

# Thank you for becoming a member of the GiViTI Family!

La situazione in altri paesi europei  
La situazione in Ungheria



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# La situazione in altri paesi europei

## La situazione in Ungheria



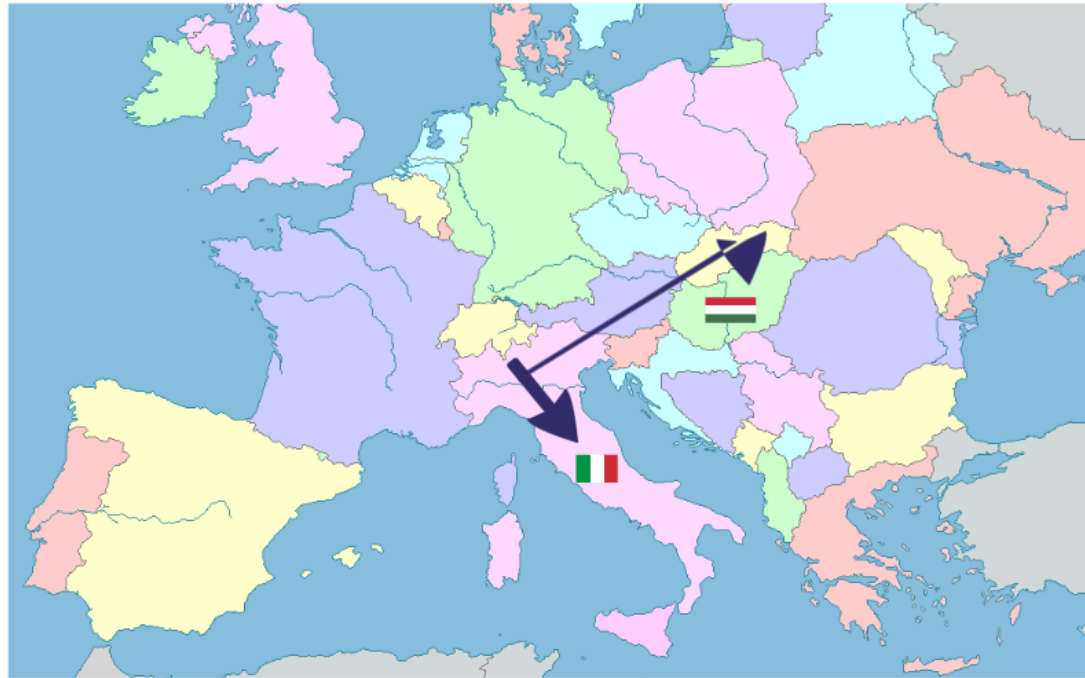
**Gabor Csato MD**

**Akos Csomos MD PhD DSc**

**HUNGARY**

*Meeting GiViTI 2016*

*Pesaro, Italy*



9,92 Million

GDP 13 465 USD/  
capita



no routine  
for database  
in Hungary



61,2 Million

GDP 35 815 USD/  
capita

3-4x more ICU

EU fund in 2011



PROMoting patient SAFETy and quality improvement in critical care



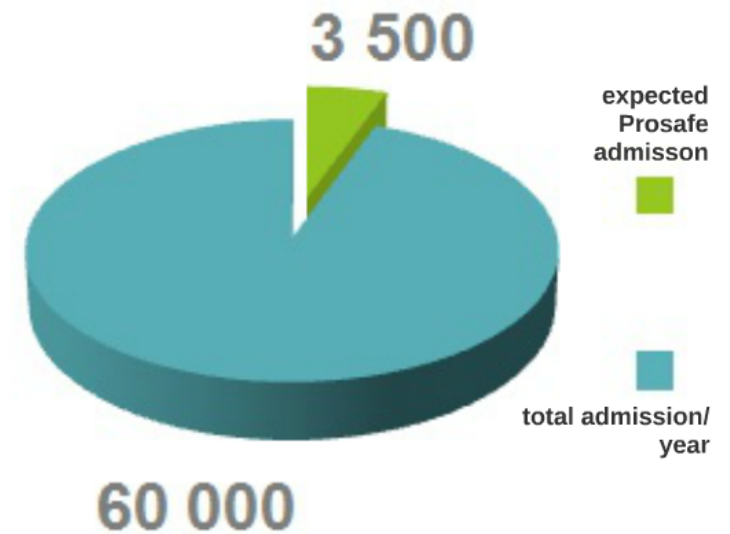
**CREACTIVE project**

Collaborative REsearch on ACute  
Traumatic brain Injury in intensive care  
medicine in Europe





# Hungary in 2011



**6 ICU in Hungary**  
**2174 patients in Hungary**

**80 ICU in Hungary**  
**~ 60.000 patients/year in ICUs**

**284  
ICU in  
Italy**

**routine**

# Hungary in 2016



**5 ICU in Hungary**

**2 344 adult pts**

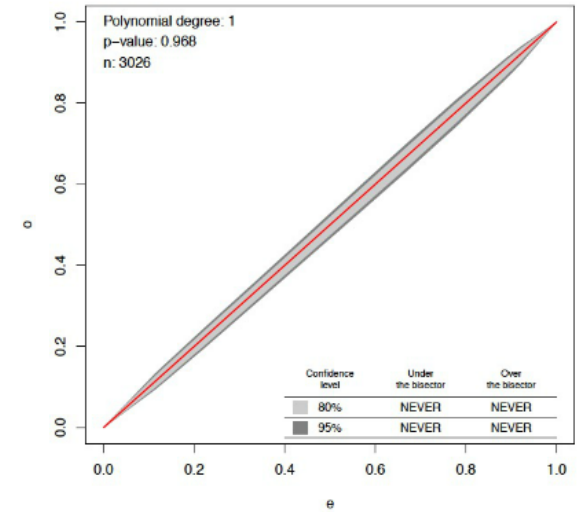


**167 ICU in Italy**

**53 583 adult pts**

***30-35k EUR/capita***

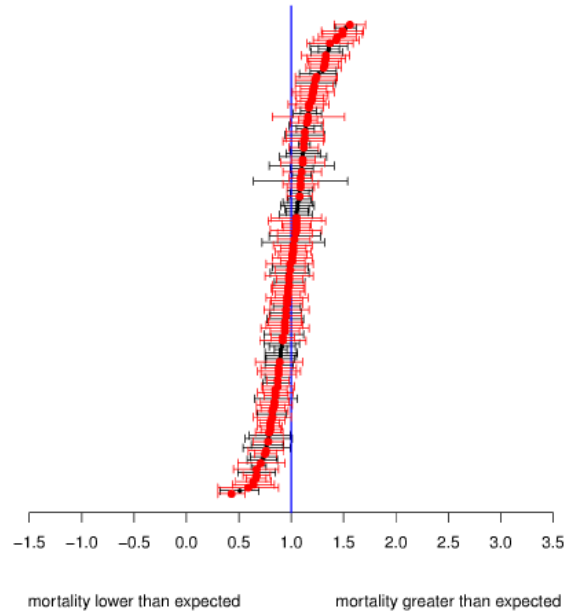
**GDP**



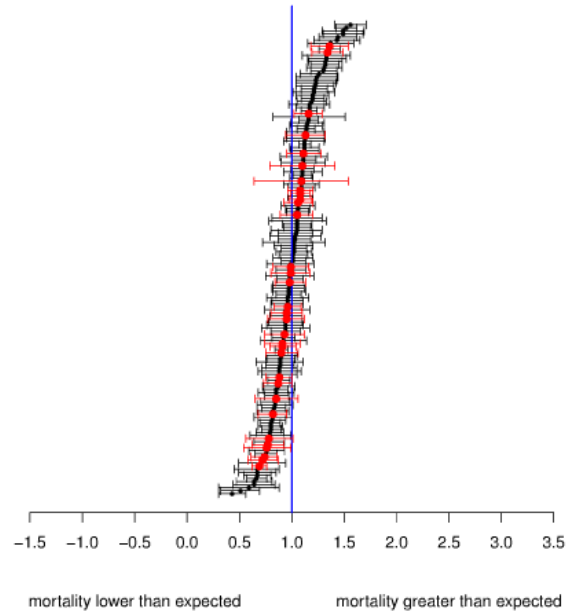
***Performance  
of the ICU***

***15-17k EUR/capita***

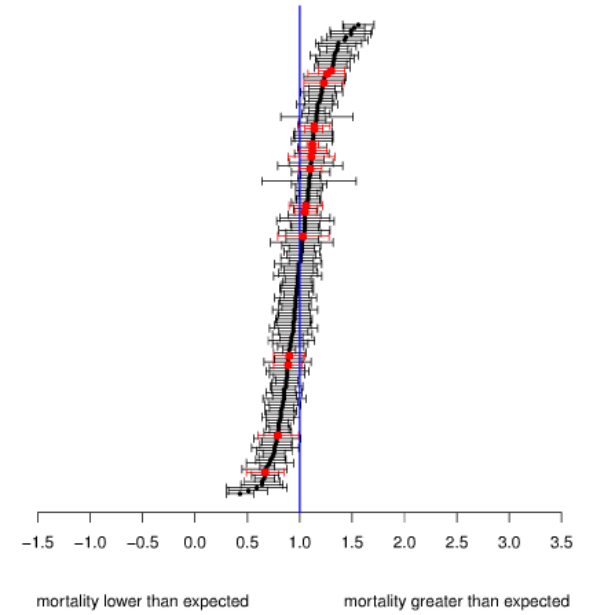
northern italy – forest plot – multilevel model



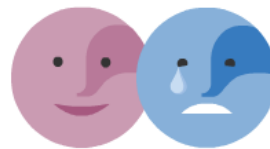
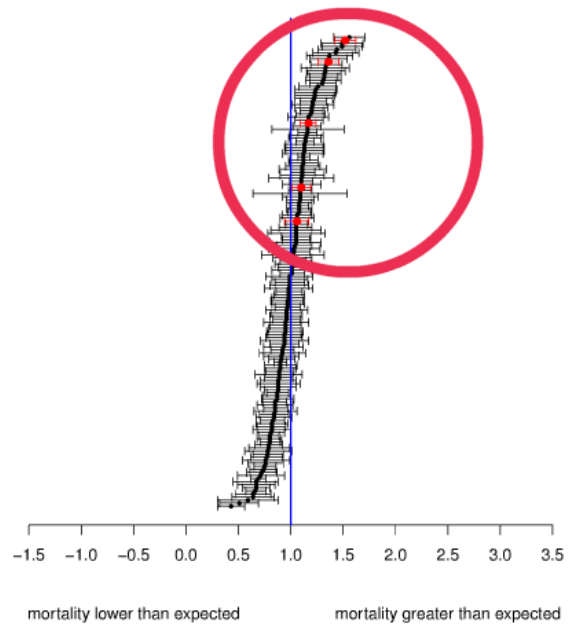
central italy – forest plot – multilevel model



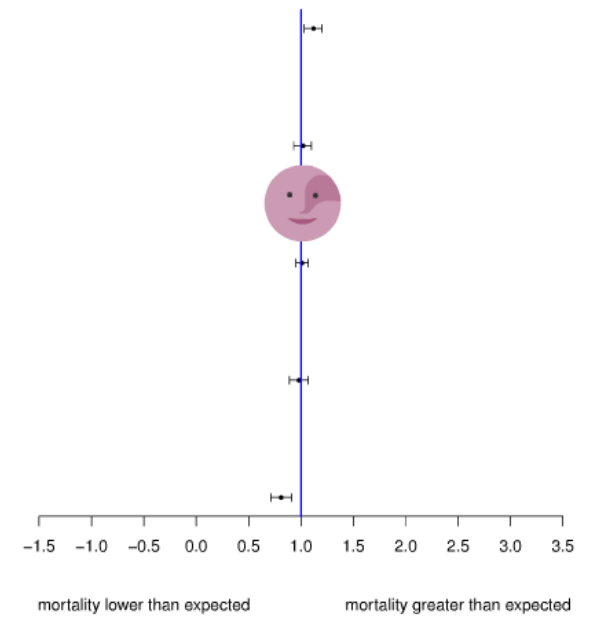
southern italy – forest plot – multilevel model



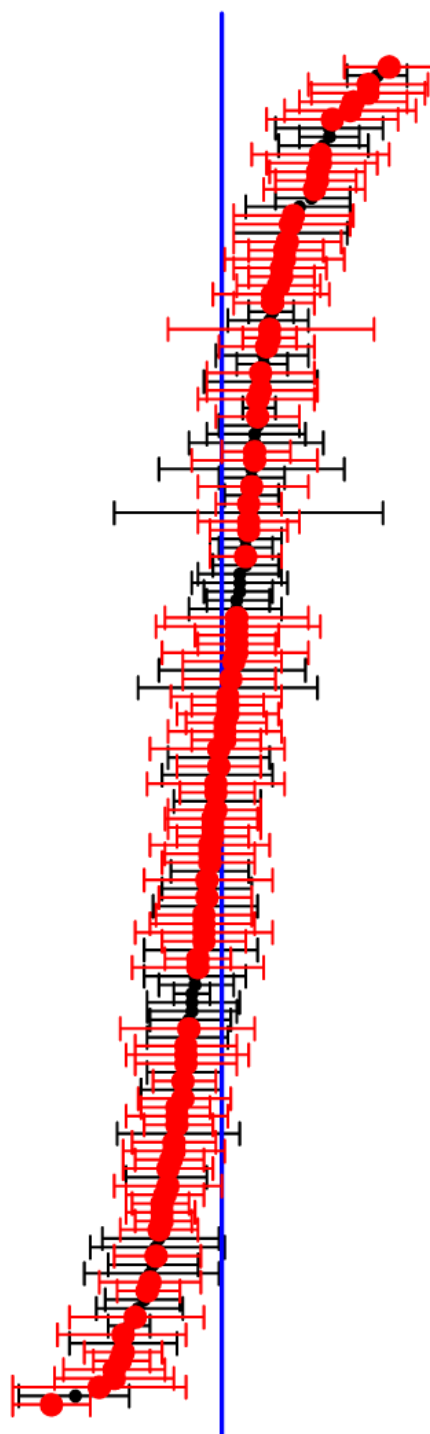
hungary – forest plot – multilevel model



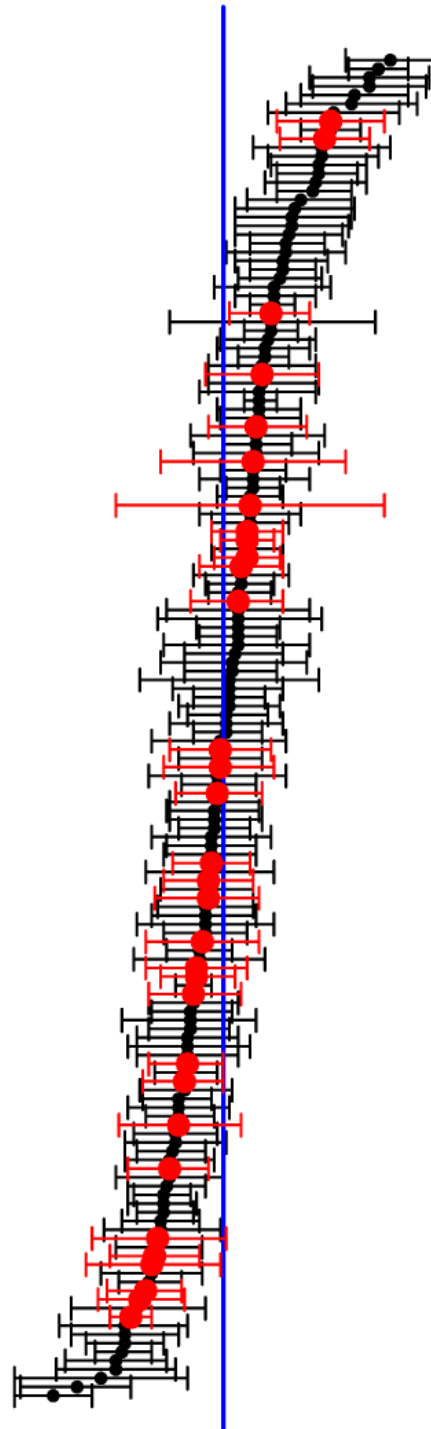
hungary – forest plot – hungarian model



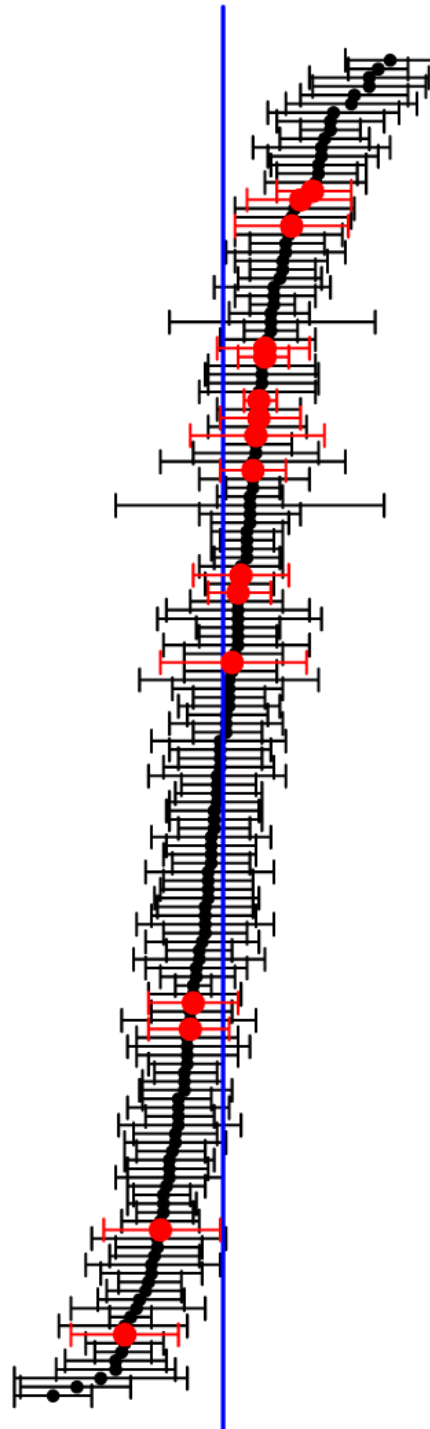
## northern italy – forest plot – multilevel model



## central italy – forest plot – multilevel model

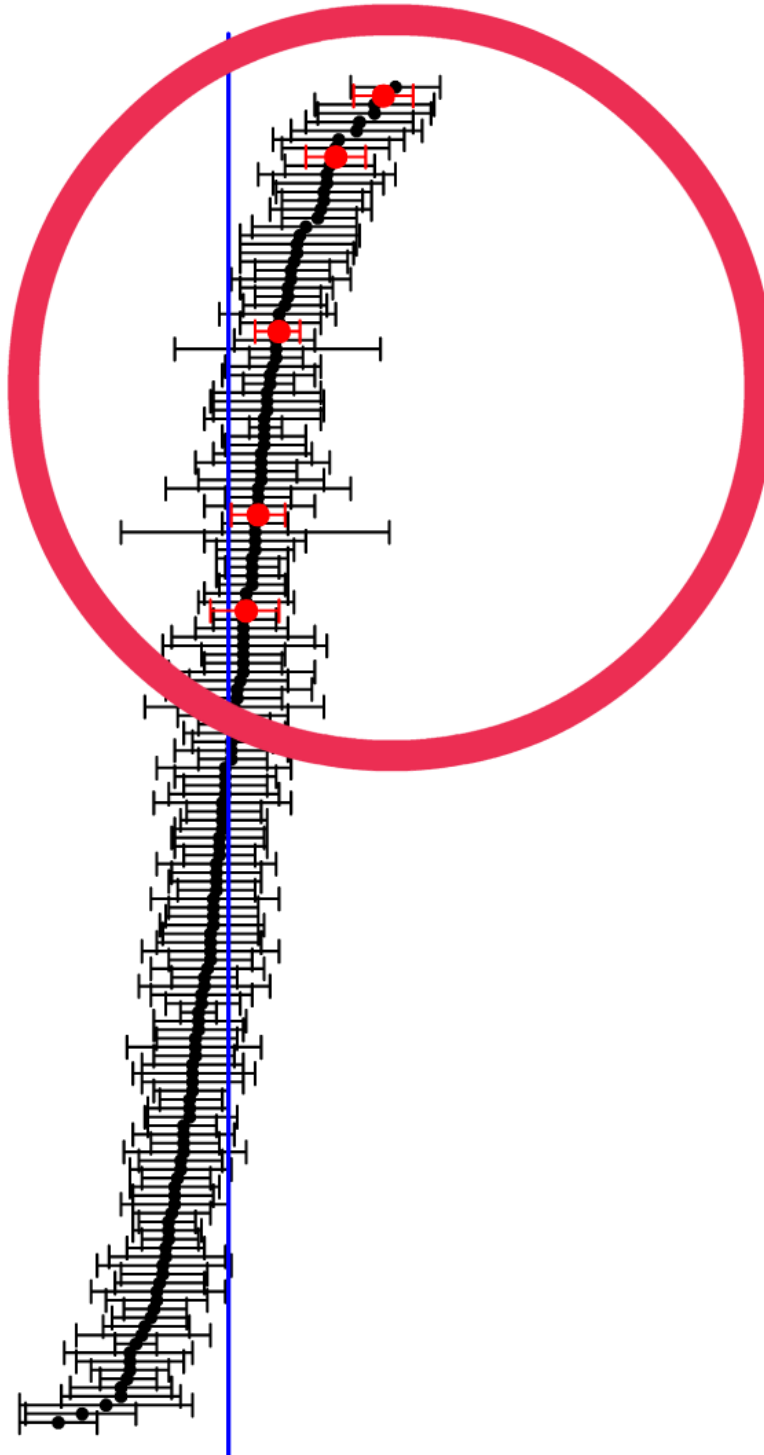


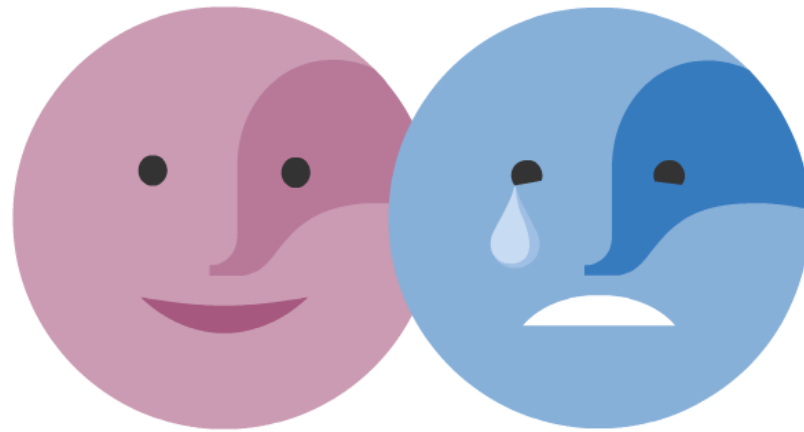
## southern italy – forest plot – multilevel model



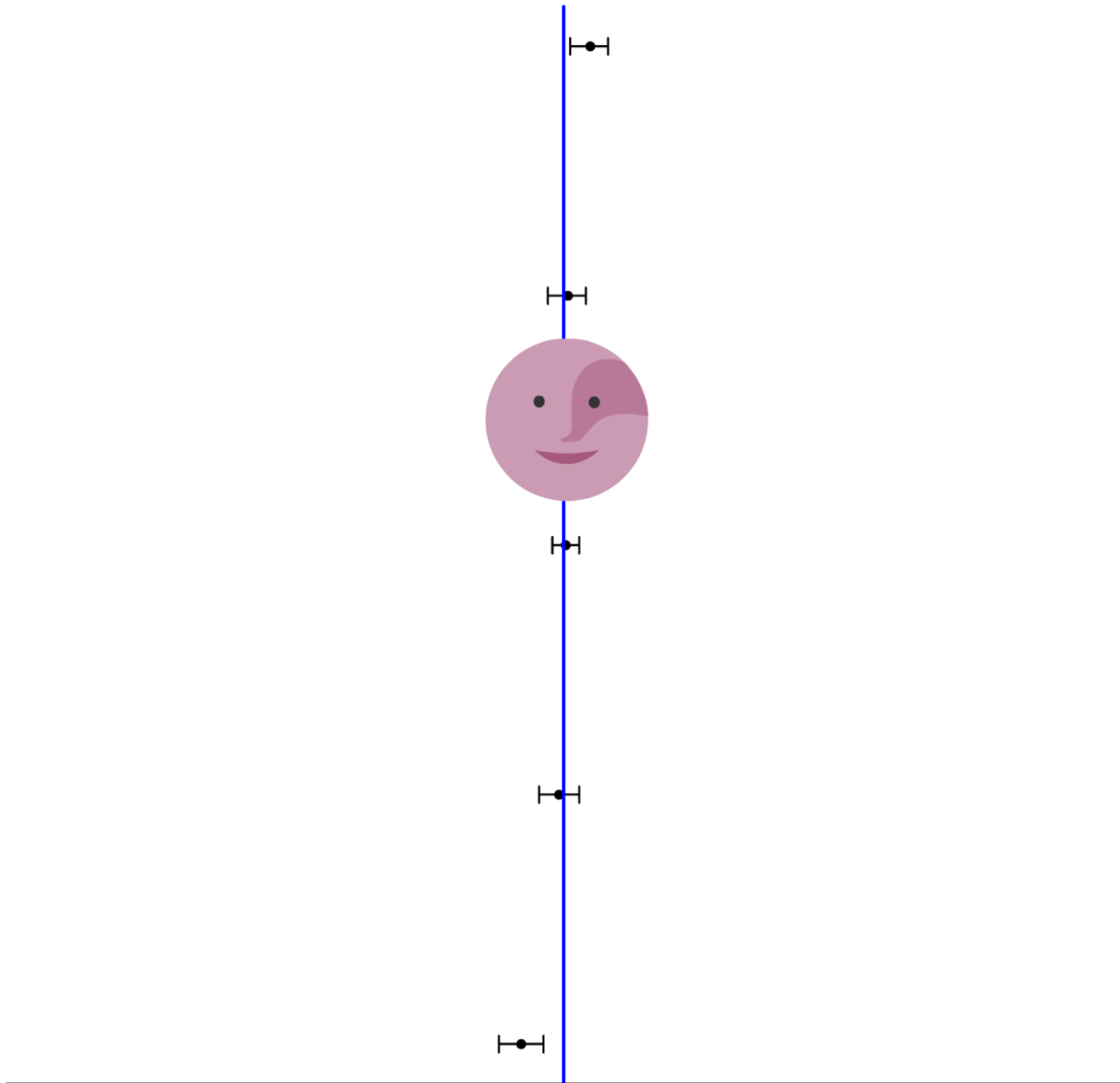


# hungary – forest plot – multilevel model



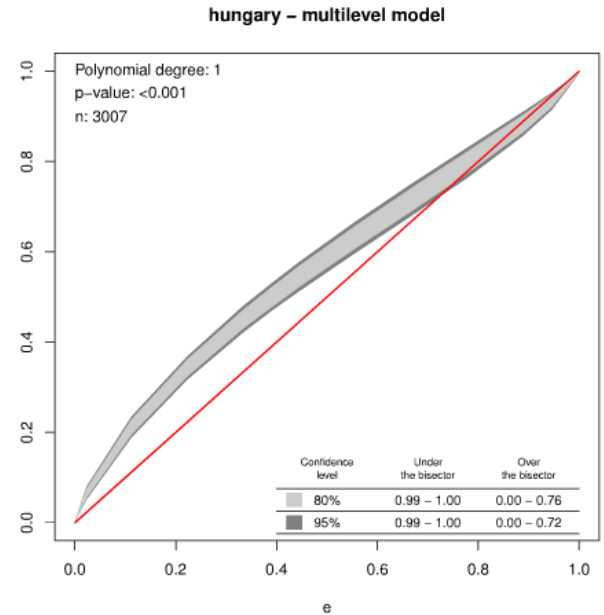


# hungary – forest plot – hungarian model



**30-35k EUR/capita**

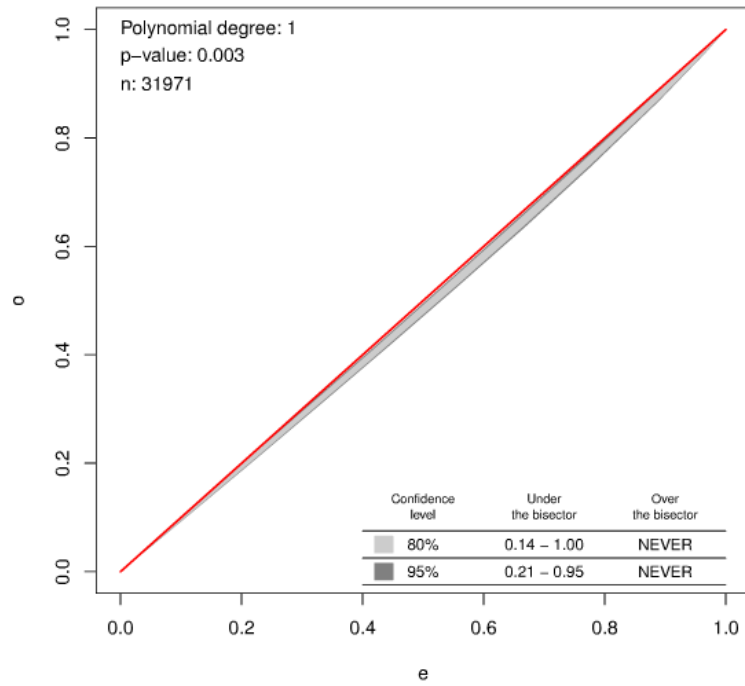
**GDP**



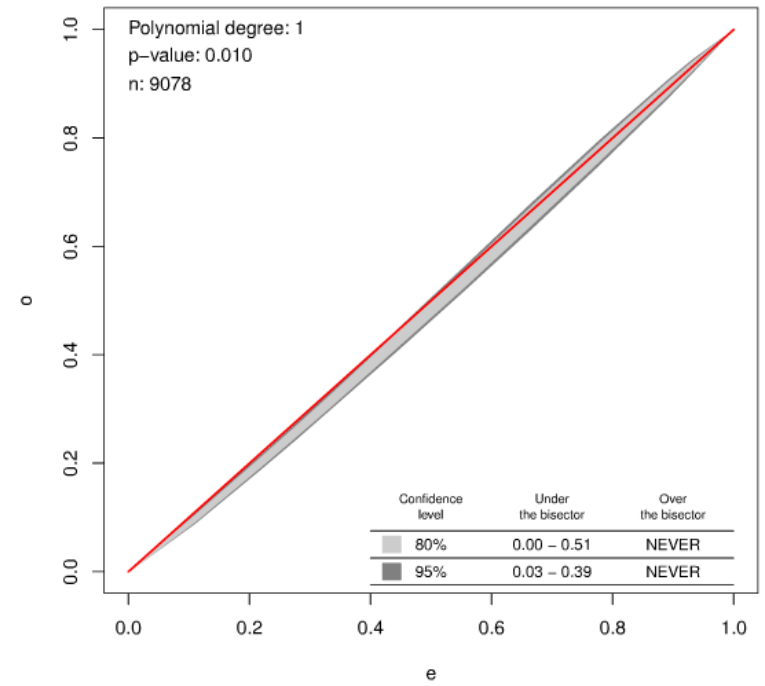
**Performance  
of the ICU**

**15-17k EUR/capita**

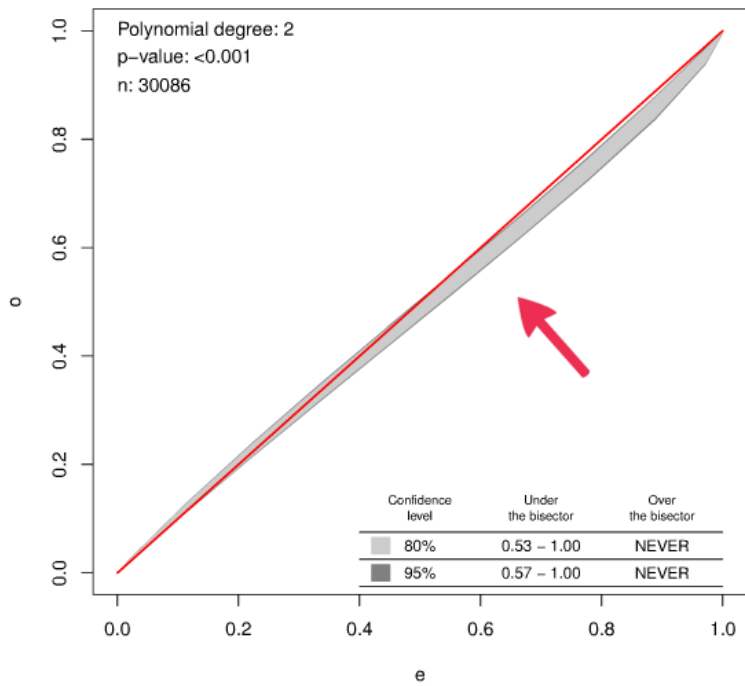
**northern italy**



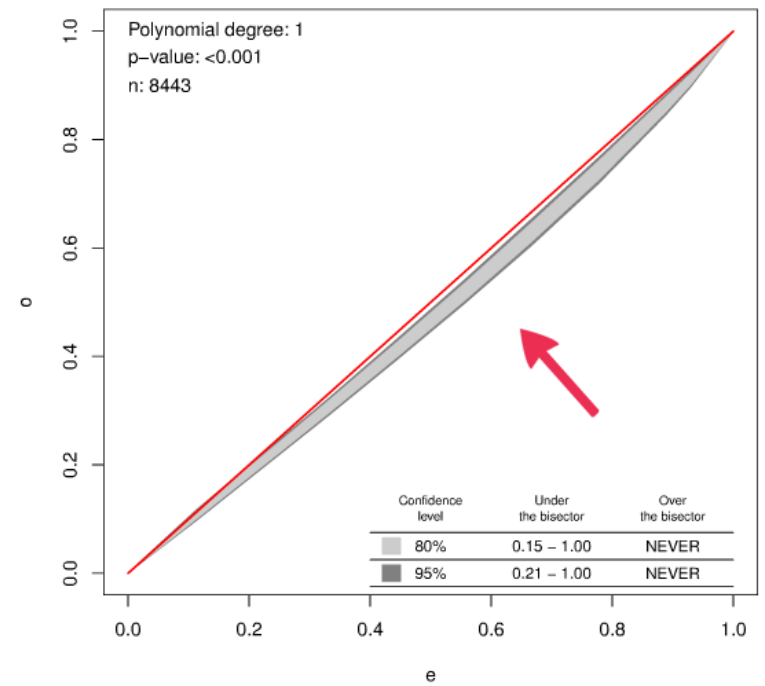
**central italy**



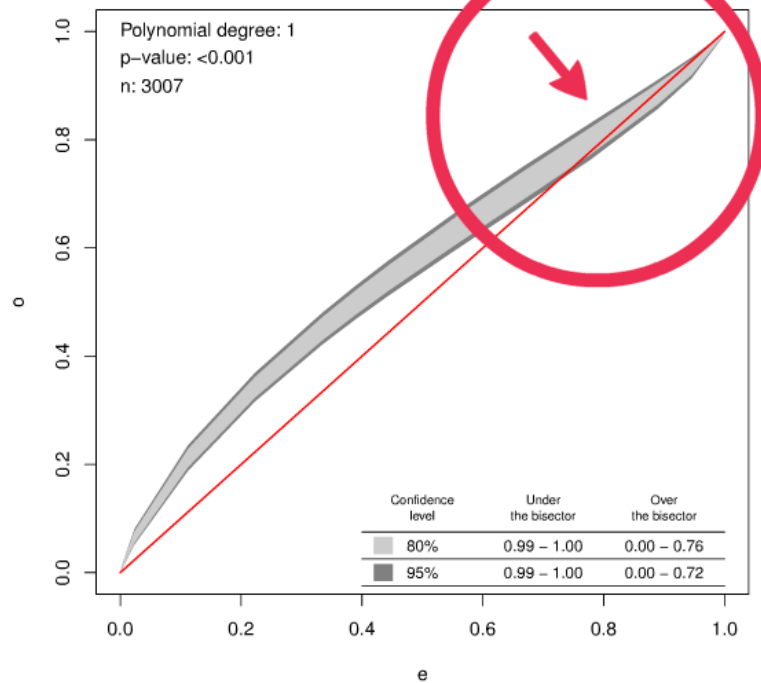
**northern italy – multilevel model**



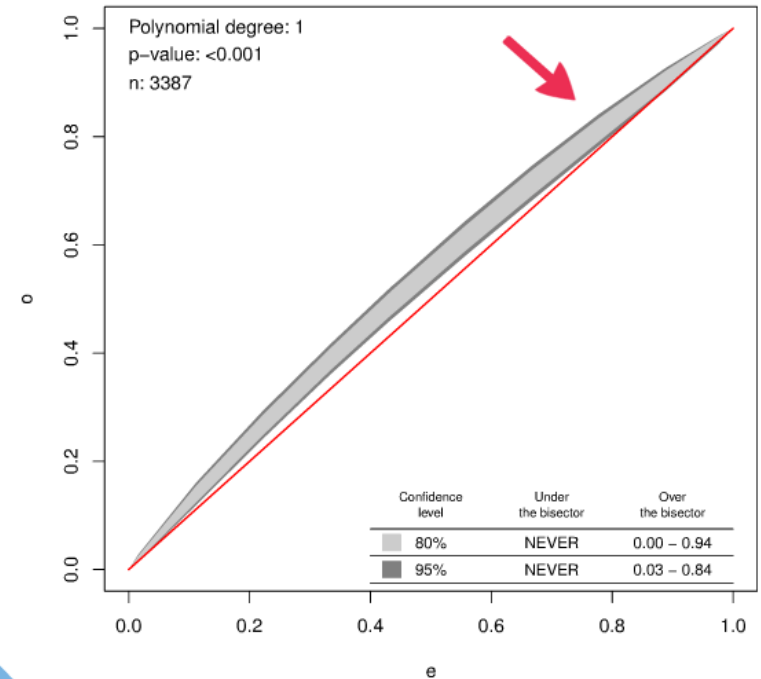
**central italy – multilevel model**



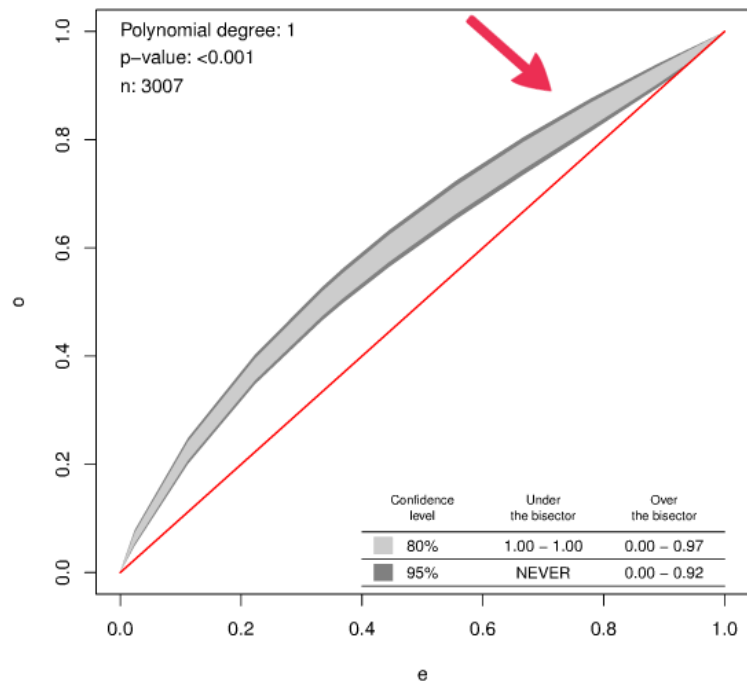
hungary – multilevel model



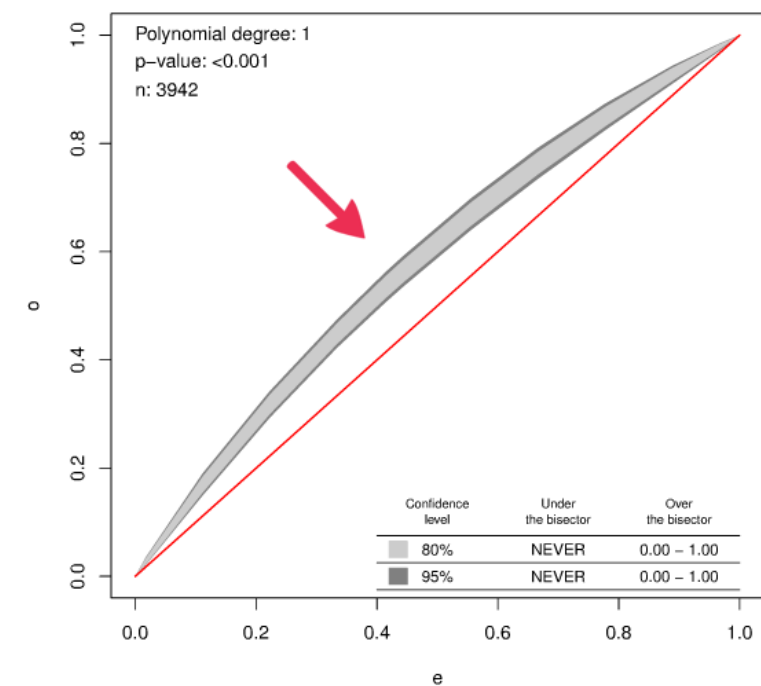
southern italy – multilevel model



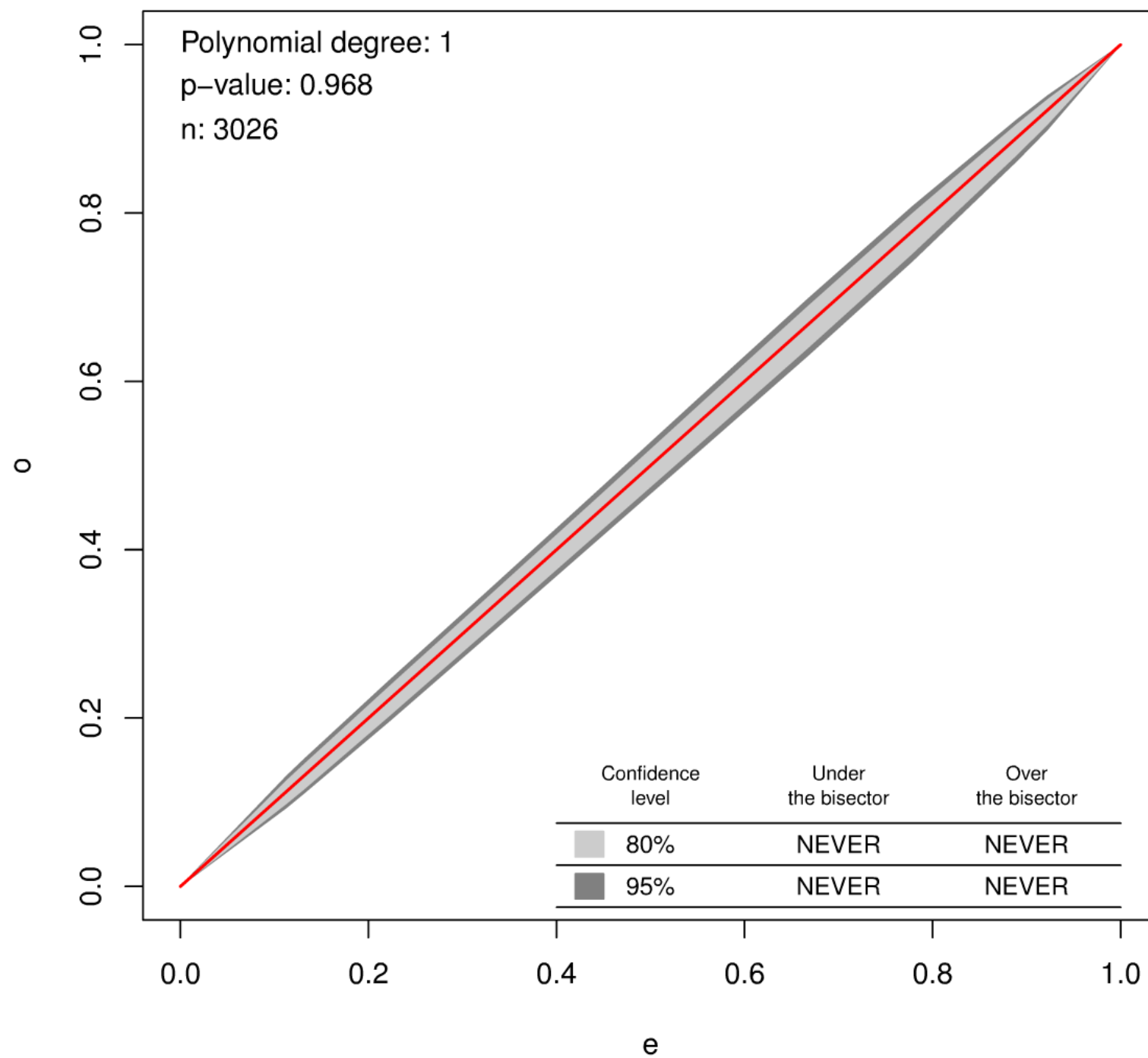
hungary



southern italy



## hungary – hungarian model



# Hungary

Sex	N	%	%
Male	1369	58.4	59.2
Female	975	41.6	40.8
Missing	0		

Age (years)	N	%	%
17-45	360	15.4	12.1
46-65	895	38.2	25.9
66-75	593	25.3	26.0
>75	496	21.2	36.0
Missing	0		
Mean	62.1		66.7
SD	16.0		16.4
Median	64		71
Q1-Q3	53-74		57-79
Min-Max	17-99		17-108

Reason for admission	N	%	%
Monitoring/Weaning	683	29.5	39.8
Post surgical weaning	111	4.8	14.5
Surgical monitoring	378	16.3	14.7
Post interventional weaning	2	0.1	0.3
Interventional monitoring	7	0.3	1.4
Non surgical monitoring	180	7.8	8.7
Missing	5		
Admission for procedures/treatments	0	0.0	0.0
Intensive Treatment	1625	70.1	59.8
Only ventilatory support	720	31.0	32.6
Only cardiovascular support	137	5.9	3.9
Ventilatory and cardiovascular support	768	33.1	23.3
Missing	0		
Palliative Sedation	4	0.2	0.3
Diagnosis of death/Organ donation	7	0.3	0.1
Missing	25		

# Italy

Comorbidities	N	%	%
No	442	19.0	16.1
Yes	1881	81.0	83.9
Missing	21		

Comorbidities (top 10)	N	%	%
Hypertension	1398	60.2	51.6
Peripheral vascular disease	403	17.3	9.7
Diabetes Type II without insulin tr.	378	16.3	13.0
Arrhythmia	350	15.1	16.8
NYHA class II-III	296	12.7	10.8
Cerebrovascular disease	290	12.5	11.4
Any tumour without metastasis	244	10.5	11.5
Moderate COPD	217	9.3	15.4
Myocardial infarction	205	8.8	12.9
Diabetes Type II with insulin treatment	159	6.8	6.8
Missing	21		

Complications during the stay	N	%	%
No	1190	51.4	70.5
Yes	1125	48.6	29.5
Missing	29		



# Hungary

# Italy

Infections	N	%	%
None	1135	49.0	69.6
Only on admission	745	32.2	21.8
On admission and during ICU stay	98	4.2	2.7
Only during ICU stay	337	14.6	5.9
Missing	29		

Infection severity on admission	N	%	%
None	1474	63.9	75.6
Infection with or without SIRS	387	16.8	8.4
Severe sepsis	191	8.3	7.5
Septic shock	256	11.1	8.5
Missing	36		

## SAPSII

Mean	38.6	37.7
SD	21.4	20.4
Median	34	34
Q1–Q3	22–52	23–49
Not evaluable	825	
Missing	32	

## SOFA

Mean	5.1	5.4
SD	4.4	4.1
Median	4	4
Q1–Q3	1–8	2–8
Not evaluable	825	
Missing	32	

# Hungary

# Italy

ICU stay (days)			
Mean	7.4	6.2	
SD	10.8	10.1	
Median	4	2	←
Q1–Q3	2–9	1–7	
Missing	33	417	

ICU stay (days) Alive (N=1737)			
Mean	7.4	5.9	
SD	11.0	9.6	
Median	4	2	←
Q1–Q3	2–9	1–6	
Missing	0	8	

ICU stay (days) Dead (N=564)			
Mean	7.3	7.8	
SD	10.4	12.0	
Median	3	3	↔
Q1–Q3	1–9	1–10	
Missing	0	1	

ICU mortality	N	%	%
Alive	1737	75.5	81.8
Dead	564	24.5	18.2
Missing	43		

Timing of ICU mortality (N=564)			
	N	%	%
Daytime (08:00AM - 07:59PM)	317	56.2	66.6
Nighttime (08:00PM - 07:59AM)	247	43.8	33.4
Weekdays (Monday - Friday)	410	72.7	75.1
Weekend (Saturday - Sunday)	154	27.3	24.9
Missing	0		

ICU outcome	N	%	%
Dead	564	24.5	17.8
Transferred to same hospital	1538	66.8	72.6
Transferred to other hospital	175	7.6	8.3
Discharged home	24	1.0	0.9
Disch. terminally ill	0	0.0	0.4
Missing	43		

ICU outcome		N	%	%
	Dead	564	24.5	17.8
	Transferred to same hospital	1538	66.8	72.6
	Transferred to other hospital	175	7.6	8.3
	Discharged home	24	1.0	0.9
	Disch. terminally ill	0	0.0	0.4
	Missing	43		



# Hungary

## Hospital stay (days) \*

Mean	21.2	19.7
SD	24.5	21.2
Median	14	14
Q1–Q3	7–26	7–25
Missing	36	505

## Hospital stay (days) \*

Alive (N=1434)

Mean	22.8	20.8
SD	25.1	20.7
Median	15	15
Q1–Q3	9–28	8–26
Missing	1	17

## Hospital stay (days) \*

Dead (N=847)

Mean	18.4	16.4
SD	23.3	22.0
Median	11	9
Q1–Q3	4–23.5	3–22
Missing	0	6

# Italy

## Hospital mortality \*

	N	%	%
Alive	1434	62.9	74.9
Dead	847	37.1	25.1
Missing	35		

## Timing of hosp. mortality \*

(N=847)

	N	%	%
In ICU	661	66.2	72.7
Within 24 hours after ICU	16	1.9	1.9
24-47 hours after ICU	36	4.3	1.7
48-71 hours after ICU	28	3.3	1.7
72-95 hours after ICU	22	2.6	1.6
After 95 hours after ICU	184	21.7	20.5
Missing	0		

Hospital mortality *		N	%	%
	Alive	1434	62.9	74.9
	Dead	847	37.1	25.1
	Missing	35		

Timing of hosp. mortality *		N	%	%
(N=847)				
	In ICU	561	66.2	72.7
Within 24 hours after ICU		16	1.9	1.9
24-47 hours after ICU		36	4.3	1.7
48-71 hours after ICU		28	3.3	1.7
72-95 hours after ICU		22	2.6	1.6
After 95 hours after ICU		184	21.7	20.5
	Missing	0		

# Reasons?

GDP → resources → ?



median

77,7%



median

85%

occupancy rate

available beds per physician

4,3

4,6

available beds per nurse

2,4

2,1

occupied beds per physician

2,9

3,7

occupied beds per nurse

1,9

1,8



# Conclusion



the importance of database

feed-back

no financial bias of it

become a daily practice

message for policy makers

**TO BE  
CONTINUED.....➔**

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