

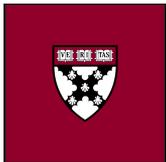
# Management Practices in Education: Descriptive Evidence

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CENTRE *for* ECONOMIC  
P E R F O R M A N C E

AEA Meetings – January 2012

# Big picture question is does management matter in education – can better management improve pupils outcomes?

- Poor productivity of educational systems around the world
  - Massive increase in spending but flat educational achievements over the past 30 years
- Mixed views on what can be done about it
  - All depends on pupils socio economic background (Coleman, 1966)  
=>not much
  - Cognitive skills can be affected by institutional context (Hoxby 1996) and specific inputs (Hanusheck 1997, Rockoff 2006)
- More recent research points to importance of managerial choices
  - Charter schools studies
  - Role of basic managerial choices (Rockoff et al. 2011, Dobbie & Fryer, 2011)

## This research

- We gathered large sample international data to study the relevance of management in education
  - Survey instrument based on Bloom and Van Reenen (2007)
  - Long run measurement project: +10,000 organizations in 20 countries interviewed so far
- Today we will discuss some of the first steps in this research agenda
  - Approx. 1,000 middle schools Principals in Canada, Germany, Italy, Sweden, UK and US
  - **Descriptive evidence, no causal results**
- Preliminary findings
  - Wide heterogeneity in school management across and within countries
  - Management positively associated with school performance
  - School size, ownership, competition and specific principal characteristics associated with higher management scores

# Agenda

**1** Measuring management practices in education

**2** Describing management across schools

**3** “Drivers” of management practices

**4** Next steps

# The management survey methodology

## 1) Developing management questions

- 20 practice scorecard: use of data, monitoring, targets, incentives, accountability
- Interviewed middle schools principals for ~1 hour

## 2) Getting schools to participate in the interview

- Performance indicators from external sources (not interview)
- Endorsement letter from Department of Education
- Run by 25 MBA-types (loud, assertive & experienced)

## 3) Obtaining unbiased responses (“Double-blind”)

- Interviewers do not know the school's performance
- Interviewees are not informed (in advance) they are scored

### Q3 Data Driven Planning and Student Transitions

- Is data used to inform planning and strategies? If so, how is it used – especially in regards to student transitions through grades/levels?
- What drove the move towards more data-driven planning-tracking?

<b>Score</b>	<b>(1): School may be aware of critical transitions for students, but little or no effort is made to match support services to students; data is often unavailable or difficult to use</b>	<b>(3): School may understand the critical transition points for students, although these are not identifies in a consistent manner; some data is available, although not necessarily in an integrated or easy to use manner</b>	<b>(5): Student transitions are managed in an integrated and proactive manner, supported by formative assessments tightly linked to learning expectations; data is widely available and easy to use</b>
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## Q7 MONITORING – Performance Review

How often do you review school performance with teachers and staff? Could you walk me through the steps you go through in a process review? Who is involved in these meetings? Who gets to see the results of this review? What sort of follow-up plan would you leave these meetings with?

Score			
<b>Score</b>	<b>(1):</b> <b>Performance is reviewed infrequently or in an un-meaningful way e.g. only success or failure is noted</b>	<b>(3): Performance is reviewed periodically with both successes and failures identified. Results are communicated to senior staff. No clear follow up plan is adopted.</b>	<b>(5): Performance is continually reviewed, based on the indicators tracked. All aspects are followed up to ensure continuous improvement. Results are communicated to all staff.</b>

# Performance Monitoring: Schools

NYC Department of Education

Value-added Data for Teachers Initiative

Teacher: Swain, Winthrop

## Teacher Performance by Student Characteristics

Teacher's value-added for sub-groups of students compared to teacher's value-added overall for history: up to 3 years

Types of Student	Sample Size / (% of Sample)	Actual Gain	Predicted Gain	Difference from Predicted (Teacher's Value Added)
<b>English Language Arts</b>				
All Students	144 (100%)	0.11	0.04	0.07*
Citywide:				
Bottom Third	94 (62.8%)	0.27	0.16	0.10*
Middle Third	39 (29.3%)	-0.13	-0.14	0.01
Top Third	11 (7.9%)	-0.32	-0.37	0.04
School				
Bottom Third	51 (32.5%)	0.39	0.24	0.16*
ELL	-	-	-	-
Special Education	15 (10.1%)	0.19	0.02	0.17
<b>Mathematics</b>				
All Students	152 (100%)	-0.03	-0.09	0.06
Citywide:				
Bottom Third	106 (64.2%)	0.11	0.01	0.10*
Middle Third	37 (28.4%)	-0.33	-0.30	-0.03
Top Third	9 (7.4%)	-0.46	-0.45	-0.02
School				
Bottom Third	48 (25.2%)	0.24	0.14	0.11
ELL	10 (6.8%)	-0.14	0.01	-0.15
Special Education	15 (9.1%)	-0.01	-0.11	0.11

The (\*) means that there is a very high probability that the contribution is positive (or negative).

Source: Rockoff, Staiger, Kane and Taylor, 2011

# Performance monitoring: Manufacturing

### Daily Efficiency Report

Sl. No.	Wearer Name	Efficiency %	Wearer Name	Efficiency %
1	राजेश	78%	राजेश	78%
2	राजेश	78%	राजेश	78%
3	राजेश	78%	राजेश	78%
4	राजेश	78%	राजेश	78%
5	राजेश	78%	राजेश	78%
6	राजेश	78%	राजेश	78%
7	राजेश	78%	राजेश	78%
8	राजेश	78%	राजेश	78%
9	राजेश	78%	राजेश	78%
10	राजेश	78%	राजेश	78%
11	राजेश	78%	राजेश	78%
12	राजेश	78%	राजेश	78%
13	राजेश	78%	राजेश	78%
14	राजेश	78%	राजेश	78%
15	राजेश	78%	राजेश	78%
16	राजेश	78%	राजेश	78%
17	राजेश	78%	राजेश	78%
18	राजेश	78%	राजेश	78%
19	राजेश	78%	राजेश	78%
20	राजेश	78%	राजेश	78%
21	राजेश	78%	राजेश	78%
22	राजेश	78%	राजेश	78%
23	राजेश	78%	राजेश	78%
24	राजेश	78%	राजेश	78%
25	राजेश	78%	राजेश	78%
26	राजेश	78%	राजेश	78%
27	राजेश	78%	राजेश	78%
28	राजेश	78%	राजेश	78%
29	राजेश	78%	राजेश	78%
30	राजेश	78%	राजेश	78%
31	राजेश	78%	राजेश	78%
32	राजेश	78%	राजेश	78%
33	राजेश	78%	राजेश	78%
34	राजेश	78%	राजेश	78%
35	राजेश	78%	राजेश	78%
36	राजेश	78%	राजेश	78%
37	राजेश	78%	राजेश	78%
38	राजेश	78%	राजेश	78%
39	राजेश	78%	राजेश	78%
40	राजेश	78%	राजेश	78%
41	राजेश	78%	राजेश	78%
42	राजेश	78%	राजेश	78%
43	राजेश	78%	राजेश	78%
44	राजेश	78%	राजेश	78%
45	राजेश	78%	राजेश	78%
46	राजेश	78%	राजेश	78%
47	राजेश	78%	राजेश	78%
48	राजेश	78%	राजेश	78%
Total		62.8%	Total	62.8%

### Jacquard Division

Loom No	Total Picks 'A'	Eff % 'A'	Total Picks 'B'	Eff % 'B'
1	76800	57	72000	41
2	112	55	180000	50
3	1875	46	176640	72
4	53760	28	104160	45
5	180000	79	196000	31
6	95040	46	80640	37
7	104160	57	187520	43
8	104160	63	158240	57
9				
10	136000	60	92000	33
11	160000	54	40000	29
12	134000	45	12040	46
13	89600	61	184640	55
14				
15	153600	65	147200	51
16				

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# Performance monitoring: Airports

## How are we performing? January 2010

**Security waiting time for transfer passengers**  
Queue < 10 mins

Terminal	Target	Achieved
1	95%	99.45%
3	95%	97.60%
4	95%	100.00%
5	95%	97.05%

Based on 15 min time periods measured

**Lifts, escalators & passenger conveyors**  
Service availability

Terminal	Target	Achieved
1	99%	98.16%
3	99%	98.61%
4	99%	99.31%
5	99%	99.77%

Availability measured over a month

**Lifts, escalators & passenger conveyors (passenger critical)**  
Service availability

Terminal	Target	Achieved
1	99%	99.19%
3	99%	99.67%
4	99%	99.22%
5	99%	99.93%

Availability measured over a month

**Pier service**  
Percentage of passengers embarking and disembarking directly into the terminal building

Terminal	Target	Achieved
1	92.54%	98.13%
3	95.00%	Under Review
4	95.00%	99.89%
5	89.13%	80.31%

Availability measured over a month

**Arrivals reclaim (baggage carousels)**  
Service availability

Terminal	Target	Achieved
1	99%	97.26%
3	99%	98.59%
4	99%	99.24%
5	99%	99.82%

Availability measured over a month

**Terminal 5 transit**  
Service availability

Terminal	Target	Achieved
1 Car	99%	99.80%
2 Cars	97%	99.00%

Availability measured over a month

**Departure lounge seat availability**  
Ease of finding a seat

Terminal	Target	Achieved
1	3.8	4.1
3	3.8	3.7
4	3.8	4.2
5	3.8	4.0

Measured by 10 randomly chosen and 100 random

**Cleanliness**  
Overall cleanliness of the terminal

Terminal	Target	Achieved
1	3.9	4.0
3	3.9	3.9
4	3.9	4.0
5	3.9	4.2

Measured by 10 randomly chosen and 100 random

**Wayfinding**  
Ease of finding your way around our airport

Terminal	Target	Achieved
1	4.0	4.0
3	4.0	4.0
4	4.0	4.1
5	4.0	4.2

Measured by 10 randomly chosen and 100 random

**Flight information**  
Accuracy and ease of finding flight information

Terminal	Target	Achieved
1	4.2	4.2
3	4.2	4.3
4	4.2	4.3
5	4.2	4.4

Measured by 10 randomly chosen and 100 random

**Security waiting time**  
Queue < 5 mins

Terminal	Target	Achieved
1	99%	99.99%
3	99%	99.99%
4	99%	97.80%
5	99%	96.77%

Queue < 10 mins

Terminal	Target	Achieved
1	99%	99.99%
3	99%	99.99%
4	99%	99.99%
5	99%	99.84%

Based on 15 min time periods measured

## How are we performing? January 2010

**Security waiting time for transfer passengers**  
Queue < 10 mins

Terminal	Target	Achieved
1	95%	99.45%
3	95%	97.60%
4	95%	100.00%
5	95%	97.05%

Based on 15 min time periods measured

**Lifts, escalators & passenger conveyors**  
Service availability

Terminal	Target	Achieved
1	99%	98.16%
3	99%	98.61%
4	99%	99.31%
5	99%	99.77%

Availability measured over a month

**Lifts, escalators & passenger conveyors (passenger critical)**  
Service availability

Terminal	Target	Achieved
1	99%	99.19%
3	99%	99.67%
4	99%	99.22%
5	99%	99.93%

Availability measured over a month

**Pier service**  
Percentage of passengers embarking and disembarking directly into the terminal building

Terminal	Target	Achieved
1	92.54%	98.13%
3	95.00%	Under Review
4	95.00%	99.89%
5	89.13%	80.31%

Availability measured over a month

**Arrivals reclaim (baggage carousels)**  
Service availability

Terminal	Target	Achieved
1	99%	97.24%
3	99%	98.65%
4	99%	99.24%
5	99%	99.82%

Availability measured over a month

# Performance monitoring: Retail banking

Porte A

Data: 09/01/2008



1<sup>o</sup> /11

	Out	Nov	Dez	4Tri	Jan	Fev	Mar	1Tri
• Total Segmentos	61,53	83,64	79,17	73,25	52,27	0,00	0,00	34,37
• Total PF	70,15	76,99	75,13	68,82	42,11	0,00	0,00	26,86
Preferencial	58,09	86,85	86,87	76,92	15,16	0,00	0,00	13,43

Data: 09/01/2008



1<sup>o</sup> /11

**LUIZ PEDRO BOURSCHIEDT**

Rede III  
REGIONAL JUNDIAÍ  
PV JUNDIAÍ  
PORTE A

INTEGRANTES

SUPER RANKING

TOTAL SEGMENTOS 52,27

PERÍODO: Jan, Fev, Mar, 1Tri  
Tri: 10% Jan: 27%

SEGMENTO	PESO	META	REAL	%	PONTOS	O.PORT.
<b>Cientes</b>					0,00	0,0
+ Incr. Base Ativa	0	28	146	150,0	0,00	0,0
+ Incr. Clientes c/ Ofer...	0	153	0	0,0	0,00	0,0
+ Abertura Contas PF	0	120	24	11,3	0,00	0,0
+ Abertura Contas Busine...	0	6	0	0,0	0,00	0,0
+ Aquisição Com Of. Bási...	0	136	0	0,0	0,00	0,0
+ Conversão Of. Básica	0	313	1	0,0	0,00	0,0
<b>Vendas</b>					0,00	0,0
+ Super Auto	0	5	2	40,0	0,00	0,0
+ Seguro Vida	0	47	26	55,3	0,00	0,0
+ Seguro Residencial	0	25	8	32,0	0,00	0,0
+ Seguro Auto	0	6	1	16,7	0,00	0,0
+ Seguro Vida Master	0	2	0	0,0	0,00	0,0
+ Cartões	0	140	75	53,6	0,00	0,0
+ CP Protegido	0	295	70	23,7	0,00	0,0
+ Capitalização	0	58	6	10,3	0,00	0,0
+ Novas Cobranças Ativas	0	4	2	50,0	0,00	0,0
+ Títulos Liquidados	0	5.301	1.815	34,2	0,00	0,0
<b>Captações - Captação Líquida</b>					0,00	0,0
+ Captação Alvo	0	1.371	1.072	78,2	0,00	0,0
+ Previdência Foco PF	0	184	599	325,6	0,00	0,0
+ Captação Demais	0	766	-3.001	-391,8	0,00	0,0
<b>Depósito à Vista / Float</b>					0,00	0,0
+ DAV / Float	0	100	1.708	999,0	0,00	0,0
<b>Empréstimos - Incr. Saldo Médio</b>					0,00	0,0
+ Empréstimos Alvo PF	0	543	-118	-21,7	0,00	0,0

18,78	0,00	0,00	18,12
37,11	0,00	0,00	25,07
<b>75,99</b>	<b>0,00</b>	<b>0,00</b>	<b>51,89</b>
47,40	0,00	0,00	41,84
26,08	0,00	0,00	23,13

SUPER RANKING

SUPER RANKING

## Q15 INCENTIVES - Removing poor performers

- If you had a teacher who could not do her job adequately, what would you do? Could you give me a recent example?
- How long would underperformance be tolerated? How difficult is it to fire a teacher?
- Do some individuals always just manage to avoid being re-trained/fired?

Score	<b>(1): Poor performance is not addressed or inconsistently addressed. Poor performers are rarely removed from their positions</b>	<b>(3) Poor performance is addressed, but typically through a limited range of methods. Terminating an employee often takes more than a year, and is infrequent</b>	<b>(5): Repeated poor performance is addressed, beginning with targeted interventions. Poor performers are moved out of the school when weaknesses cannot be overcome</b>
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# Agenda

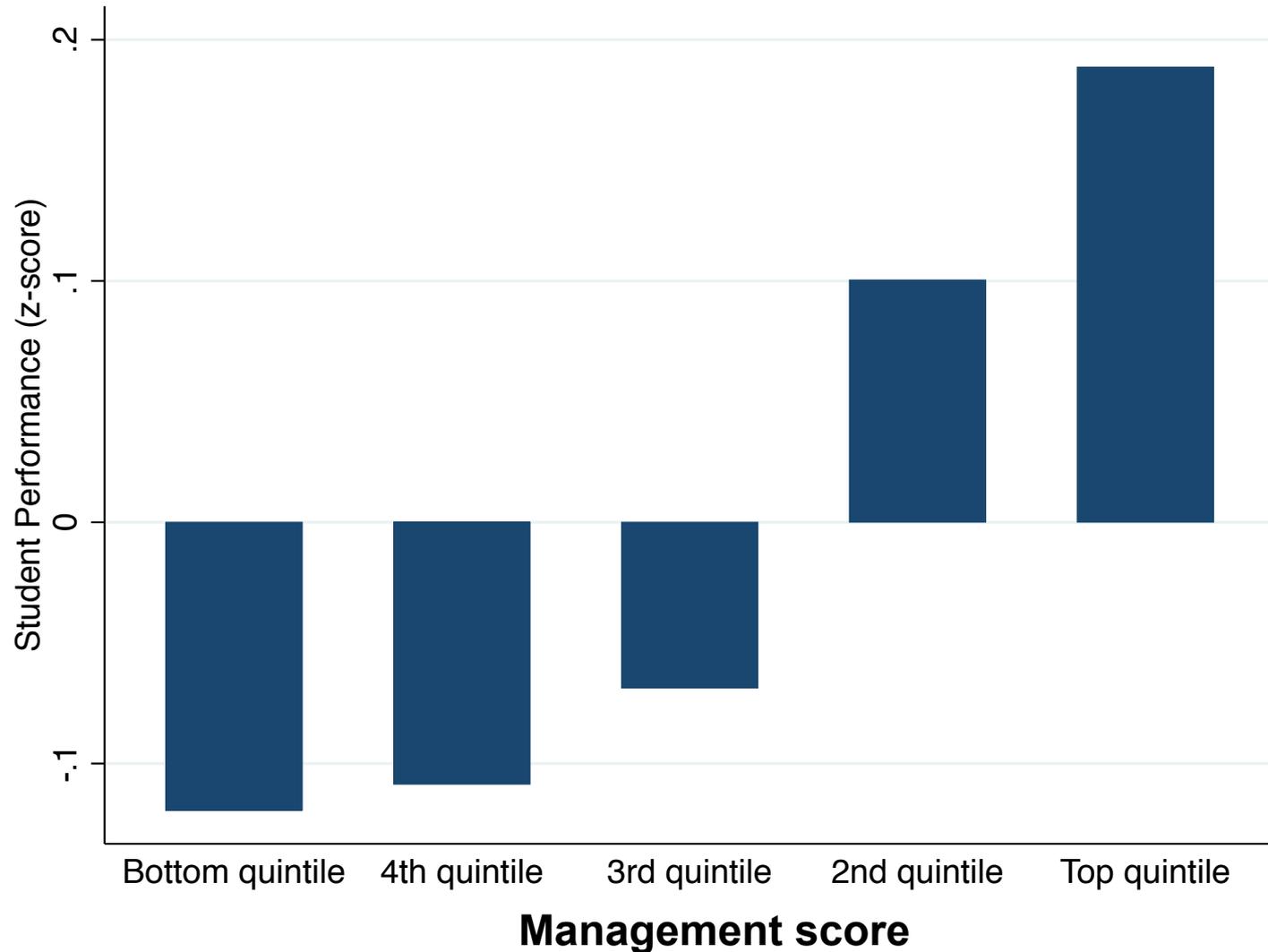
1 Measuring management practices in education

**2 Describing management across schools**

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# We found good management to be strongly correlated with better school performance



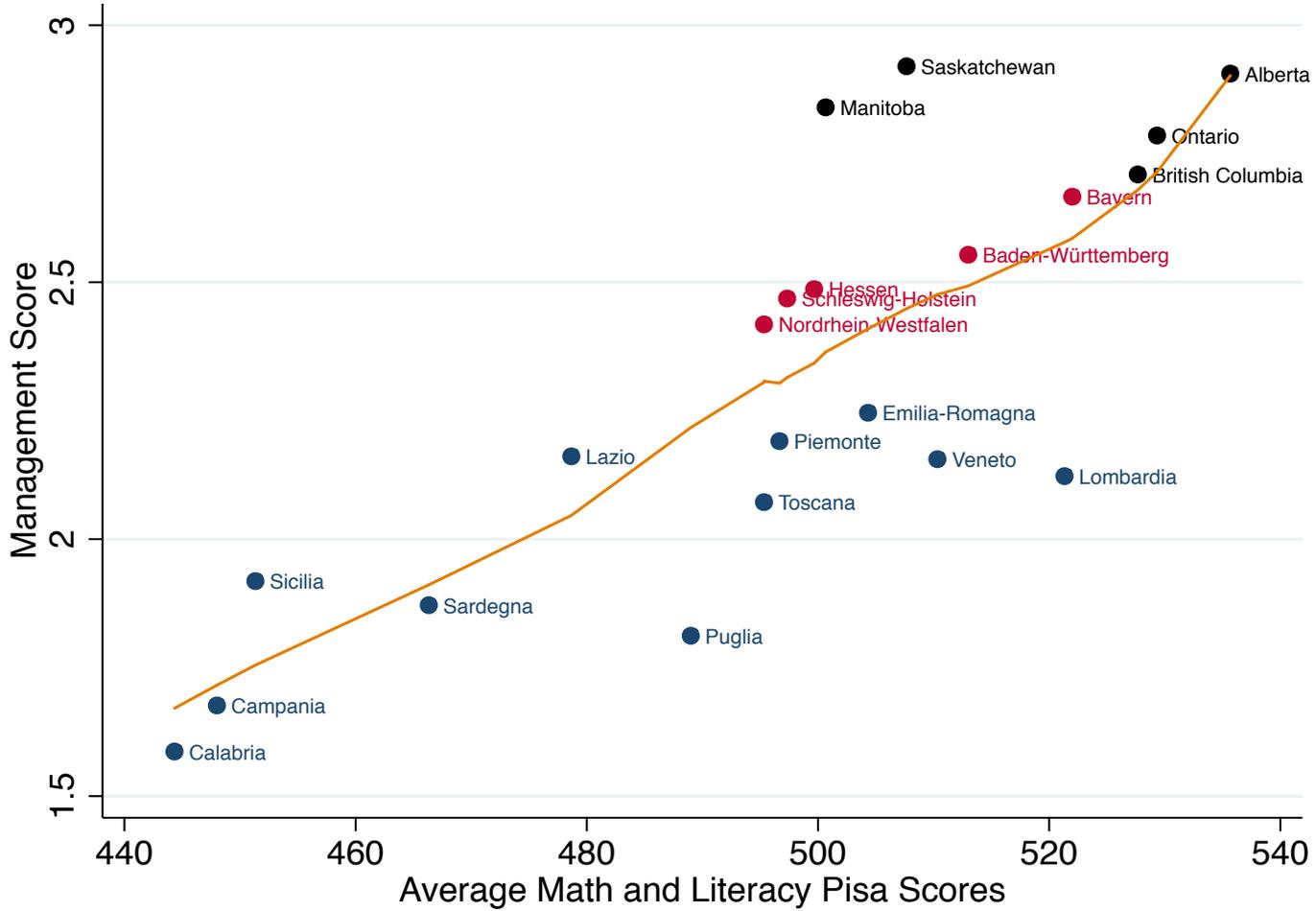
Notes: Graph based on 354 observations with available school performance information (Canada=77; UK=85; US=120; Sweden=72). Schools performance data are zscored within country.

# The correlation between management and school performance is robust to the inclusion of a wide range of controls, and similar across subgroups of the management score

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	School Performance						
<b>Management</b>	0.119** (0.054)	0.185*** (0.060)					
<b>Monitoring</b>			0.071 (0.055)				
<b>Targets</b>				0.150** (0.060)			
<b>People</b>					0.175*** (0.055)		
<b>Evidence based instruction methods</b>						0.093* (0.055)	
<b>Pseudo-Fryer Index</b>							0.122** (0.061)
<b>Observations</b>	354	354	354	354	354	354	354
<b>Country dummies</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Regional dummies</b>	No	Yes	Yes	Yes	Yes	Yes	Yes
<b>School controls</b>	No	Yes	Yes	Yes	Yes	Yes	Yes
<b>Noise controls</b>	No	Yes	Yes	Yes	Yes	Yes	Yes

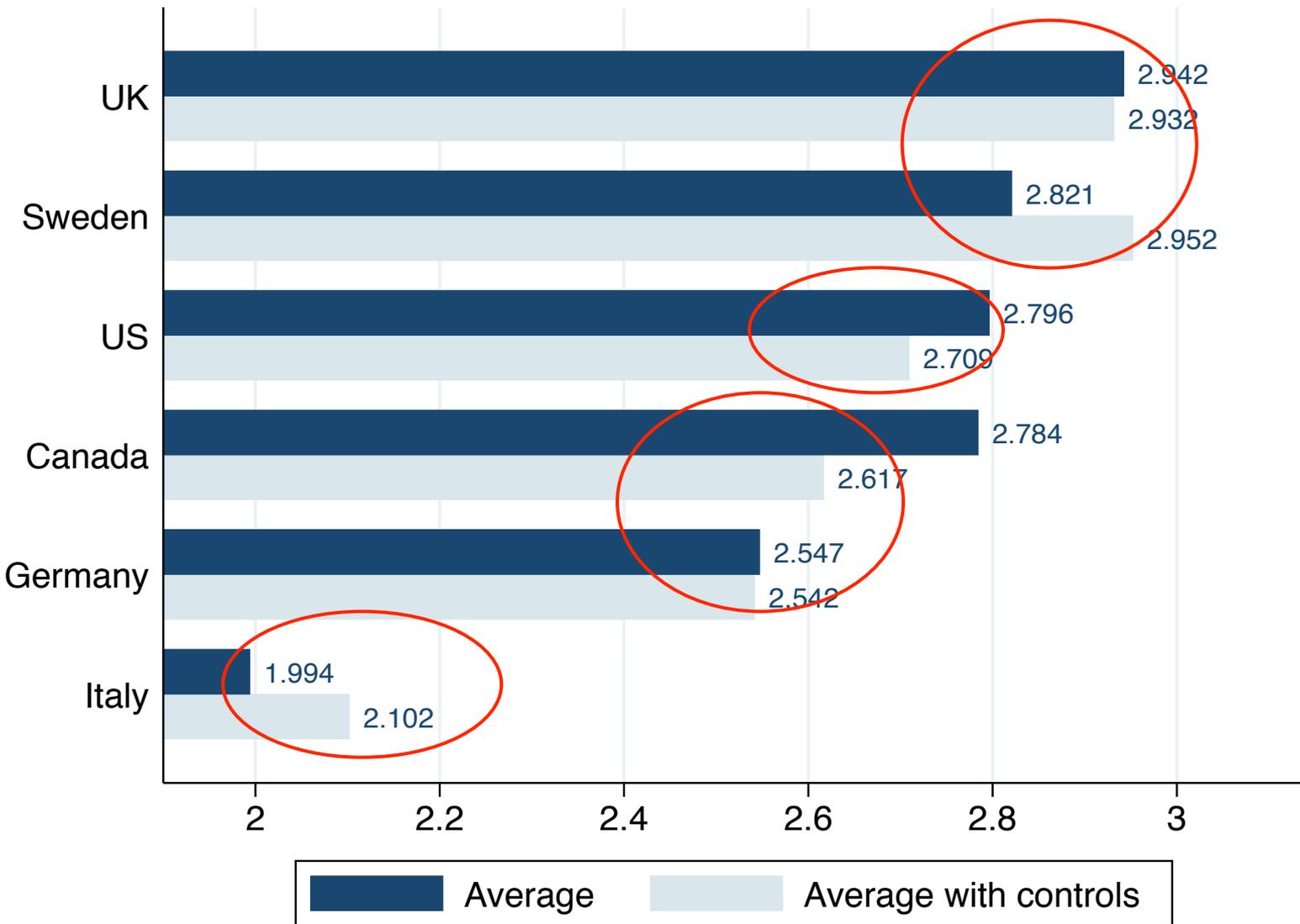
Notes: Graph based on 354 observations with available school performance information (Canada=77; UK=85; US=120; Sweden=72). Schools performance data are zscored within country. School controls include: number of pupils, pupil-teacher ratio, age, ownership, type. Noise controls include: interviewee tenure in post, gender, seniority; interview duration, reliability time, day of the week; analyst dummies. Robust standard errors in parentheses under coefficients.

# Management scores by region are correlated with PISA rankings



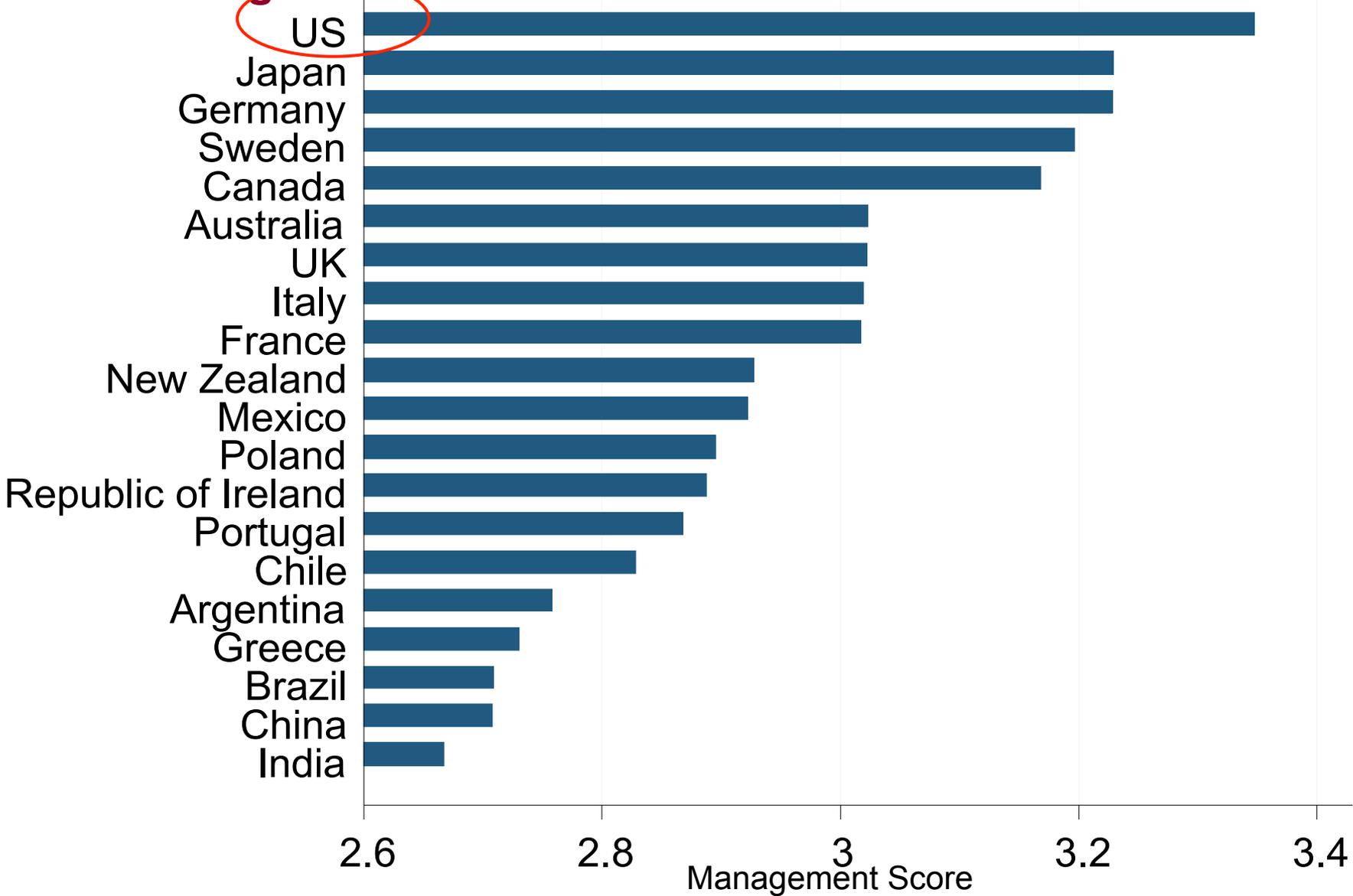
Notes: Graph based on 512 observations: countries with available regional PISA data, and regions with at least 10 management interviews. (Canada=120 obs, PISA 2009; Germany=106 obs, PISA 2006; Italy=286 obs, PISA 2009).

# School management practices vary across countries



Note: Averages taken across all schools within each country. 988 schools. . School controls include: number of pupils, pupil-teacher ratio, age, ownership, type. Noise controls include: interviewee tenure in post, gender, seniority; interview duration, reliability time, day of the week; analyst dummies

# School management rankings differ from other sectors: Manufacturing



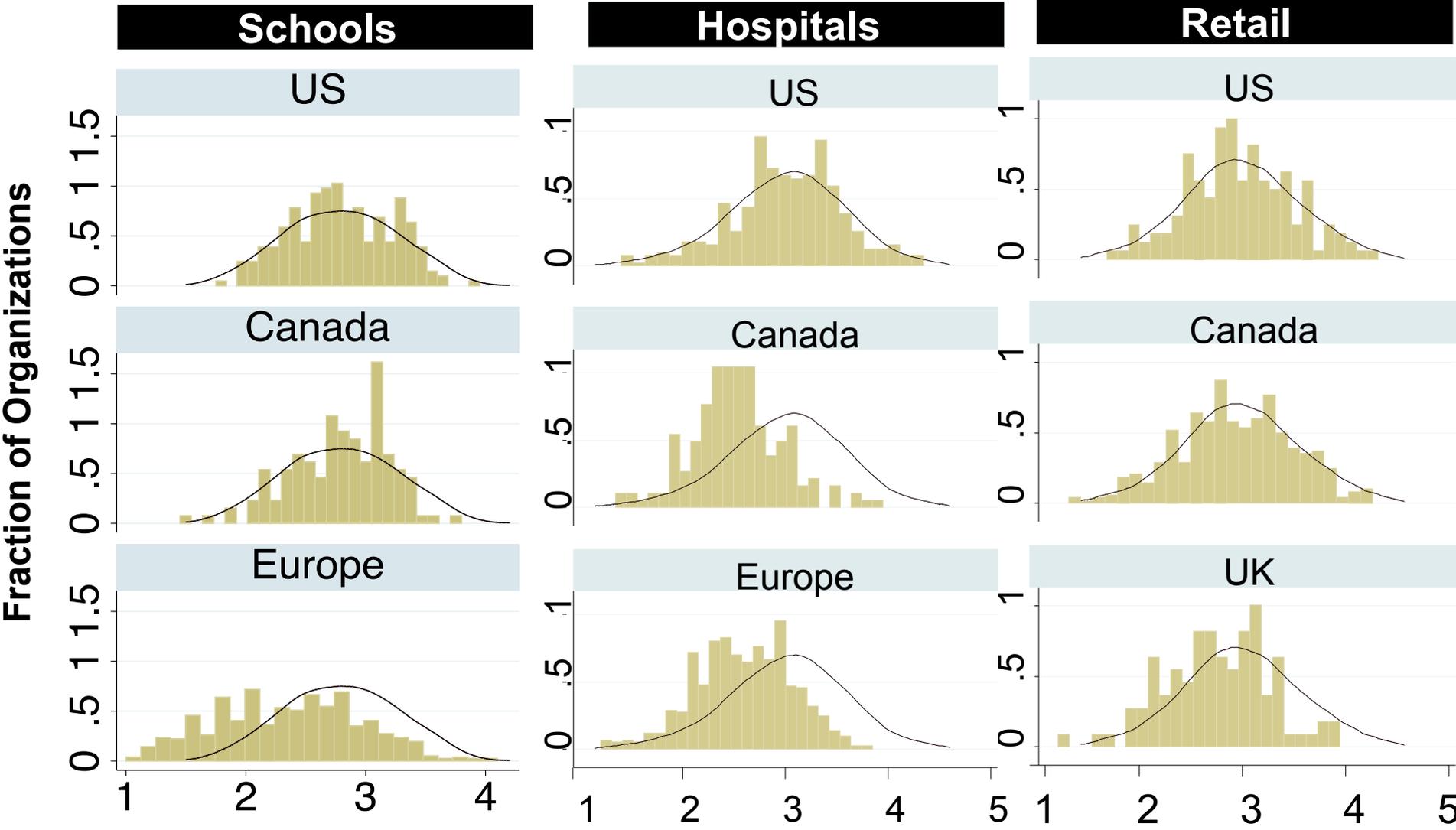
Note: Averages taken across all firms within each country. 9,079 observations in total. Firms per country in the right column

# School management rankings differ from other sectors: Healthcare and Retail



Note: Averages taken across all organizations within each country. 1,183 hospitals, 661 retail sites

# School management practices show a large spread



Firm management scores, from 1 (worst practice) to 5 (best practice)

Note: Bars are the histogram of the actual density. The line is the smoothed (kernel) of the US density for comparison.

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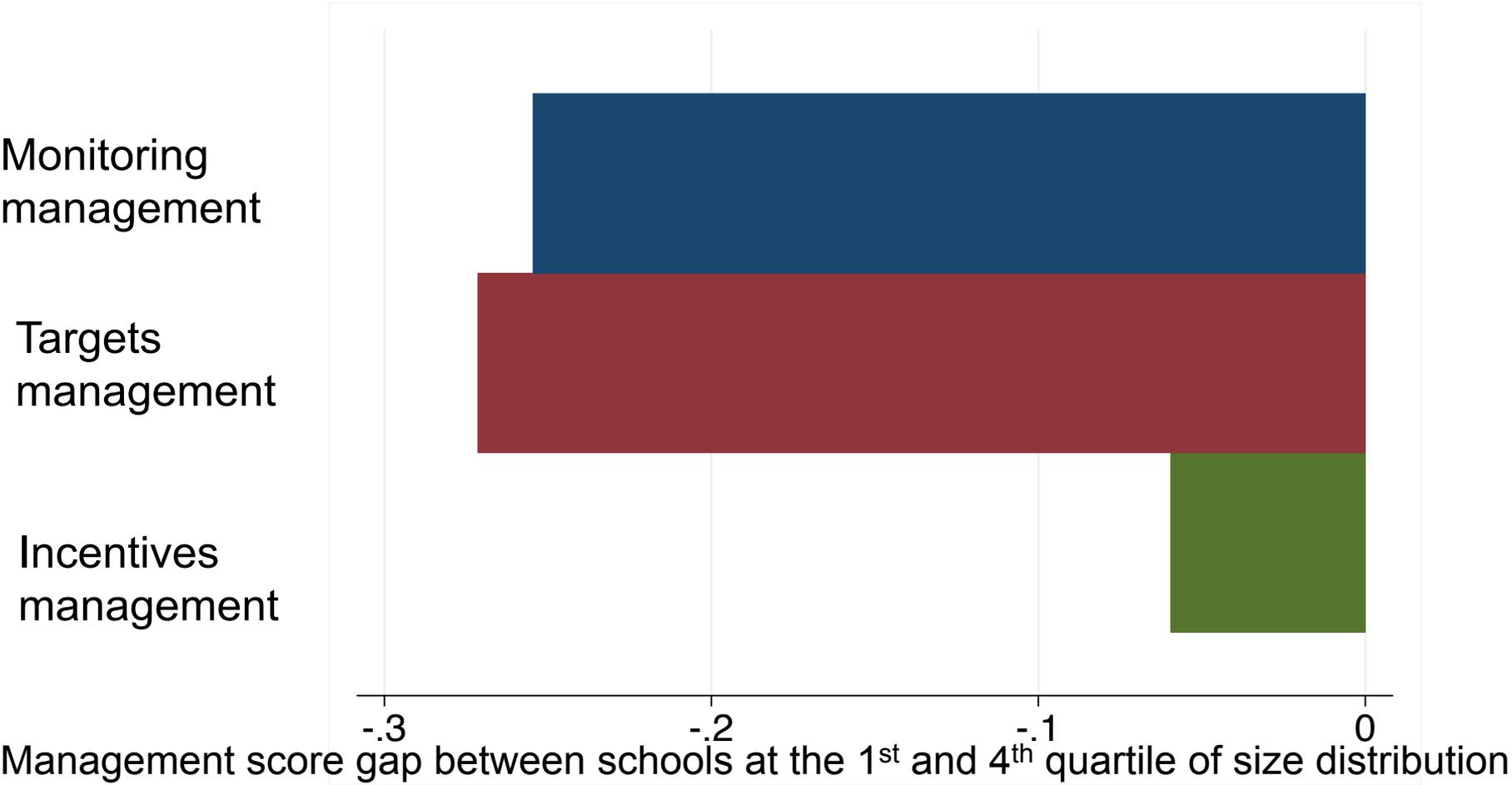
4 Next steps

**Size: There is a strong relationship between school size and management practice**



# Small schools are characterized by particularly poor monitoring and target management (difference in incentives is insignificant)

Gap between schools in the 1<sup>st</sup> and the 4<sup>th</sup> size quartile by sub-components of management



Management scores after controlling for regional dummies. Monitoring is collecting and using data, targets are the setting and effectiveness of targets, and incentives is performance related hiring, promotions, bonus and exit. Data from 988 schools.

# Ownership: government ownership is associated with worse management across every industry we studied

Schools

Manufacturing

Hospitals

Private

Public

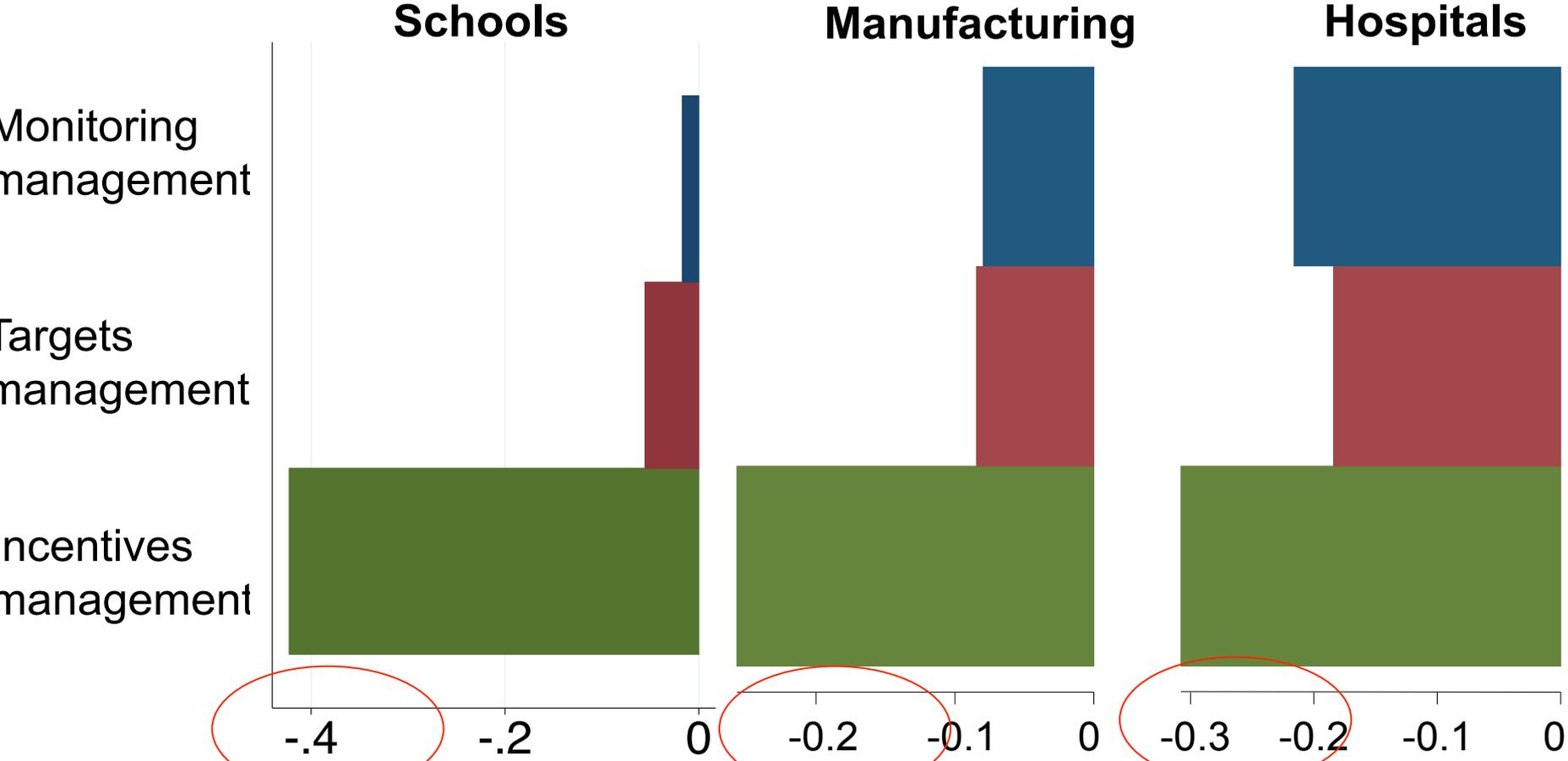
2 2.1 2.2 2.8 2.9 3 2.6 2.7 2.8 2.9

Management score

Management scores after controlling for size (number of employees, beds or students) and country. Data from 9079 manufacturing firms, 1,183 hospital and 988 schools. There were no publicly owned retail firms so the comparison is not possible within retail.

# Government ownership is associated with particularly poor incentives management (hiring, firing, pay and promotions)

Gap between public and private ownership by sub-components of management

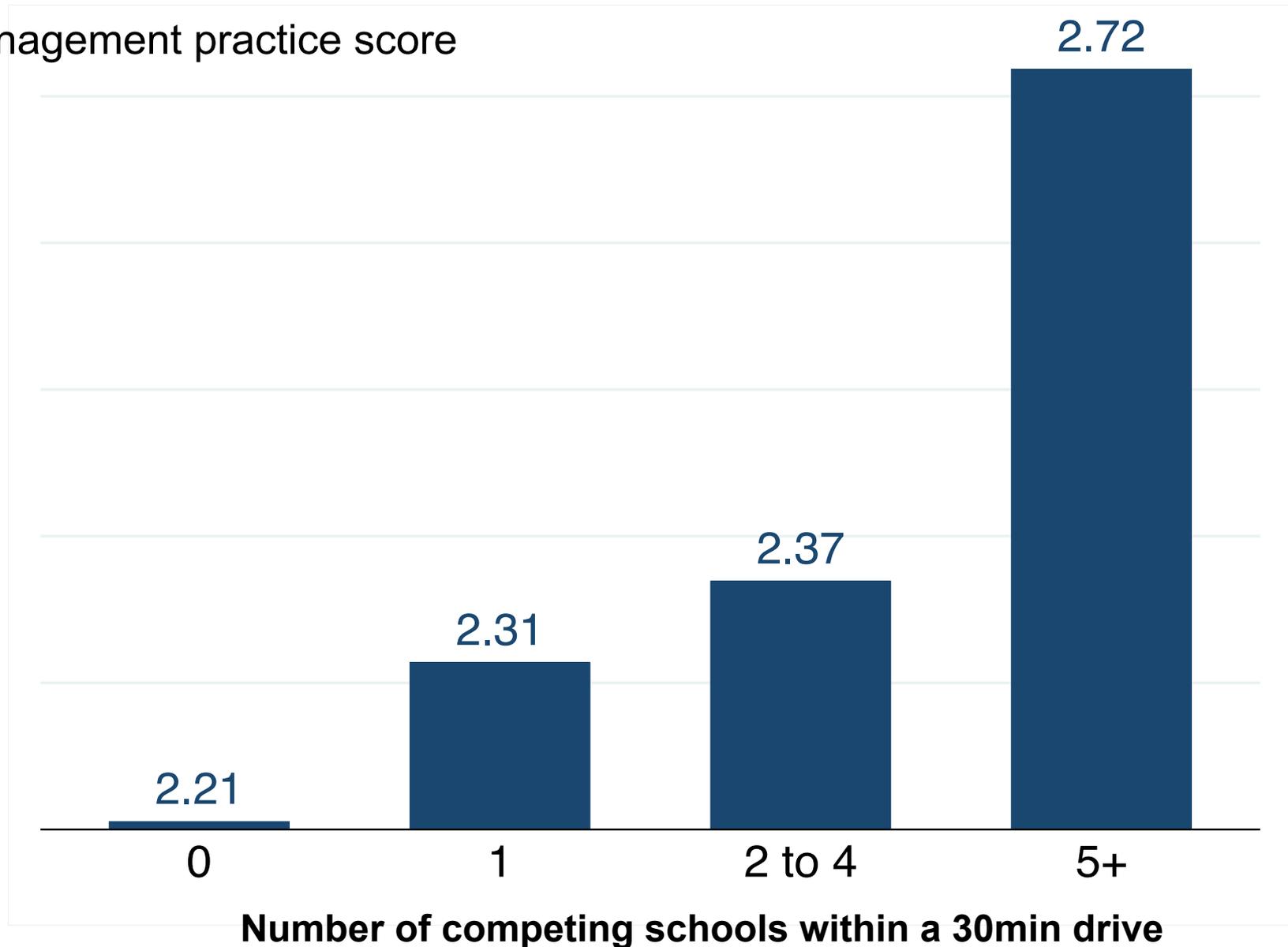


Management score gap between public and privately owned schools

Management scores after controlling for size (number of employees, beds or students) and country. Monitoring is collecting and using data, targets are the setting and effectiveness of targets, and incentives is performance related hiring, promotions, bonus and exit. Data from 9079 manufacturers, 1,183 hospital and 988 schools.

## Competition: this appears to be good for management

Management practice score



**Number of competing schools within a 30min drive**

<sup>1</sup>As perceived by the Principal

## We also looked at Principal characteristics

	<b>Management Score</b>	<b>Monitoring</b>	<b>Targets</b>	<b>Incentives</b>
<b>Experience</b> (tenure in school, tenure in post)	✗	✗	✗	✗
<b>Background</b> (Science vs. Humanities)	✗	✓	✗	✗
<b>Gender</b> (Female)	✓	✗	✓	✓

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4 **Next steps**

# Conclusion

- First descriptive evidence on international differences in management in schools
- Patterns remarkably similar to other industries
  - Wide heterogeneity – even within same institutional context
  - Association management-school performance
  - Size, ownership, competition, CEO characteristics correlated with higher management scores
- Next steps
  - Expand sample to developing countries (India, 2012)
  - Move beyond correlations