

The role of information and competition in hospital performance

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- Does it really improve outcomes? Evidence on this is mixed: no effect (Clough et al. 2002; Ghali et al. 1997; Chen and Meinecke 2012), quality improvements (O'Connor et al., 1996; Baker et al., 2001; Dranove et al., 2003; Hibbard et al., 2003; Hibbard et al., 2005, Wener et al., 2009; Lu, 2012; Deore et al., 2023).



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- Started with 47 indicators, now almost 200 (volumes, process, morbidity/outcome)



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- In 2016 made openly accessible to everyone



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- Primary and Inpatient care are free at the point of consumption, small co-payments for outpatient care, lab/diagnostic tests.



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- Different regions have different structures and reliance on private-accredited hospital/clinics.



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- In case of emergency, an ambulance carries the patient to the closest hospital available for her condition, according to the indication of the regional Emergency and Urgent Care Agency.



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- How do the treatments interact with competition?



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- Does this shape incentives, behaviors, outcomes?

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- Dummies for regions under “debt recovery plan” (piani di rientro)



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- **HHI2: HH index based on population (inverted scale)**



FLASH



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 - Femur fracture: share of surgery within two days



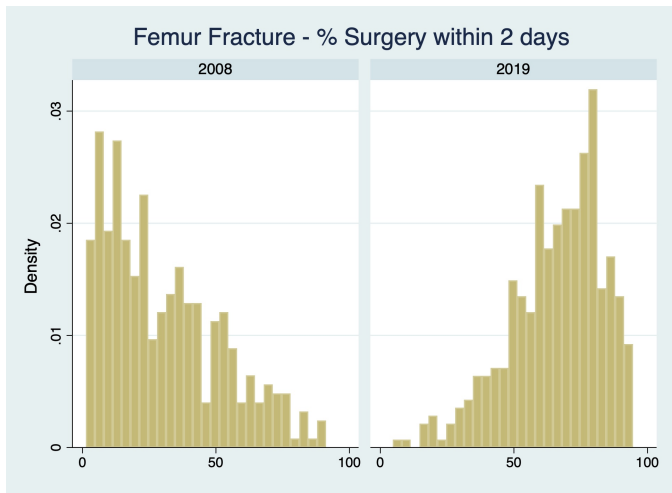
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- We focus on one process indicator
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 - Femur fracture: 30d mortality

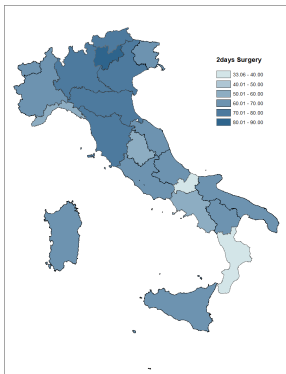
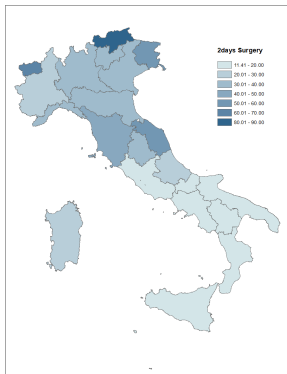


A look at the data



Femur fracture

% surgery within 2 days. 2008 vs 2019



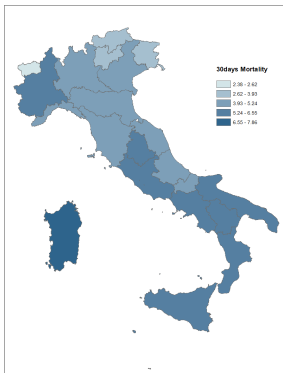
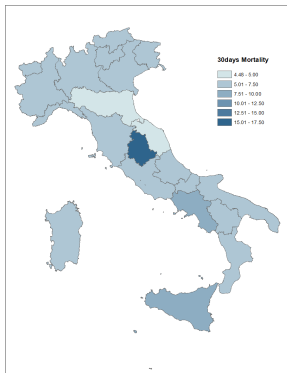
FLASH



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Femur fracture

% mortality within 30 days of surgery. 2008 vs 2019



Competition Quartiles

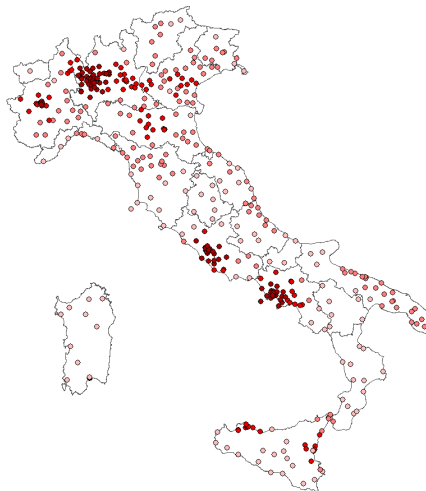


Tabella 1: Summary statistics

Variable	Mean	Std. Dev.	N
Femur fracture — Surgery within 2 days	48.932	25.141	5713
Femur fracture — Surgery 30-day mortality	6.134	3.593	5692
Competition (median dummy, NHw 20km)	0.485	0.5	5005
Competition (quartile, NHw 20km)	2.729	0.832	7608
Private hospital dummy	0.416	0.493	16138
Self-governing hospital	0.139	0.346	16138
Research/University hospital	0.08	0.271	16138
% elderly	0.217	0.029	16131
rural	0.212	0.409	16138
debt-recovery plan	0.362	0.481	16138

Competition and Process Efficiency: T1 Indicator effect

Femur fracture — Surgery within 2 days (hospital fixed effects, area trends)

	b/se	b/se	b/se	b/se
Treatment1	2.821** (1.08)	1.740 (1.23)	-1.582 (1.98)	1.064 (1.63)
T1 x Competition (median)		3.580* (1.60)		
T1 x Competition (Quartiles)			2.067** (0.71)	
T1 x Competition (2nd Quartile)				1.151 (2.15)
T1 x Competition (3rd Quartile)				2.038 (2.16)
T1 x Competition (4th Quartile)				6.773** (2.21)
Debt-recovery	8.423*** (1.76)	8.794*** (1.80)	8.803*** (1.79)	8.876*** (1.81)
Observations	3589	3552	3547	3547
R^2	0.373	0.389	0.385	0.386



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Competition and Process Efficiency: T2 Information effect

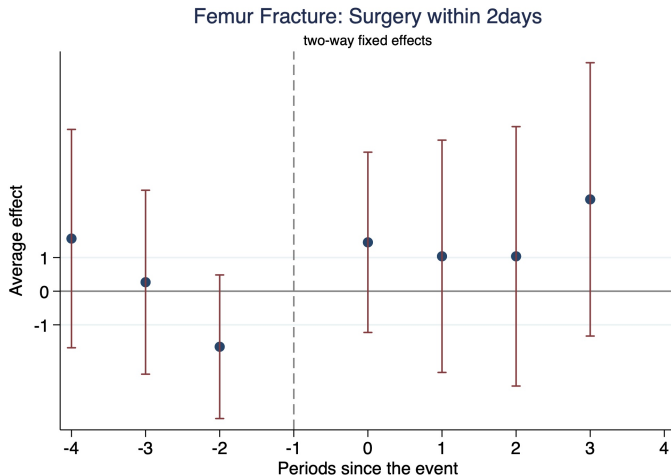
Femur fracture — Surgery within 2 days (hospital fixed effects, area trends)

	(1)	(2)	(3)	(4)
	b/se	b/se	b/se	b/se
Treatment2	4.368*** (0.82)	2.459* (0.98)	-2.828 (1.77)	-0.767 (1.52)
T2 x Competition (median)		5.192*** (1.47)		
T2 x Competition (Quartiles)			2.924*** (0.65)	
T2 x Competition (2nd Quartile)				4.882* (1.97)
T2 x Competition (3rd Quartile)				6.478** (2.32)
T2 x Competition (4th Quartile)				9.329*** (2.02)
Debt recovery plan	2.475 (2.63)	1.087 (2.56)	1.545 (2.61)	1.948 (2.75)
Observations	4126	4093	4106	4106
R ²	0.321	0.334	0.332	0.333



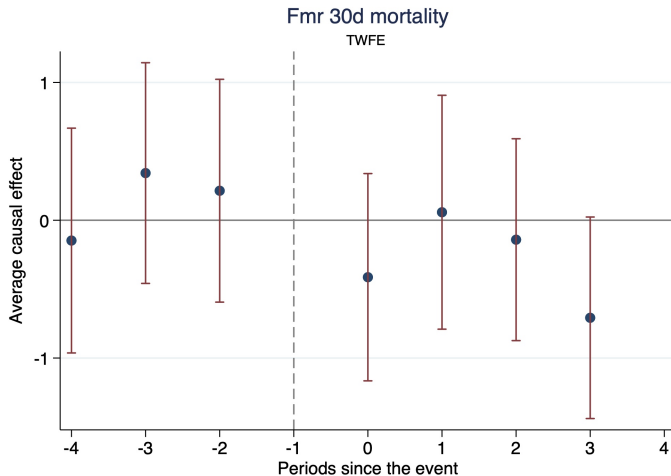
Event study: T1 x Competition

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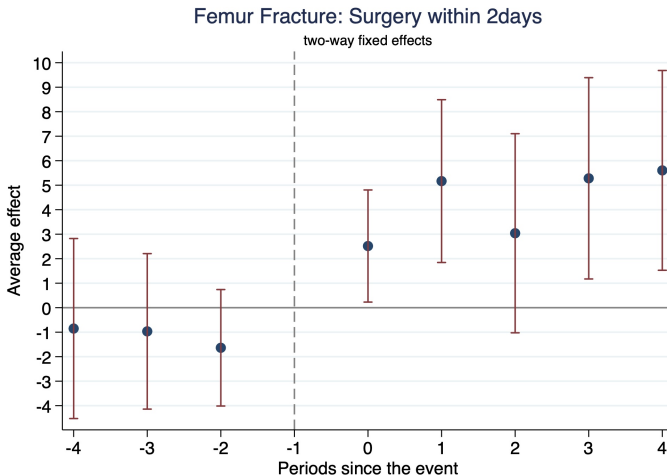
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30d mortality after femur fracture



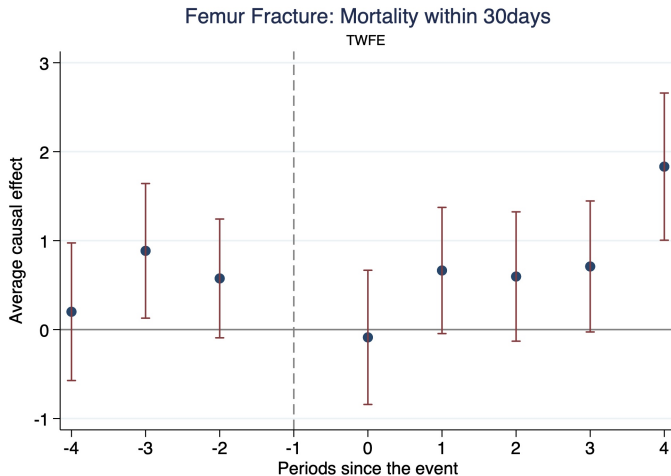
Event study: T2 x Competition

Femur surgery within 2 days

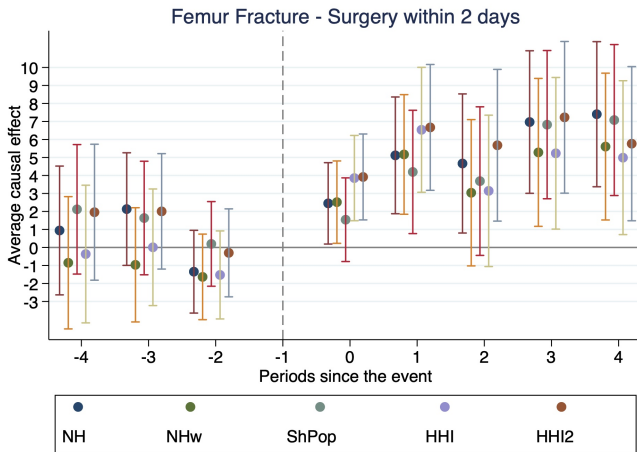


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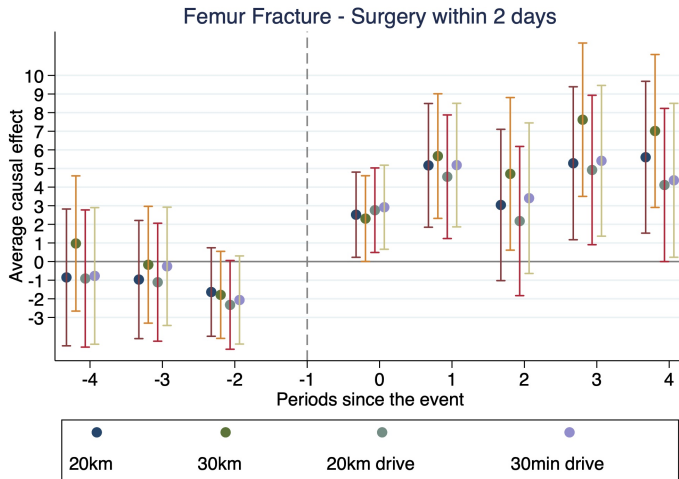
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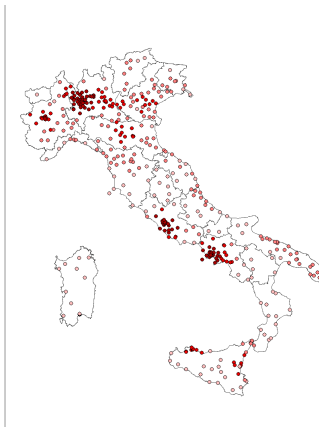
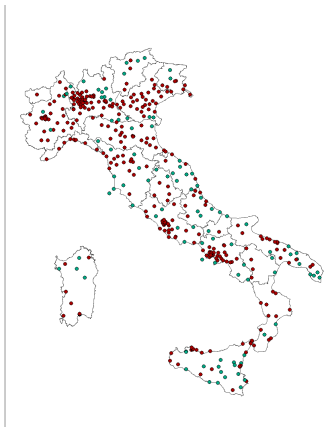
Robustness: different competition indices (20km distance)



Robustness: different distances (NHw index)



Rural (left) and Competition Quartile (right)



Heterogeneity Analysis: Rural Hospitals

Hospital fixed effects, macroarea trends, controls

	Rural		Non-Rural	
	(1)	(2)	(3)	(4)
Treatment2	4.054** (1.51)	4.871** (1.78)	4.921*** (0.97)	2.349 (1.24)
Treatment2 x Competition		-4.156 (4.76)		5.642*** (1.58)
Observations	962	958	3100	3072
R^2	0.276	0.286	0.356	0.371



Heterogeneity Analysis: North vs Centre-South

Hospital fixed effects, macroarea trends, controls

	North		Centre+South	
	(1)	(2)	(3)	(4)
	b/se	b/se	b/se	b/se
T2	4.265*** (1.20)	-0.278 (1.54)	4.540*** (1.14)	4.365** (1.31)
T2*Competition		9.003*** (1.85)		0.928 (2.12)
Observations	1830	1820	2232	2210
R^2	0.316	0.349	0.340	0.346



Heterogeneity Analysis: Social Capital

Hospital fixed effects, macroarea trends, controls

	Low SK		High SK	
	(1)	(2)	(3)	(4)
	b/se	b/se	b/se	b/se
T2	4.590*** (1.21)	3.996** (1.52)	4.742*** (1.12)	2.223 (1.40)
T2*Competition		1.563 (2.53)		6.333*** (1.67)
Observations	1813	1799	2240	2222
R^2	0.339	0.349	0.332	0.349



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Conclusions

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- Next: analysis on other clinical outcomes

