total Waiting List	0.025(0.045)
Proportion on waiting list “at risk”	0.026(0.060)
MRSA Infection rate	-0.025(0.041)
Health Care Commission overall rating	-0.014(0.056)
HCC Rating over sub-set of indicators	0.067(0.090)
Area Standardized Mortality Rate	0.0003(0.0003)
Number of patient cases/10000	0.018(0.470)
Number of employees/10000	-0.039(0.200)
Proportion doctors	-2.463(2.177)
Foundation Trust	0.091(0.082)

Notes: Dependent variable =1 if responded to survey (100 hospitals out of 164 Possible English acute hospitals).

TABLE 3: COMPARING MANAGEMENT IN DIFFERENT SECTORS

Dependent variable	All Mngt.	All Mngt.	Monitoring	Targets	People
Manufacturing	Baseline	Baseline	Baseline	Baseline	Baseline
Any Hospital	-0.529*** (0.169)	-0.814*** (0.157)	-0.470*** (0.162)	-0.904*** (0.175)	-0.772*** (0.150)
Private hospital		1.617*** (0.189)	0.874*** (0.168)	1.213*** (0.186)	1.871*** (0.213)
Obs	833	833	833	833	833

Notes: 161 public hospitals, 21 private hospitals, 651 manufacturing plants, Management is dependent variable standardized over 16 Questions in col (1)-(2); controls for region, noise (e.g. Interviewer dummies).

TABLE 3: COMPARING MANAGEMENT IN DIFFERENT SECTORS

	UK	UK	France, Germany, Italy, Poland, UK,		
Manufacturing	Baseline	Baseline	Baseline	Baseline	Baseline
Any Hospital	-0.529*** (0.169)	-0.814*** (0.157)	-0.561*** (0.168)	0.119 (0.206)	-0.546** (0.219)
Private Org.				0.821*** (0.150)	0.307* (0.159)
Private hospital		1.617*** (0.189)			1.409*** (0.252)
Obs	833	833	1,993	1,993	1,993

Notes: 161 public hospitals, 21 private hospitals, 651 manufacturing plant (1811 in EU); Management is dependent variable standardized over 16 questions; controls for region, noise (e.g. Interviewer dummies).

TABLE 3a: TYPE OF MANAGEMENT – BIGGEST GAP IS IN PEOPLE MANAGEMENT

Type of management	Monitoring	Targets	People
Manufacturing	Baseline	Baseline	Baseline
Any Hospital	-0.470*** (0.162)	-0.904*** (0.175)	-0.772*** (0.150)
Private hospital	0.874*** (0.168)	1.213*** (0.186)	1.871*** (0.213)
Observations	833	833	833

Notes: 161 NHS hospitals, 21 private hospitals, 651 manufacturing plants, (1811 in EU); Management is dependent variable standardized over 16 questions; controls for region, noise (e.g. Interviewer dummies).

TABLE 3a: TYPE OF MANAGEMENT – BIGGEST GAP IS IN PEOPLE MANAGEMENT

Type of management	Monitoring	Targets	People	
Manufacturing	Baseline	Baseline	Baseline	
Any Hospital	-0.470*** (0.162)	-0.904*** (0.175)	-0.772*** (0.150)	DIF= 2.6
Private hospital	0.874*** (0.168)	1.213*** (0.186)	1.871*** (0.213)	
Observations	833	833	833	

Notes: 161 public hospitals, 21 private hospitals, 651 manufacturing plant (1811 in EU); Management is dependent variable standardized over 16 questions; controls for region, noise (e.g. Interviewer dummies).

TABLE 3a: TYPE OF MANAGEMENT – BIGGEST GAP IS IN PEOPLE MANAGEMENT & TARGETS

Type of management	Monitoring	Targets	People
Manufacturing	Baseline	Baseline	Baseline
Any Hospital	-0.470*** (0.162)	-0.904*** (0.175)	-0.772*** (0.150)
Private hospital	0.874*** (0.168)	1.213*** (0.186)	1.871*** (0.213)
Observations	833	833	833

DIF=
0.92

DIF=
2.6

Notes: 161 public hospitals, 21 private hospitals, 651 manufacturing plant (1811 in EU); Management is dependent variable standardized over 16 questions; controls for region, noise (e.g. Interviewer dummies).

TABLE 5: COMPETITION ASSOCIATED WITH BETTER PERFORMANCE & MANAGEMENT, ESPECIALLY FOR PRIVATE

Dependent variable:	HCC rating		Management	
Competition	0.043** (0.020)	0.035* (0.020)	0.016* (0.009)	0.008 (0.18)
Private Hospital*Competition				0.018* (0.010)
Management		0.493*** (0.110)		
Private hospital				0.918*** (0.216)
Sample	Public	Public	Public	Public and private
Observations	159	159	159	179

Notes: Competition= Number of hospitals in 30km radius, controls for size, %managers with clinical degree, region, noise (e.g. Interviewer dummies), casemix (except last column – no data for private sector available).

TABLE 5: MANAGEMENT AND PERFORMANCE HIGHER WHEN COMPETITION HIGHER (No. hospitals in 30km radius)

Dependent variable:	HCC rating	HCC rating	Management
Competition	0.043** (0.020)	0.035* (0.020)	0.016* (0.009)
Management		0.493*** (0.110)	
Sample	Public	Public	Public
Observations	159	159	159

Notes: controls for size, %managers with clinical degree, region, noise (e.g. Interviewer dummies).

Relationship between performance and competition stronger for private hospitals