Vignettes and health systems responsiveness in cross-country comparative analyses

Silvana Robone

Department of Economics, University of Insubria (Italy)

(with Nigel Rice and Peter Smith)

Journal of the Royal Statistical Society A (read paper), (2012), 175, pp. 337-369

AES, Granada, 18/06/15

Introduction (1)

• International comparison has become one of the most influential levers for change in public services

• The benchmarking of performance against relevant comparative countries enables the public sector to promote accountability to its citizens, to adopt innovative practice and to systematically evaluate performance.

Health policy: International comparison has informed debate globally

- Levels of health care spending (e.g. Anderson et al., 2007; Anell and Wilis, 2000; Schieber and Poullier, 1991; White, 2007)
- Health care performance (e.g. Anderson and Hussey, 2001; OECD, 2000; Reinhardt et al., 2002)
- Access to health care (e.g. van Doorslaer and Masseria 2004)
- Waiting times (e.g. Siciliani and Hurst, 2005; Willcox et al., 2007)
- Patients' experiences of the provision of care (e.g. Coulter and Cleary, 2001, Velentine et al. 2003, Sirven 2012)
- Configuration and delivery of primary care (e.g. Schoen et al., 2006, 2007)

Introduction (2)

WHO 2000 Efficiency Rankings

OVERALL PERFORMANCE				
Rank	Uncertainty interval	Member State	Index	Uncertainty interval
1	1 – 5	France	0.994	0.982 – 1.000
2	1 – 5	Italy	0.991	0.978 – 1.000
3	1 – 6	San Marino	0.988	0.973 – 1.000
4	2 – 7	Andorra	0.982	0.966 – 0.997
5	3 – 7	Malta	0.978	0.965 – 0.993
6	2 – 11	Singapore	0.973	0.947 – 0.998
7	4 – 8	Spain	0.972	0.959 – 0.985
8	4 – 14	Oman	0.961	0.938 – 0.985
9	7 – 12	Austria	0.959	0.946 – 0.972
10	8 – 11	Japan	0.957	0.948 – 0.965
11	8 – 12	Norway	0.955	0.947 – 0.964
12	10 – 15	Portugal	0.945	0.931 – 0.958
13	10 – 16	Monaco	0.943	0.929 – 0.957
14	13 – 19	Greece	0.933	0.921 – 0.945
15	12 – 20	Iceland	0.932	0.917 – 0.948
16	14 – 21	Luxembourg	0.928	0.914 – 0.942
17	14 – 21	Netherlands	0.928	0.914 – 0.942
18	16 – 21	United Kingdom	0.925	0.913 – 0.937
19	14 – 22	Ireland	0.924	0.909 – 0.939
20	17 – 24	Switzerland	0.916	0.903 – 0.930

OECD Rankings

Country	‘Life years contributed by the health system’
Australia	2.5
Canada	-0.7
France	0.4
Germany	-1.0
Hungary	-3.1
Iceland	2.6
Netherlands	-0.3
Norway	-1.5
Sweden	0.5
Switzerland	-0.4
UK	0.0
USA	-4.0

Responsiveness (1)

• Measures of performance are becoming increasingly reliant on the perspective of the users, on patients' views and opinions.

• Traditionally, patients' views were sought on the quality of care provided and satisfaction with health services. Recently the concept of responsiveness has been promoted as a more desirable measure to judge health systems.

• Responsiveness can be defined as "the way in which individuals are treated and the environment in which they are treated encompassing the notion of patient experience with the health care system" (Valentine et al., 2003)

•The concept refers to systems ability to respond to legitimate expectations and needs about non-health enhancing and non-financial aspects of health care. (Valentine et al. 2009).

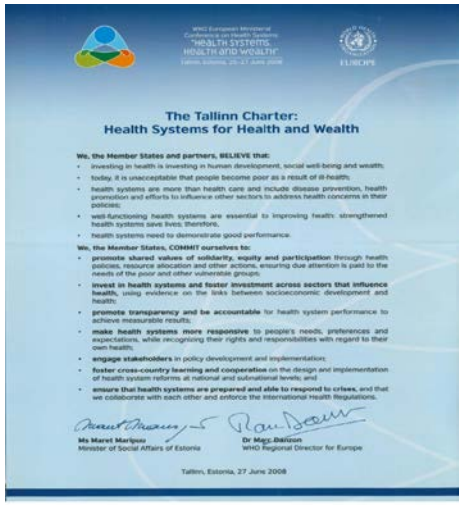
The eight domains are: ***autonomy***, ***choice***, ***clarity of communication***, ***confidentiality of personal information***, ***dignity***, ***prompt attention***, ***quality of basic amenities*** **and** ***access to family and community support***.

Responsiveness (2)

The relevance assumed by the responsiveness tool has been witnessed

- at national level, by a recent initiative of the **National Istititute of Health and Care Excellence (NICE)** (UK). In 2012 NICE released some guidelines which explicitly indicate users perspective as a tool for the evaluation of the UK health system (NICE 2012).

- at international level, by the **European Ministerial Conference on Health Systems,** culminated in the **Tallin Charter (2008)** (WHO 2008), where member states committed to make their health systems more responsive to their patients.



The Tallinn Charter:
Health Systems for Health and Wealth

We, the Member States and partners, BELIEVE that:

- investing in health is investing in human development, social well-being and wealth;
- today, it is unacceptable that people become poor as a result of ill-health;
- health systems are more than health care and include disease prevention, health promotion and efforts to influence other sectors to address health concerns in their policies;
- well-functioning health systems are essential to improving health; strengthened health systems save lives; therefore,
- health systems need to demonstrate good performance.

We, the Member States, COMMIT ourselves to:

- **promote shared values of solidarity, equity and participation** through health policies, resource allocation and other actions, ensuring due attention is paid to the needs of the poor and other vulnerable groups;
- **invest in health systems and foster investment across sectors that influence health,** using evidence on the links between socioeconomic development and health;
- **promote transparency and be accountable** for health system performance to achieve measurable results;
- **make health systems more responsive** to people's needs, preferences and expectations, while recognizing their rights and responsibilities with regard to their own health;
- **engage stakeholders** in policy development and implementation;
- **foster cross-country learning and cooperation** on the design and implementation of health system reforms at national and subnational levels; and
- **ensure that health systems are prepared and able to respond to crises,** and that we collaborate with each other and enforce the International Health Regulations.

Ms Maret Maripuu
Minister of Social Affairs of Estonia

Dr Marc Danzon
WHO Regional Director for Europe

Tallinn, Estonia, 27 June 2008

The responsiveness tool by WHO recently used in several surveys at country level: **Lagos** (Adesanya et al. 2012), **South Africa** (Nieru 2009), **Iran** (Bazzaz 2013, Karami-Tanha 2014, Ebrahimipour 2013), **China** (Luo et al. 2013) and **Germany** (Rottger 2015)

Responsiveness (3)

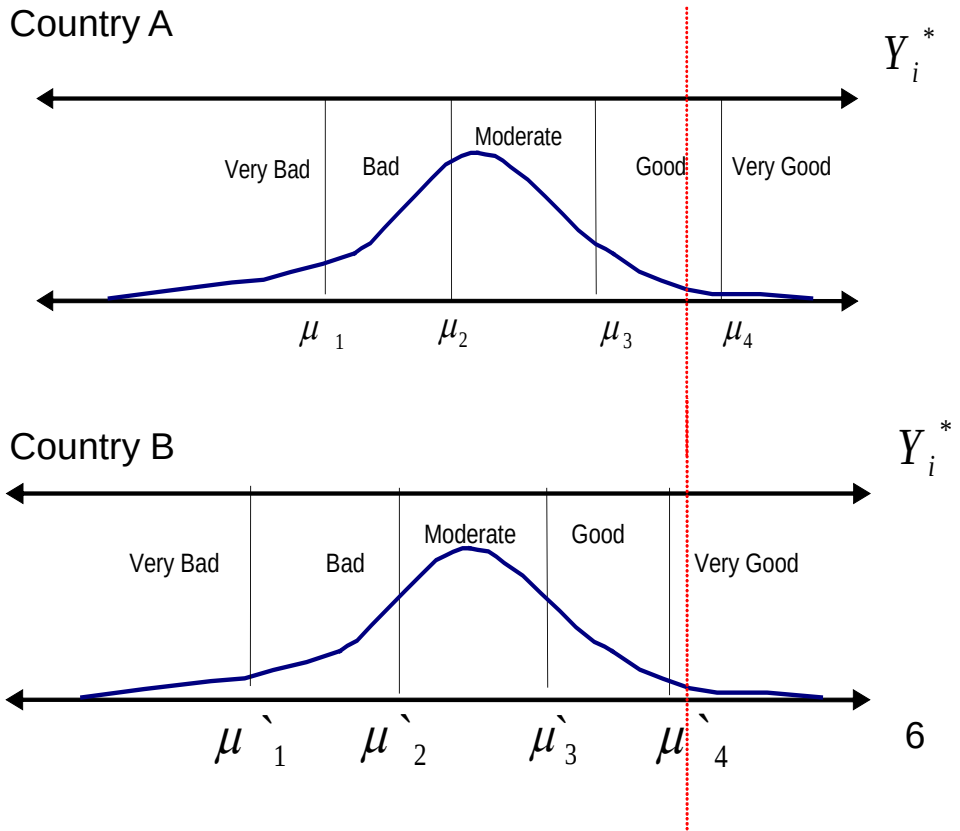
ISSUE: data on Responsiveness (*derived from surveys)* are *self-reported and measured on a categorical scale*

Ex: *"For your [child's] last visit, how would you rate the experience of being involved in making decisions about your health care or treatment?"*

Response categories: "Very good", "Good", "Moderate", "Bad", and "Very bad".

- The meaning of the available response categories may be interpreted differently across population sub-groups

- Responses will be influenced by individuals' preferences and expectations, which vary systematically across countries, or across socio-demographic groups within a country (*REPORTING HETEROGENEITY*)



Methods

• Use of **anchoring vignettes** to address the issue of reporting heterogeneity.

Vignettes = descriptions of fixed levels of a latent construct

> *EX: (from the World Health Survey): "*When the clinic is not busy, [Mamadou] can choose which doctor he sees. But most often it is busy and then he gets sent to whoever is free". *How would you rate [Mamadou's] freedom to choose his health care provider? **1.** Very good **2.** Good **3.** Moderate **4.** Bad **5.** Very bad*

Any systematic variation across individuals in the rating of the vignettes can be attributed to reporting heterogeneity (or measurement error).

Use of the **hierarchical ordered probit model (HOPIT)** (Tandon et al. (2003))

Two parts:
1) reporting behaviour (bias) equation
2) responsiveness equation

Data

The World Health Survey

Launched by the World Health Organisation (WHO) in 2001

70 countries, samples randomly selected (+ 18 years), sizes 600 - 10,000

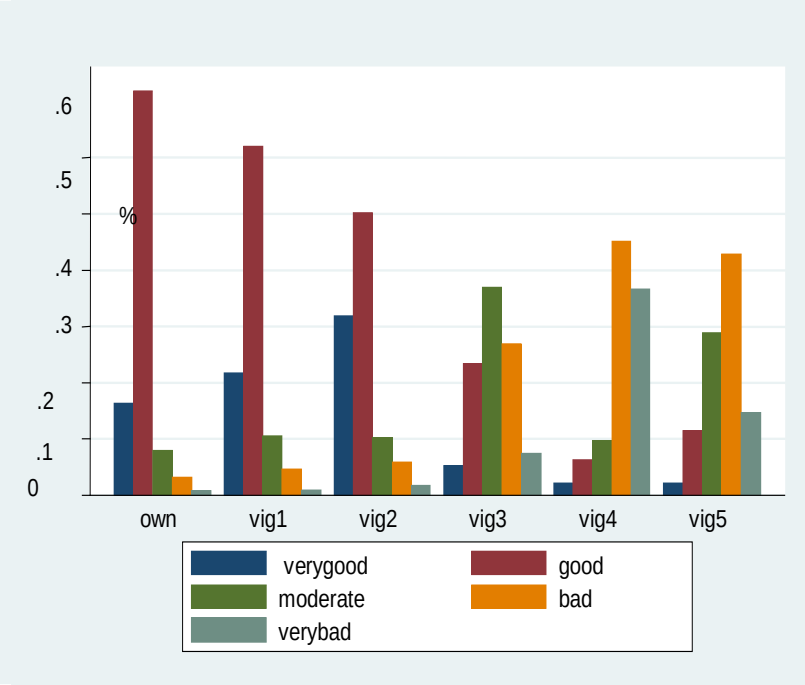
Dependent Variable: Responsiveness
Domains: Autonomy, Choice, Clarity of communication, Confidentiality, Dignity, Prompt attention, Quality of basic amenities, Social support

Independent Variables: (reporting behaviour and responsiveness equation)
Education: categorical variable (7 categories) or continuous variable (number of years in education).
Gender: is a dummy variable, 1 if woman, 0 if man.
Income: dummy variables to indicate the tertiles of the within-country distribution of household permanent income, measured with the HOPIT model (Ferguson et al., 2003).
Age: continuous variable (years)

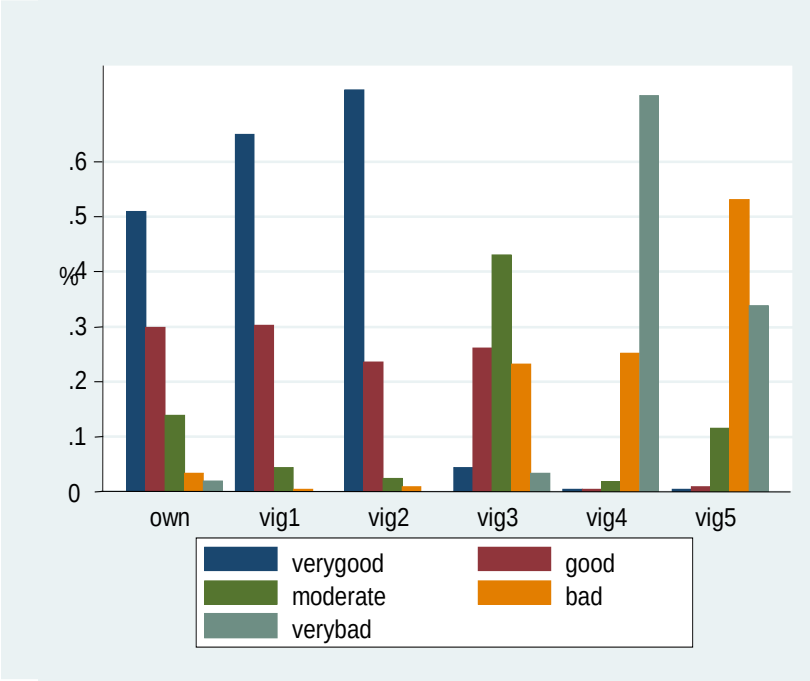
Evidence of differential reporting behaviour (1)

Summary frequencies for the reporting of responsiveness and vignettes, World Health Survey, *Clarity of Communication*

Mexico



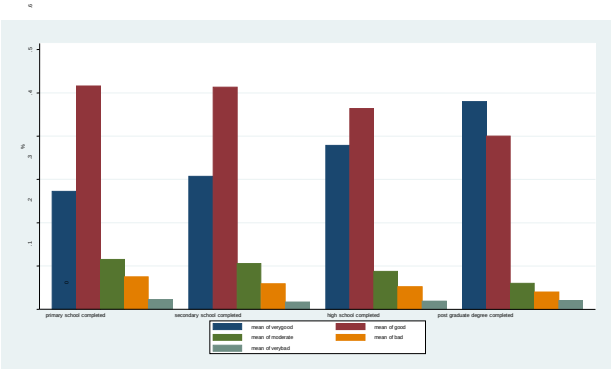
UK



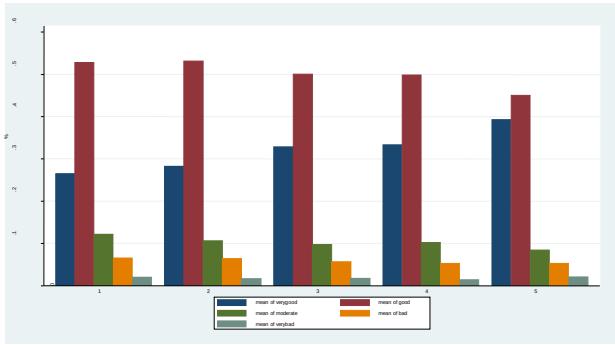
Evidence of differential reporting behaviour (2)

Vignette ratings by socio-demographic characteristics of the respondents, World Health Survey, Mexico, *Clarity of Communication*

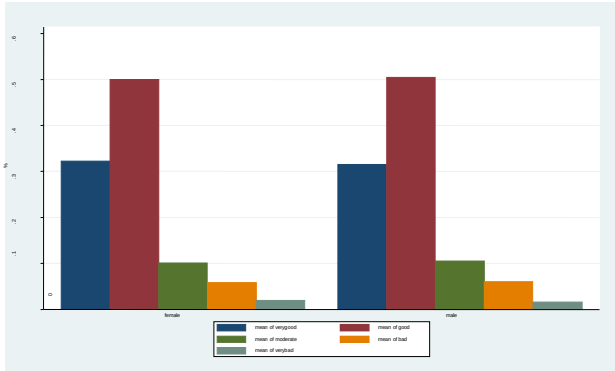
Education



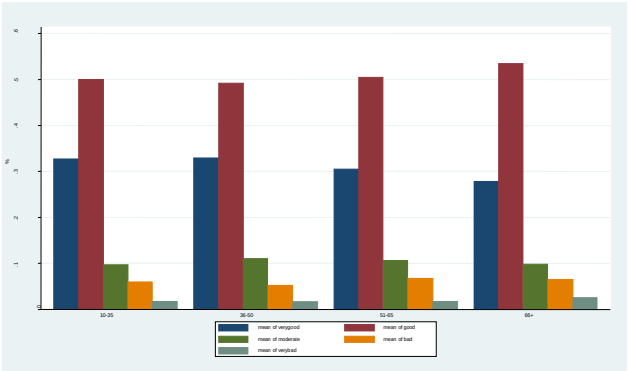
Income Quintiles



Gender

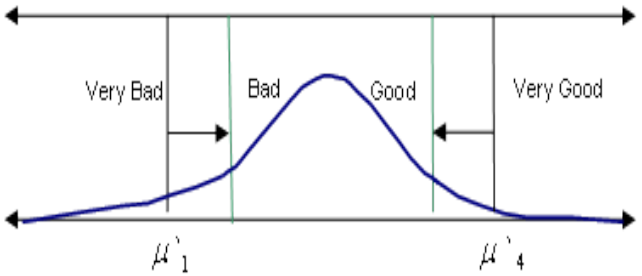


Age



Coefficients and standard errors of cut points as functions of country dummies, High HDI countries, *Respect*

HIGH HDI COUNTRIES	μ_1		μ_2		μ_3	
	coeff.	st.er.	coeff.	st.er.	coeff.	st.er.
U. Arab Emirates	-0.016	0.062	0.103	0.056	**-0.472**	0.044
Austria	**-0.281**	0.096	0.085	0.088	**-0.452**	0.056
Belgium	**0.812**	0.102	**-0.201**	0.103	**-0.411**	0.057
Bosnia	-0.083	0.064	0.082	0.059	**-0.376**	0.040
Czech Rep.	-0.028	0.077	**0.186**	0.069	**-0.451**	0.048
Germany	0.062	0.071	0.113	0.063	**-0.308**	0.039
Denmark	**0.945**	0.087	**-0.270**	0.097	**-0.539**	0.062
Spain	**0.089**	0.033	**-0.164**	0.035	**-0.105**	0.017
Estonia	0.071	0.073	**0.201**	0.063	**-0.283**	0.041
Finland	**0.373**	0.070	**0.327**	0.057	**-0.284**	0.042
France	**0.383**	0.104	0.160	0.091	**-0.394**	0.066
UK	**0.400**	0.072	0.018	0.069	**-0.480**	0.046
Greece	0.108	0.074	0.093	0.067	**-0.595**	0.051
Croatia	**0.464**	0.075	**0.264**	0.058	**-0.764**	0.055
Hungary	-0.072	0.057	0.053	0.053	**-0.468**	0.036
Ireland	**0.429**	0.091	-0.128	0.088	**-0.552**	0.059
Italy	-0.055	0.143	-0.052	0.137	**-0.353**	0.085
Latvia	**0.324**	0.079	0.038	0.070	**-0.503**	0.049
Mauritius	**0.653**	0.037	**-0.171**	0.037	**-0.374**	0.022
Malaysia	-0.026	0.035	0.000	0.034	**-0.090**	0.018
Netherlands	-0.001	0.077	**0.319**	0.063	**-0.125**	0.043
Portugal	-0.043	0.081	**0.262**	0.066	**-0.089**	0.041
Slovakia	**-0.192**	0.056	0.094	0.051	**-0.471**	0.037
Slovenia	**0.400**	0.084	**-0.207**	0.091	**-0.356**	0.053
Sweden	**0.811**	0.079	-0.003	0.076	**-0.522**	0.054
Uruguay	0.085	0.046	-0.025	0.047	**-0.071**	0.024



Note: Mexico is the baseline country. Figures in bold indicate significance at 5% level. μ_1 to μ_3 refer to thresholds 1 to 3

Comparison of High HDI countries

Ranking of High HDI countries, observed and estimated frequencies of reporting "very good" responsiveness, *Respect*

Rank by block, (1)	*Observed data frequencies, (1)*		*Frequencies from HOPIT model (country-specific cut points), (2)*		*Frequencies from HOPIT model (Mexico-specific cut points), (3)*		*Rank by block (1), (4)*
1	Austria	61.9%	Austria	57.4%	Denmark	54.2%	2
2	Denmark	61.0%	Denmark	56.9%	Finland	53.4%	7
3	Sweden	55.8%	Sweden	52.8%	Sweden	52.6%	3
4	Czech Republic	52.9%	UK	51.3%	Belgium	45.9%	11
5	UK	51.4%	Czech Republic	51.2%	France	42.7%	9
6	Greece	51.0%	Greece	50.2%	UK	42.0%	5
7	Finland	49.3%	Finland	47.5%	Netherlands	40.8%	17
8	Hungary	47.8%	Hungary	46.9%	Uruguay	38.9%	13
9	France	47.6%	United Arab Emirates	46.6%	Czech Republic	36.3%	4
10	Ireland	45.7%			Estonia	33.5%	16
11	Belgium	44.9%	Belgium	46.4%	Austria	33.0%	1
12	United Arab Emirates	44.4%	Ireland	45.5%	Ireland	32.1%	10
			France	45.4%	Greece	31.8%	6
13	Uruguay	37.9%	Bosnia	41.1%	Spain	31.3%	20
14	Latvia	36.2%	Uruguay	40.9%	Croatia	30.7%	18
15	Bosnia	36.1%	Croatia	39.4%	Mauritius	30.1%	24
16	Estonia	35.5%	Latvia	39.2%	United Arab Emirates	29.7%	12
17	Netherlands	35.3%	Estonia	39.2%			
18	Croatia	35.1%	Germany	38.4%	Germany	29.4%	19
19	Germany	34.2%	Netherlands	38.3%	Slovenia	28.8%	21
20	Spain	30.9%	Slovenia	37.7%	Latvia	28.6%	14
21	Slovenia	30.4%	Spain	37.5%	Portugal	28.2%	25
22	Slovakia	27.6%	Slovakia	36.7%	Hungary	27.6%	8
23	Italy	26.2%	Mauritius	33.0%	Mexico	26.2%	27
24	Mauritius	24.2%	Italy	30.6%	Bosnia	25.6%	15
25	Portugal	18.5%	Malaysia	28.9%	Malaysia	24.5%	26
26	Malaysia	18.2%	Portugal	27.0%	Slovakia	18.2%	22
27	Mexico	16.3%	Mexico	26.2%	Italy	16.5%	23
Pearson's correlation coefficient ρ			Blocks (2) and (1), 0.986		Blocks (3) and (1), 0.737		
Kendall's τ			Blocks (2) and (1), 0.906		Blocks (3) and (1), 0.547		

Conclusions

• Evidence that reporting behaviour varies systematically both across countries and across socio-demographic groups within a country

• Correcting for different reporting behaviour across countries affects the ranking of countries according to their health system responsiveness

Extension

"Are bad health and pain making us grumpy? an empirical evaluation of reporting heterogeneity in rating health system responsiveness"

(with G. Fiorentini and G. Ragazzi)

R&R on *Social Science & Medicine*

This paper considers the influence of patients' characteristics on their evaluation of responsiveness of a specific health system, the Italian NHS.

Discussion (2)

OBJECTIVES: Previous studies investigated how standard socio-demographic characteristics influence the reporting style of patients with regard to responsiveness (Sirven et al. 2012, Rice et al. 2012).

However, previous literature has not considered explicitly the influence that both the patients' state of health and their experiencing of pain have on the way they report on responsiveness. Our work bridges this gap.

DATA: sample of patients (about 2500) hospitalized in four Local Health Authorities (LHA) in Italy's Emilia-Romagna region between 2010 and 2012.

Patients evaluated 27 different aspects of the quality of care, concerning five domains of responsiveness (communication, privacy, dignity, waiting times and quality of facilities).

METHODS: generalized ordered probit model (Terza 1985)

RESULTS:

- for all the 5 domains of responsiveness, unhealthier patients and patients experiencing pain are more likely to report a lower level of responsiveness.
- Hospital dummies have a strong influence on responsiveness.

THANKS