

Survey on Siero-prevalence of Covid-19

Planned sampling design

Stefano Falorsi

25 Maggio 2020

Premise

The survey design was carried out by an ad hoc group of researchers with the aim to define all the methodological characteristics of the sampling design in a very short time. The operation lasted about 3 weeks.

The group had additional an problem of not having any idea of the Overall amount of the phenomenon and its distribution on the Italian Regions, with large differences among regions.

Moreover the methodologists did not have direct contacts with the the experts of the Ministry of Health in charged to define the targets of the survey.

The group is composed by:

Michele D'Alò, Claudia De Vitiis, Andrea Fasulo, Danila Filipponi, Alessio Guandalini, Francesca Inglese, Roberta Radini, Stefano Falorsi

Overview fo the Study

The study will be based on two surveys aimed at estimating both the structural and dynamic aspects of the phenomenon.

In particular, have been planned:

- *A Cross-sectional* survey, based on a sample size of about 150,000 individuals (expanded by 25% to compensate for possible falls, for a total of 189,000). It is aimed at producing cross-sectional estimates referred to a given, *time t*
- *A longitudinal survey*, based on a panel (rotated ?) of about 20,000 individuals. It is aimed at producing estimates of gross-changes over a 12-month period. The longitudinal component has been conceived as a sub-sample of the cross-sectional one

For the above reasons, the first phase cross-sectional survey is called the *Master sample component* while the sub-sample is called the *Panel component*.

The Master component survey

The Master component survey has the objective of estimating, at **May 2020**, the prevalence of

- Infected people
- Immune people

both with reference to the **total population** and with respect to the sub-population of **employed people**.

The territorial domains are

- **Geographical Regions** (20)

Within each Geographical Region, the structural domains are :

- **Age classes** (6) + **gender**, for the **total population**
- **Macro-classes of economic activity** (4) + **age classes** (6) + **gender**, for the sub-population of the **employed people**

The Panel component survey

The Panel component survey has the objective of estimating, during a period of at least 12 Months from may 2020, the gross change contingency tables of prevalence for

- Infected people
- Immune people

both with reference to the total population and with respect to the sub-population of employed people.

The territorial domains are

- Geographical Regions (20) and Macro-Regions (3): High (North), Medium (Centre) and Low (South)

Within each Macro-Region, the structural domains are :

- Age classes (6) + gender, for the total population
- Macro-classes of economic activity (4) + age classes (6) + gender, for the sub-population of the employed people

The stratification variables classes / modalities are

- Economic Activity groups (4 classes): Suspended employees, Unsuspended employees Other, Unsuspended employees, PA + Education, Unsuspended employees Healthcare
- Age classes (6 classes): 0-17; 18-34; 35-49; 50-59; 60-69; 70+
- Gender

Coordination of field operations for Master and Panel surveys

- Taking into account the nature and relevance of the target estimates, the two surveys must be conceived to ensure a high quality profile of the estimates produced both in terms of expected CVs and of strong containment of the bias connected to the Non Response.
- As far as the NR bias is concerned, it would be necessary to operate in the field so that the two surveys, master and panel, will be characterized by very high response rates in the absence of substitution mechanisms of NR
- For the above reasons, it would have sense to initially concentrate efforts to capture all the complete information on the first-wave panel sub-sample, and then extend the survey to the entire master sample
- Then, the two samples, master and panel, will be delivered simultaneously to the field, assigning priority code 1 to the subset of the sample individuals included in the panel: so that individuals flagged in the first wave-panel sub-sample will be interviewed first and then the survey continue with the rest of the master sampling units
- Furthermore, the panel component, because of its smaller size, can have a strong anticipatory capacity with respect to the more detailed and reliable estimates expected from the Master sample component

Buiding the sampling frame

The basis was obtained by integrating and processing the data of the three main Istat base and thematic registers:

- **Basic Statistical Register of Individuals (RBI)**, a register that covers the entire Italian population containing basic personal information (age, sex, marital status, citizenship, level of education). The base updated in January 2019 is being used.
- **Basic Statistical Register of Economic Units (REA)**, a register that covers the entire population of Italian companies and contains information on the structural characteristics of companies, such as economic activity, legal form and employees
- **Thematic Statistical Register on Work**, which associates each individual of the Italian population with the economic unit in which he carries out his work and contains information relating to employment relationships. This register can be connected directly via anonymous pseudo code to RBI and to REA

- **Base Register of Places (BRP).** This register provided all the information relating to the territorial administrative units such as the municipality, provinces, regions, local labor systems and ASL. In addition, to facilitate the possibility of contact, he provided the residential address and postal code.

In addition, the integrated database is enriched with information:

- on the deaths of the period from 01/01/2019 to 9/4/2020 extracted from the source Tax Register of Individuals;
- on changes of residence extracted from the Registry of Municipalities referred to 01/01/2020;
- membership of the ASL districts of the Lombardy region provided by the region itself

Sampling Design – General Scheme of selection

From the point of view of the efficiency of the sampling estimates, the best choice in terms of sampling schemes are one stage stratified/balanced sampling designs in which estimation domains coincide with strata or are obtained as union of complete strata

- **Strata = Domains** [Geographical Regions x Macro classes of Economic Activities (4) x Age classes (6) x gender (2)].
- This scheme, in fact, is able to guarantee per se a good spatial dispersion of the sample over the territory, and involves a very large number of municipalities. Also for this reason the scheme is optimal from the sampling point of view but its high territorial dispersion creates problems of collecting information on the field.

From the point of view of reducing budget costs and a better management of the collection phase the best choice are stratified two-stage sampling schemes. In order to get good spatial dispersion of the sample over the territory, a large number of PSUs was considered (around 2000, almost 25% of the Italian Municipalities)

- **Municipalities-Individuals** [Region x ATECO (4) x Age classes (6) x gender (2)] –individuals
- **Latin-square sampling selection method** (Cochran, 1977) was adopted in order to take into respect the regional planned sample sizes into strata obtained by cross-classification of Age classes, Economic Activity groups and Gender

Sampling Design – Available information

Available information for the study of the sample size

The study of the sample size was carried out on the basis of the number of the official infected people at provincial level provided by Ministry of Health:

- the Number of Infected People (NIP) by 7 Aprile.

Based on this information, three different scenarios were considered

- Low Prevalence Scenario: inflation of 5 times of NIP
- Medium Prevalence Scenario: inflation of 10 times of NIP
- High Prevalence Scenario: inflation of 20 times of NIP

Because of the high variability among geographical region's NIP figures, ranging, for the low prevalence scenario, from **0.13% to 2.5%** the original data were smoothed in the range **1% to 2%**.

In this way the resulting allocation is expected to be more robust in terms of strong deviations from NIP and near to be proportional to the regional population sizes.

Spatial dispersion of the sample over the territory

The adopted two stage sampling scheme resulted in a good spatial dispersion of the sample on the territory (due to the important number of municipalities that were selected)

- In particular, it is observed that all ASLs are represented in the selected sample and almost all 610 Local Labor Market Areas (LLMAs) are included in the sample with the exception of 82 LLMAs;
- the results of the allocation and subsequent selection show, in summary, a good representation of the Italian sub-regional territories, in relation to the estimated prevalences and planned CVs, and a satisfactory coverage of the sample at the municipal level, of the ASL and also of the LLMAs.

Details about allocation process

The planned master sample of 149,910 individuals, has been selected by means of a multivariate and multi-domain allocation methodology for stratified two-stage sampling designs implemented in the R Cran package **R2BEAT 2020** (Falorsi S., Fasulo A., Guandalini A., Pagliuca D.)

To find a solution it was necessary to create an extra domain to manage Region Basilicata which otherwise would have taken too many sampling units with respect its population size

The constraints imposed on the expected errors are

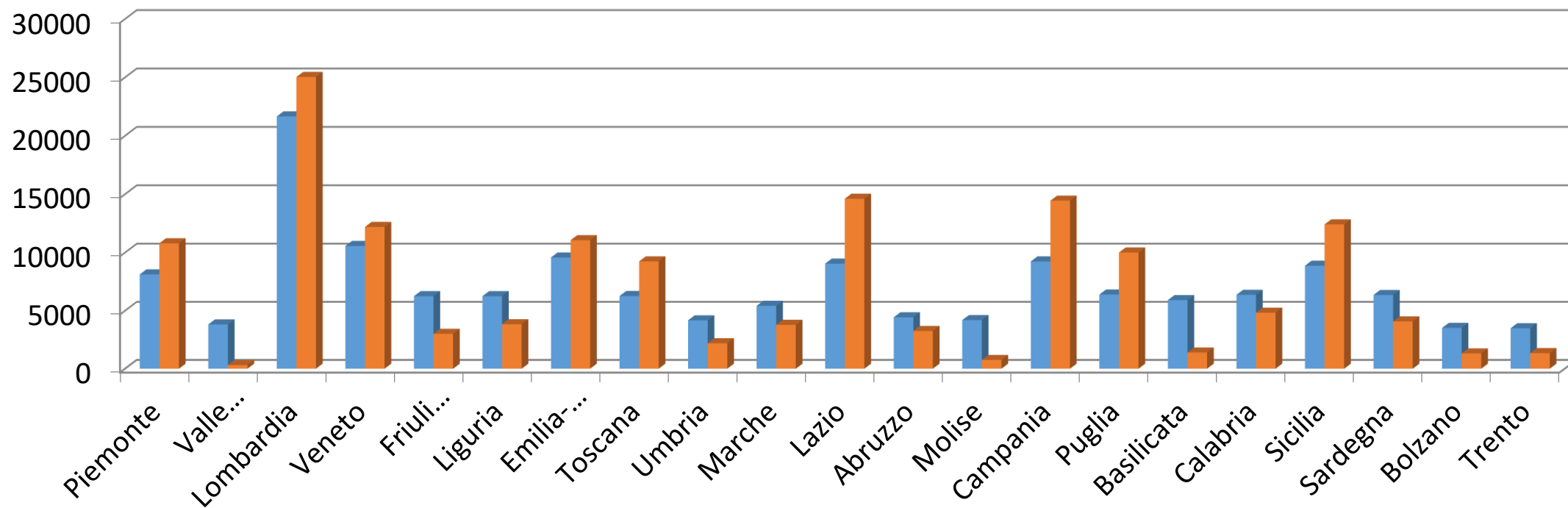
1	DOM1	12.6 %	prevalence 1 %
2	DOM2	10 %	prevalence 1.5 %
3	DOM3	8.5 %	prevalence 2 %
4	DOM4	9.9 %	Region Basilicata
5	DOM5	2.28 %	Italy

The allocation is close to proportional, however it allows to have a minimum of at least 3500 units even in the smallest "regions" (Valle d'Aosta, Bolzano and Trento).

Geographical Regions	Optimal	Proportional	Expected Rate
1 Piemonte	8126	10793	1.26
2 Valle D'Aosta	3815	312	2.92
3 Lombardia	21659	25036	2.56
5 Veneto	10567	12193	1.20
6 Friuli Venezia Giulia	6249	3010	0.71
7 Liguria	6247	3832	0.54
8 Emilia-Romagna	9580	11058	1.94
9 Toscana	6262	9243	0.65
10 Umbria	4168	2189	0.66
11 Marche	5417	3781	1.38
12 Lazio	9048	14607	0.33
13 Abruzzo	4427	3254	0.27
14 Molise	4188	757	0.38
15 Campania	9239	14444	0.21
16 Puglia	6390	10005	0.31
17 Basilicata	5911	1393	0.13
18 Calabria	6364	4823	0.19
19 Sicilia	8869	12412	0.13
20 Sardegna	6349	4072	0.26
41 Bolzano	3515	1319	1.60
42 Trento	3488	1344	2.75
	149878	149878	

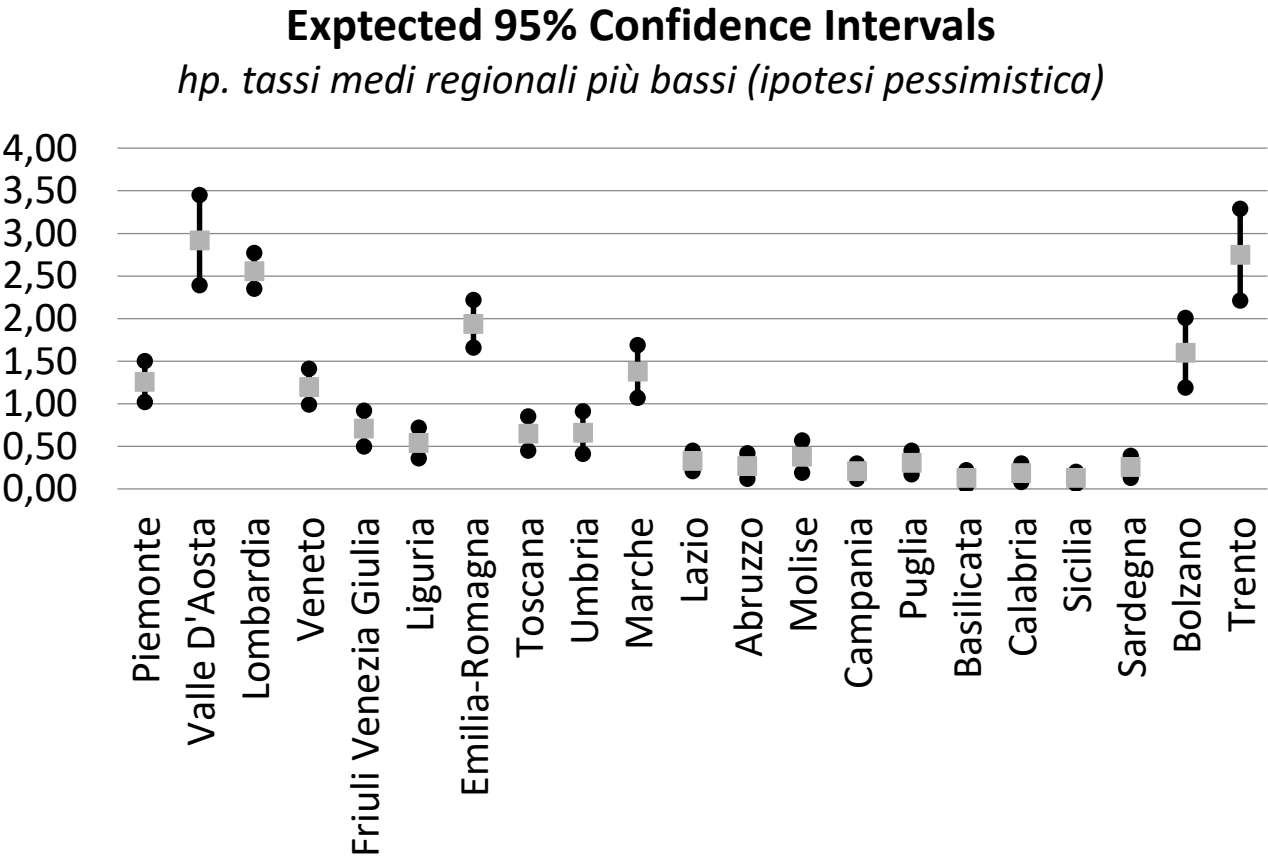
Allocation

OTTIMA
PROPORZIONALE



Regions	Optimal	Rate	LB_OPT	UB_OPT
1 Piemonte	8126	1.26	1.02	1.50
2 Valle D'Aosta	3815	2.92	2.39	3.45
3 Lombardia	21659	2.56	2.35	2.77
5 Veneto	10567	1.20	0.99	1.41
6 Friuli Venezia Giulia	6249	0.71	0.50	0.92
7 Liguria	6247	0.54	0.36	0.72
8 Emilia-Romagna	9580	1.94	1.66	2.22
9 Toscana	6262	0.65	0.45	0.85
10 Umbria	4168	0.66	0.41	0.91
11 Marche	5417	1.38	1.07	1.69
12 Lazio	9048	0.33	0.21	0.45
13 Abruzzo	4427	0.27	0.12	0.42
14 Molise	4188	0.38	0.19	0.57
15 Campania	9239	0.21	0.12	0.30
16 Puglia	6390	0.31	0.17	0.45
17 Basilicata	5911	0.13	0.04	0.22
18 Calabria	6364	0.19	0.08	0.30
19 Sicilia	8869	0.13	0.06	0.20
20 Sardegna	6349	0.26	0.13	0.39
41 Bolzano	3515	1.60	1.19	2.01
42 Trento	3488	2.75	2.21	3.29

149878



CV% for Geographical Regions with large-medium sample sizes

Lombardia (**21.659**),

Piemonte (**8.126**),

Veneto (**10.567**),

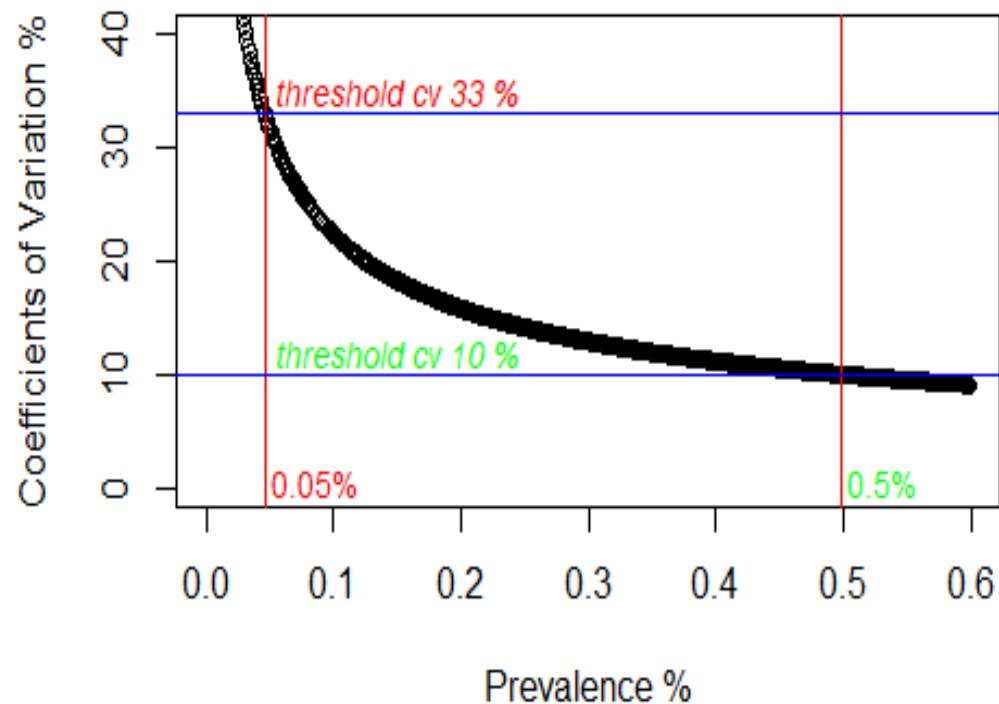
Emilia Romagna (**9.580**),

Lazio (**9.048**),

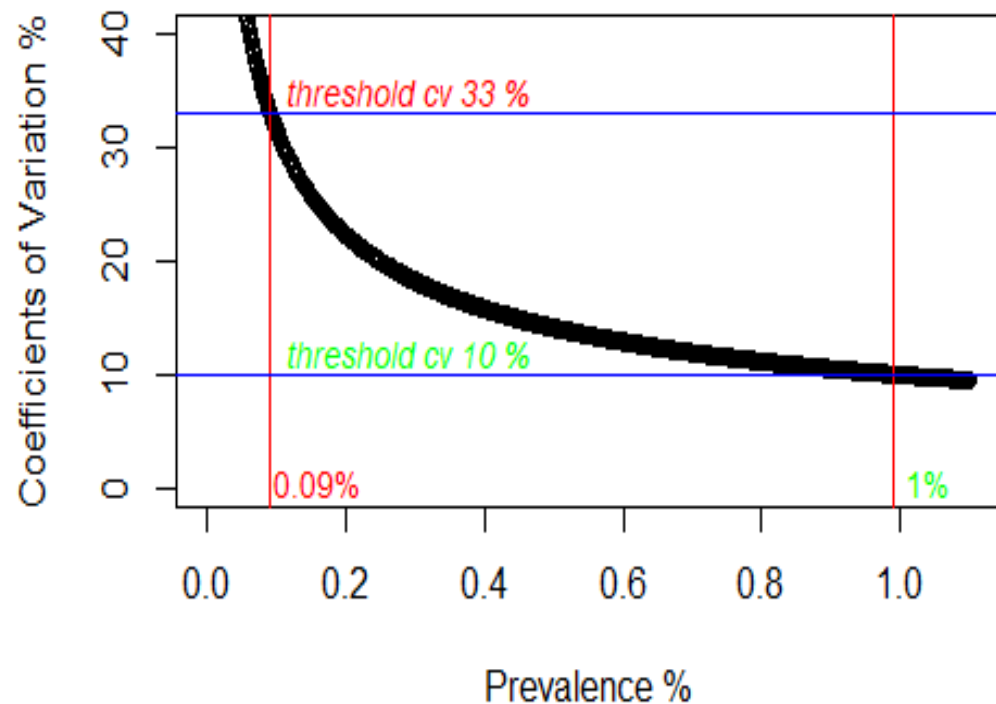
Campania (**9.239**),

Sicilia (**8.869**)

n=20.000



n=10.000



CV% for Geographical Regions with medium-small sample sizes

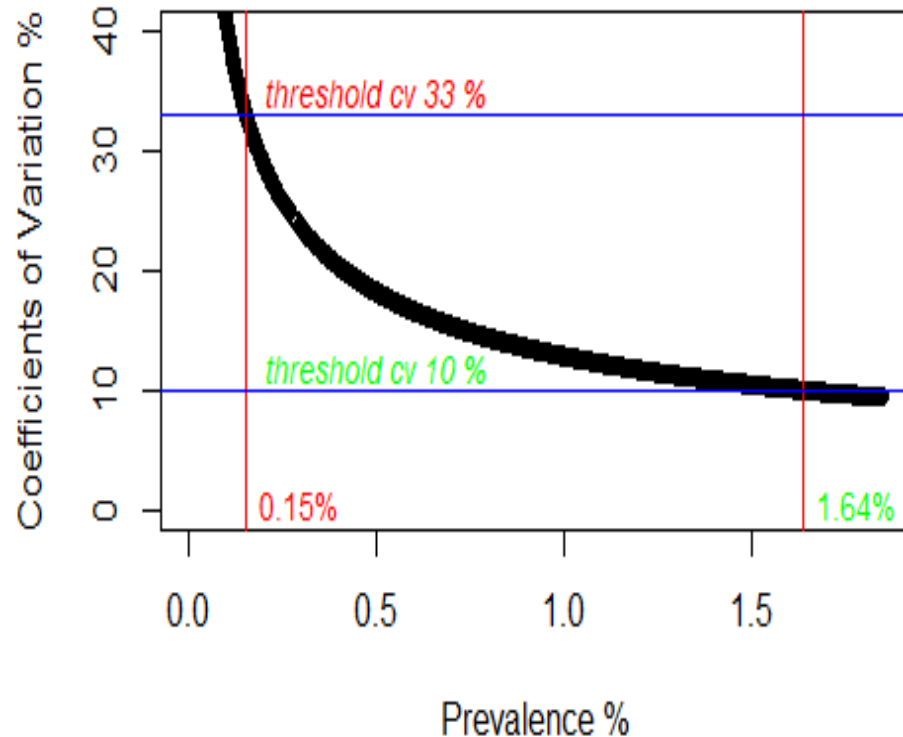
Friuli Venezia Giulia (6.249),
Basilicata (5.911),
Valle D'Aosta (3.815),
Bolzano (3.515),

Liguria (6.247),
Calabria (6.364),
Umbria (4.168),
Trento (3.488)

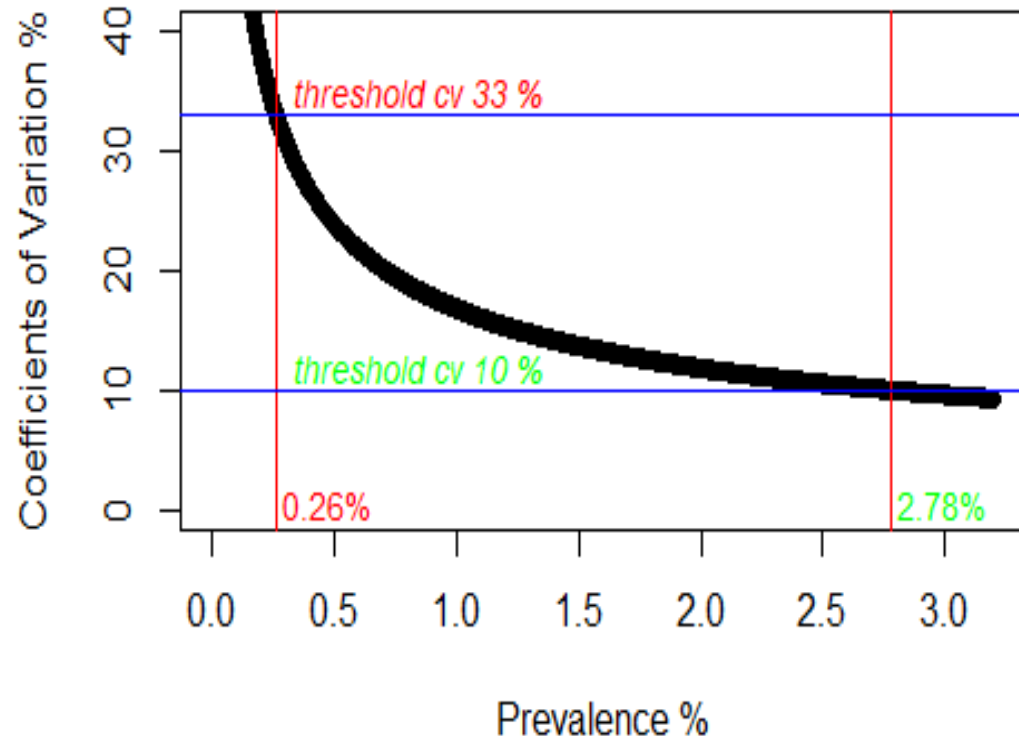
Toscana (6.262),
Sardegna (6.349),
Abruzzo (4.427),

Puglia (6.390),
Molise (4.188),

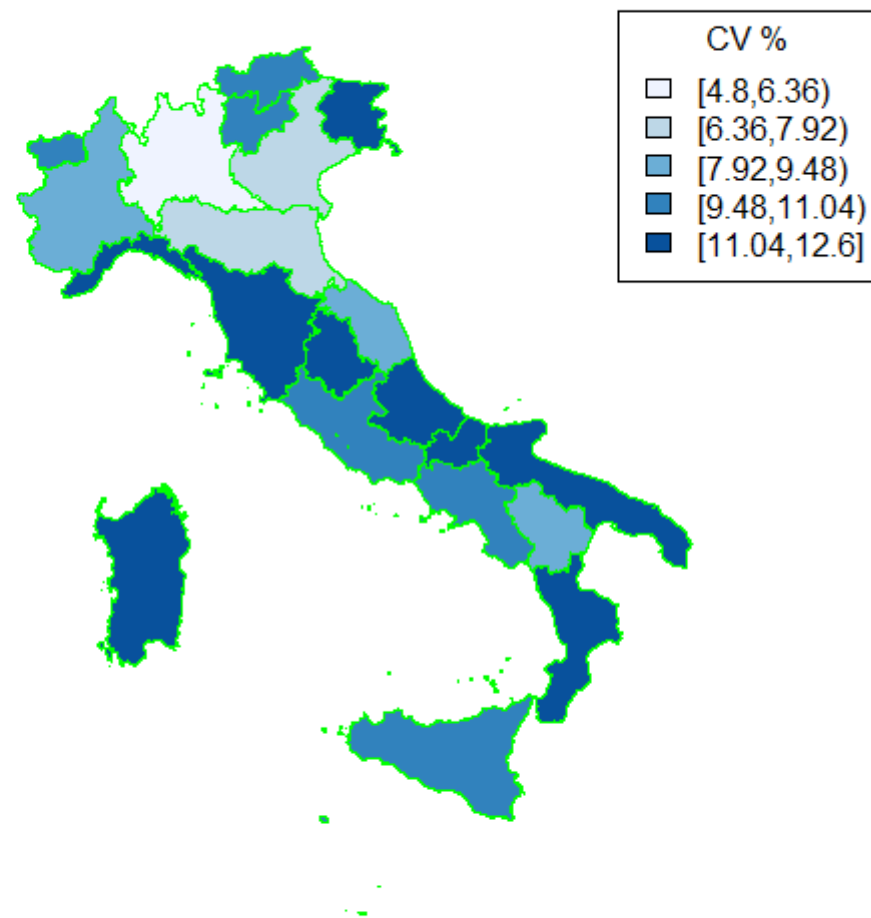
n=6.000



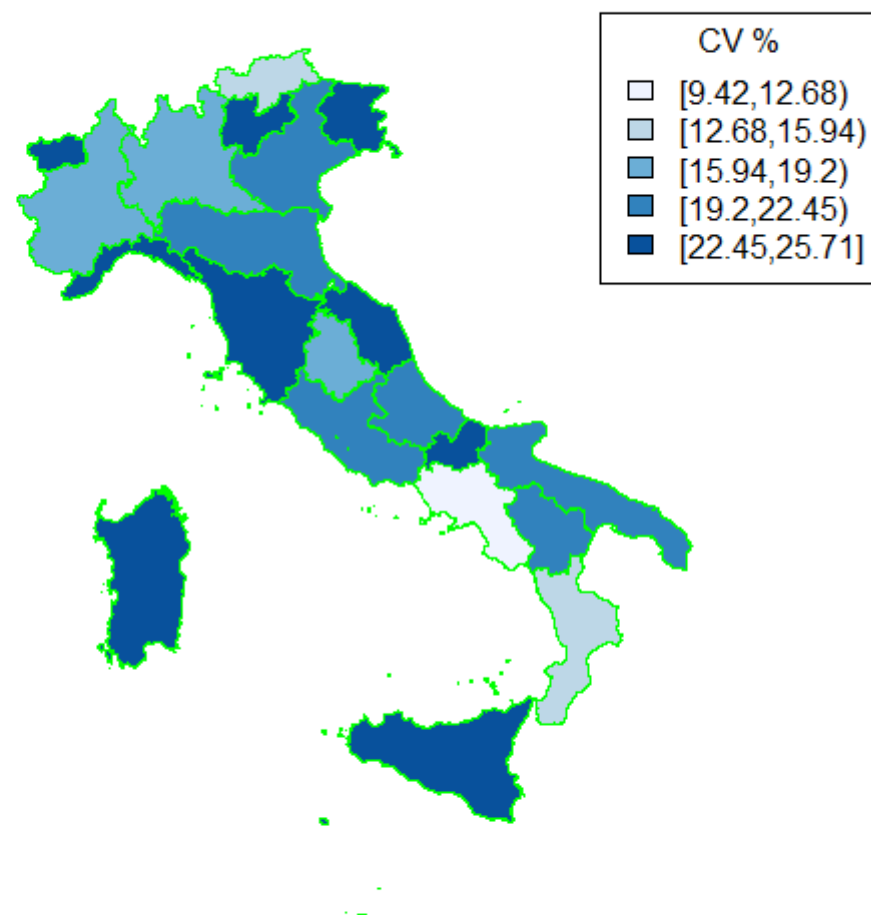
n=3.500



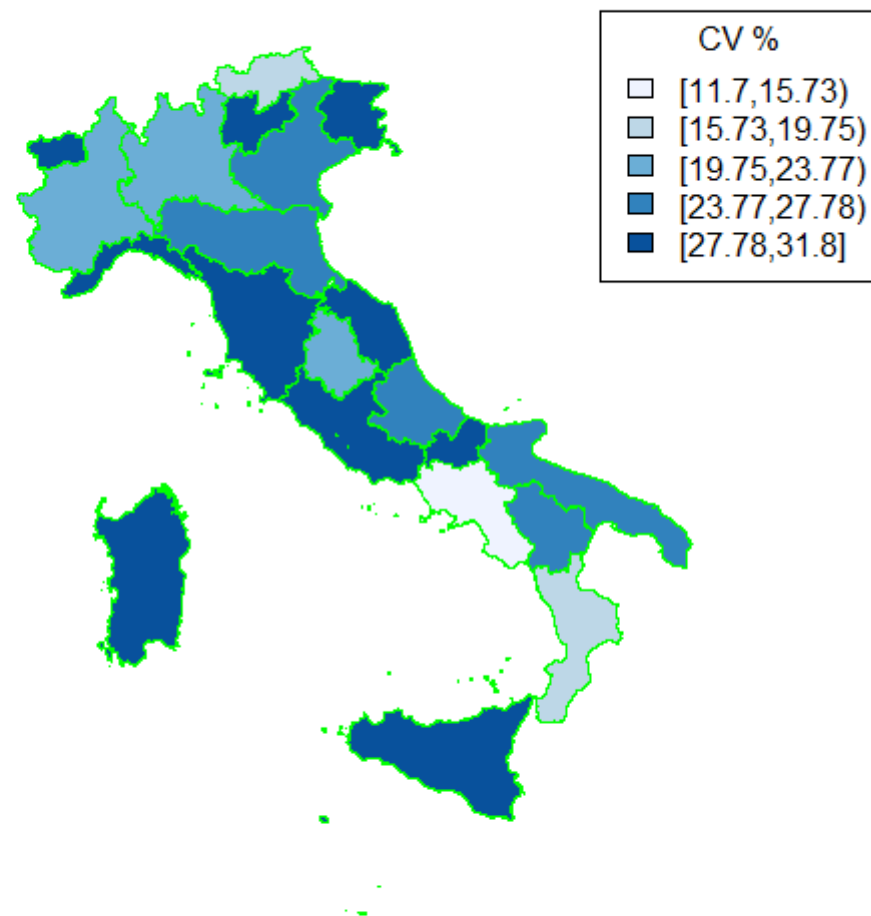
Expected CV % for Regions



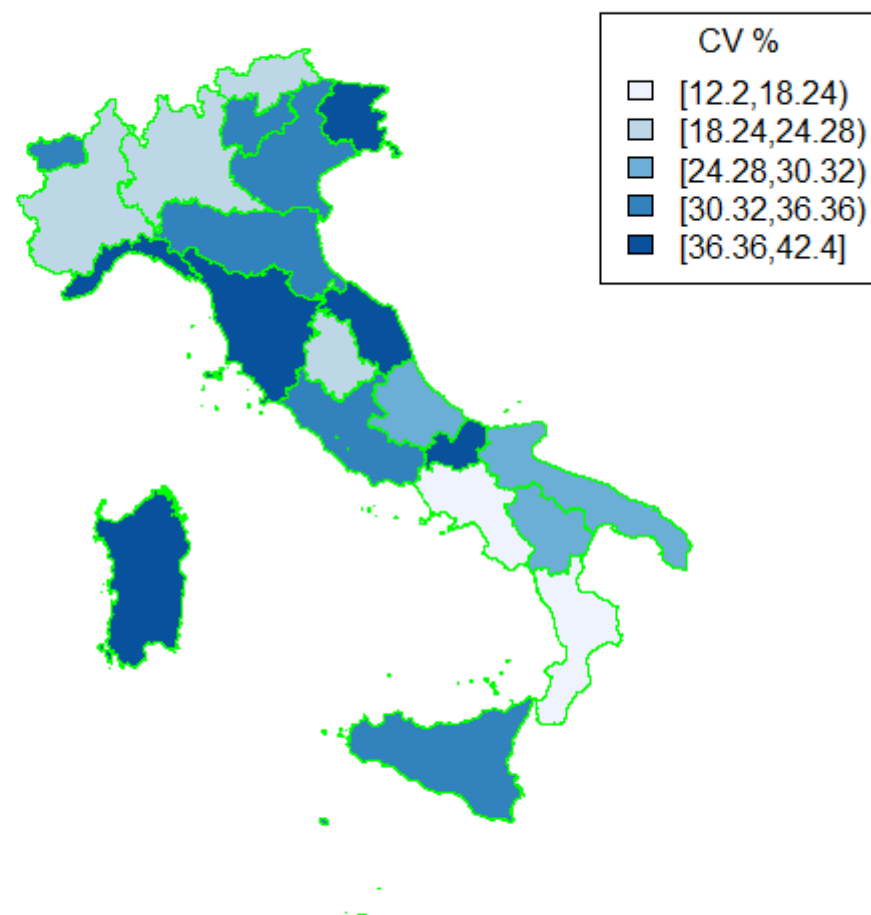
Expected median CV % for sex in the regions



Expected median CV % for classes of age in the regions



Expected median CV % for ATECO in the regions



Sample size of SR & NSR Municipalities and realized Sample Size with Latin Square method

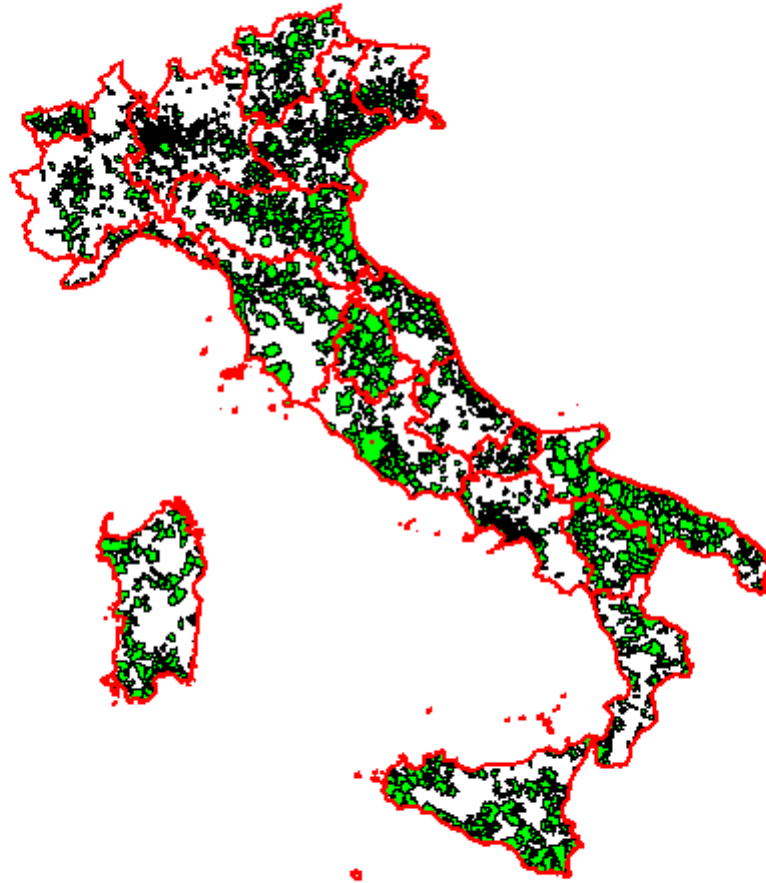
REGIONE	AR	nAR	Allocazione regionale	Allocazione Cochran (con sesso)
Piemonte	37	80	8126	8108
Valle d'Aosta	29	13	3815	3795
Lombardia	102	224	21659	21635
Veneto	58	114	10567	10581
Friuli Venezia Giulia	42	40	6249	6234
Liguria	29	31	6247	6238
Emilia Romagna	51	70	9580	9626
Toscana	37	51	6262	6257
Umbria	23	16	4168	4161
Marche	36	39	5417	5405
Lazio	35	44	9048	9042
Abruzzo	26	36	4427	4401
Molise	23	28	4188	4160
Campania	63	70	9239	9223
Puglia	44	52	6390	6383
Basilicata	46	25	5911	5873
Calabria	28	68	6364	6330
Sicilia	59	61	8869	8855
Sardegna	35	54	6349	6337
Bolzano	20	28	3515	3505
Trento	16	32	3488	3470
Totale	839	1176	149878	149619

	Geographical Regions	MASTER	PANEL
1	Piemonte	8147	1075
2	Valle D'Aosta	3820	759
3	Lombardia	21638	1501
5	Veneto	10561	1116
6	Friuli Venezia Giulia	6249	841
7	Liguria	6248	865
8	Emilia-Romagna	9594	1082
9	Toscana	6265	1028
10	Umbria	4165	816
11	Marche	5412	864
12	Lazio	9046	1188
13	Abruzzo	4430	848
14	Molise	4194	773
15	Campania	9227	1183
16	Puglia	6386	1050
17	Basilicata	5912	792
18	Calabria	6373	895
19	Sicilia	8881	1123
20	Sardegna	6356	872
41	Bolzano	3518	790
42	Trento	3488	790
		149910	20250

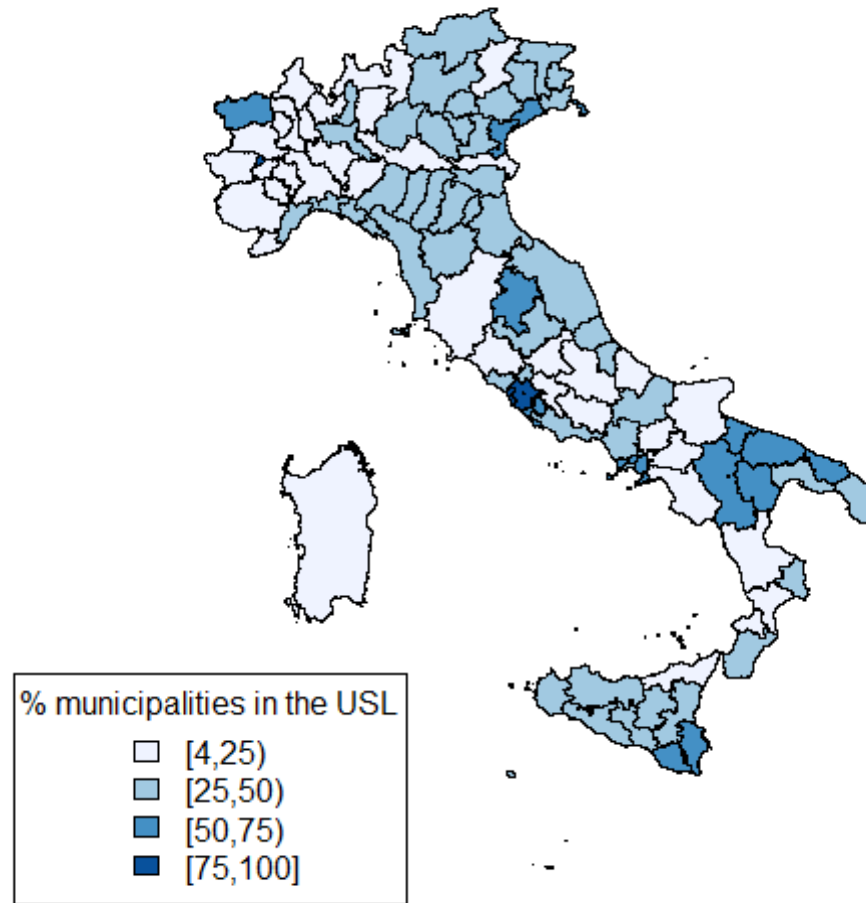
Strata within the largest and smallest regions

		Lombardia	Molise
	Groups of Economic Activities		
D	Occupati sospesi	3288	393
O	Occupati non sospesi Altro	4236	595
M	Occupati non sospesi PA+Istruzione	731	271
	Occupati non sospesi Sanità	688	266
1	Non occupati	12716	3155
	Age Classes		
D	0-17	3402	530
O	18-34	3722	772
M	35-49	4714	863
	50-59	3477	688
2	60-69	2594	581
	70+	3750	1246
D	Gender & >< 50 YEAR		
O	F<50	5780	1058
M	F>50	5267	1088
	M<50	6058	1107
3	M>50	4554	1427

sample coverage of municipalities across regions - spatial distribution

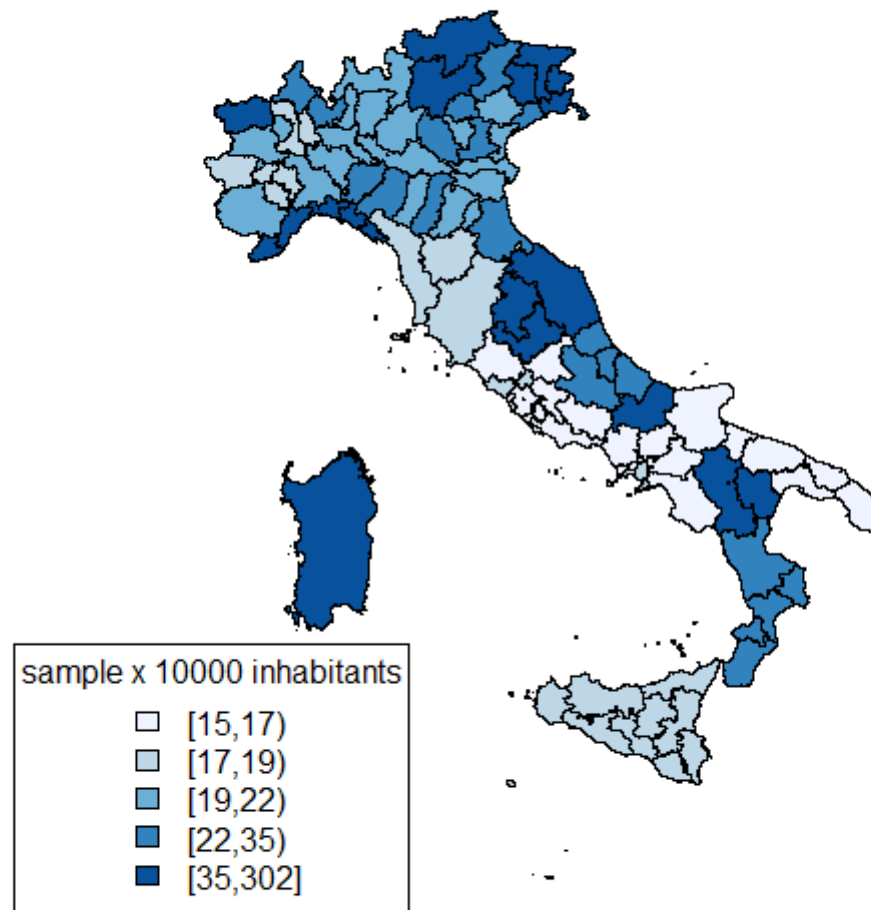


usl sample coverage

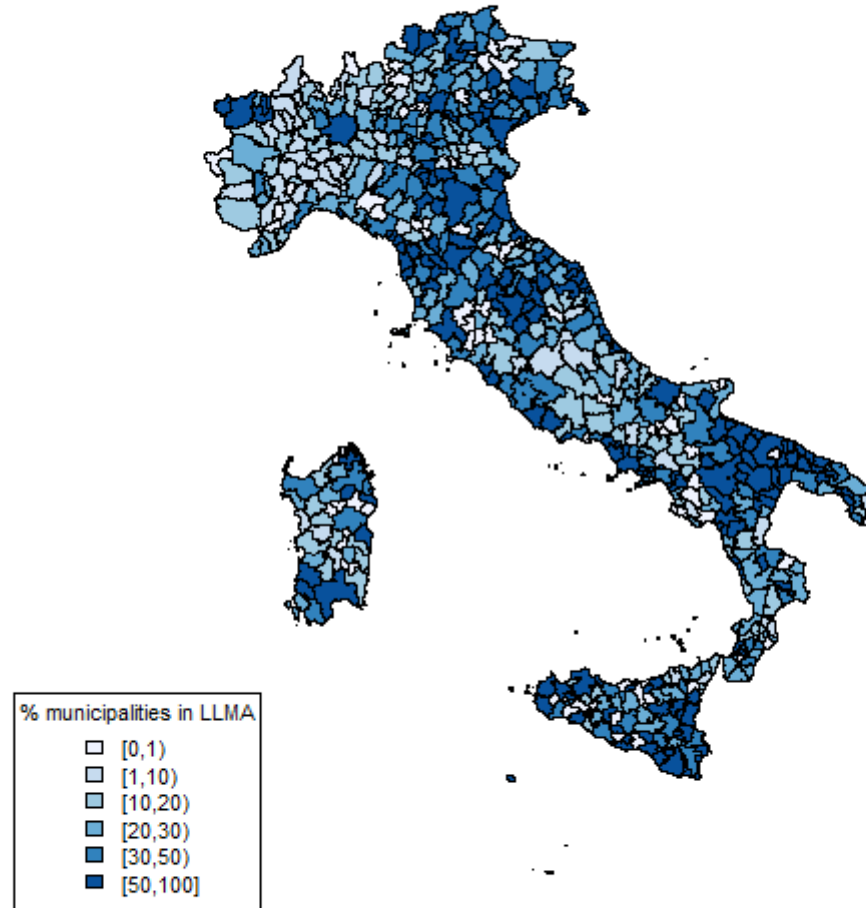


Sample coverage of USL =100%

number of individuals sampled per 10000 inhabitants in the USLs

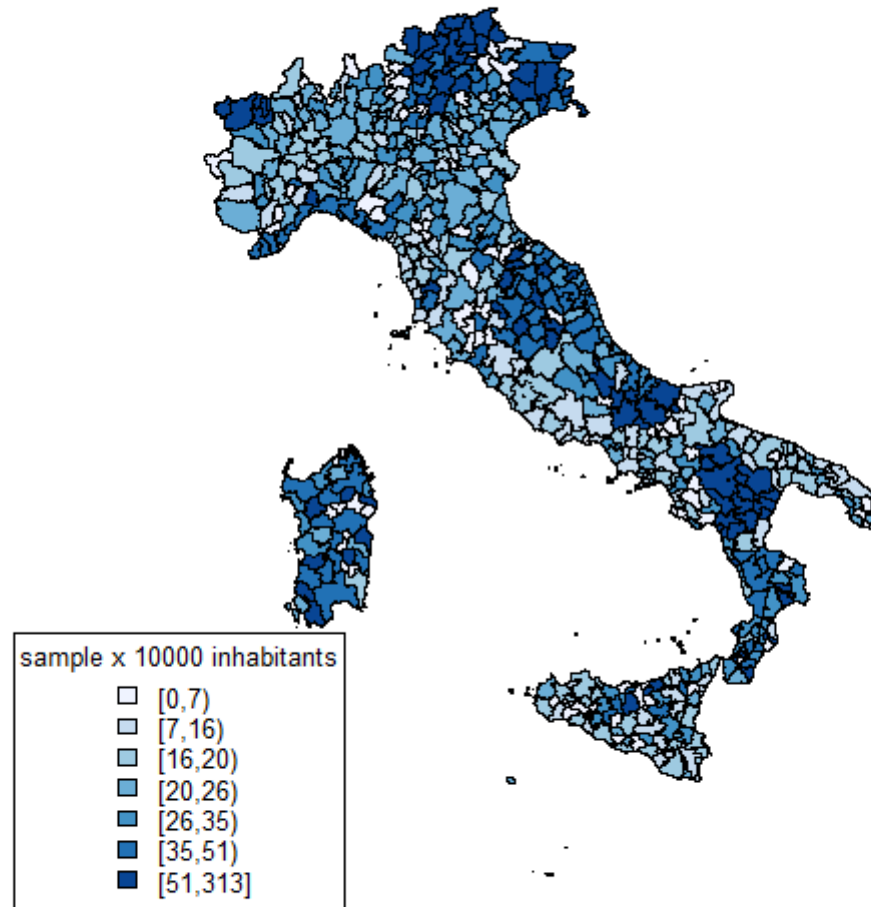


Labour market areas sample coverage



84 SLL out of 610 not covered in the sample 86.2% SLL coverage

individuals sampled per 10,000 inhabitants in the Labour market areas



Tasso copertura comuni in USL

%comuni	USL	%
[4,25)	36	36
[25,50)	46	46
[50,75)	15	15
[75,100]	3	3

Tasso copertura comuni in SLL

%comuni	SLL	Percentuale
0	84,00	13,77
[1,10)	50,00	8,20
[10,20)	96,00	15,74
[20,30)	111,00	18,20
[30,50)	98,00	16,07
[50,100]	171,00	28,03

**Numero di individui campionati ogni
10000 abitanti in USL**

classi di individui	USL	Percentuale
[15,17)	26	26,00
[17,19)	16	16,00
[19,22)	26	26,00
[22,35)	12	12,00
[35,302]	20	20,00

**Numero di individui campionati ogni
10000 abitanti in SLL**

classi di individui	SLL	Percentuale
0	84	13,77
(0,7)	6	0,98
[7,16)	99	16,23
[16,20)	78	12,79
[20,26)	94	15,41
[26,35)	78	12,79
[35,51)	86	14,10
[51,313]	85	13,93

Campione progettato - Coefficienti di variazione percentuali attesi per diversi livelli di prevalenze per regione

Regione	Popolazione	Campione	Prevalenza						
			0.5%	1%	2%	3%	5%	7%	10%
Piemonte	4359336	8108	15.67	11.05	7.77	6.31	4.84	4.05	3.33
Valle D'Aosta	126098	3795	22.90	16.15	11.36	9.23	7.08	5.92	4.87
Lombardia	10087648	21635	9.59	6.76	4.76	3.87	2.96	2.48	2.04
Bolzano	530496	3505	23.83	16.81	11.82	9.60	7.36	6.16	5.07
Trento	541262	3470	23.95	16.89	11.88	9.65	7.40	6.19	5.09
Veneto	4913951	10581	13.71	9.67	6.81	5.53	4.24	3.54	2.92
Friuli Venezia Giulia	1215537	6234	17.87	12.60	8.87	7.20	5.52	4.62	3.80
Liguria	1550941	6238	17.86	12.60	8.86	7.20	5.52	4.61	3.80
Emilia Romagna	4463320	9626	14.38	10.14	7.13	5.80	4.44	3.72	3.06
Toscana	3732511	6257	17.83	12.58	8.85	7.19	5.51	4.61	3.79

Campione progettato - Coefficienti di variazione percentuali attesi per diversi livelli di prevalenze per regione - segue

Regione	Popolazione	Campione	Prevalenza						
			0.5%	1%	2%	3%	5%	7%	10%
Umbria	883824	4161	21.87	15.42	10.85	8.82	6.76	5.65	4.65
Marche	1526444	5405	19.19	13.53	9.52	7.73	5.93	4.96	4.08
Lazio	5885023	9042	14.84	10.46	7.36	5.98	4.58	3.83	3.15
Abruzzo	1312974	4401	21.26	15.00	10.55	8.57	6.57	5.49	4.52
Molise	305741	4160	21.87	15.43	10.85	8.82	6.76	5.65	4.65
Campania	5815546	9223	14.69	10.36	7.29	5.92	4.54	3.80	3.12
Puglia	4031023	6383	17.66	12.45	8.76	7.12	5.46	4.56	3.75
Basilicata	562381	5873	18.41	12.98	9.13	7.42	5.69	4.76	3.91
Calabria	1944003	6330	17.73	12.51	8.80	7.15	5.48	4.58	3.77
Sicilia	5003819	8855	14.99	10.57	7.44	6.04	4.63	3.87	3.19
Sardegna	1641298	6337	17.72	12.50	8.79	7.14	5.48	4.58	3.77
Italia	21.774.328	149.619							

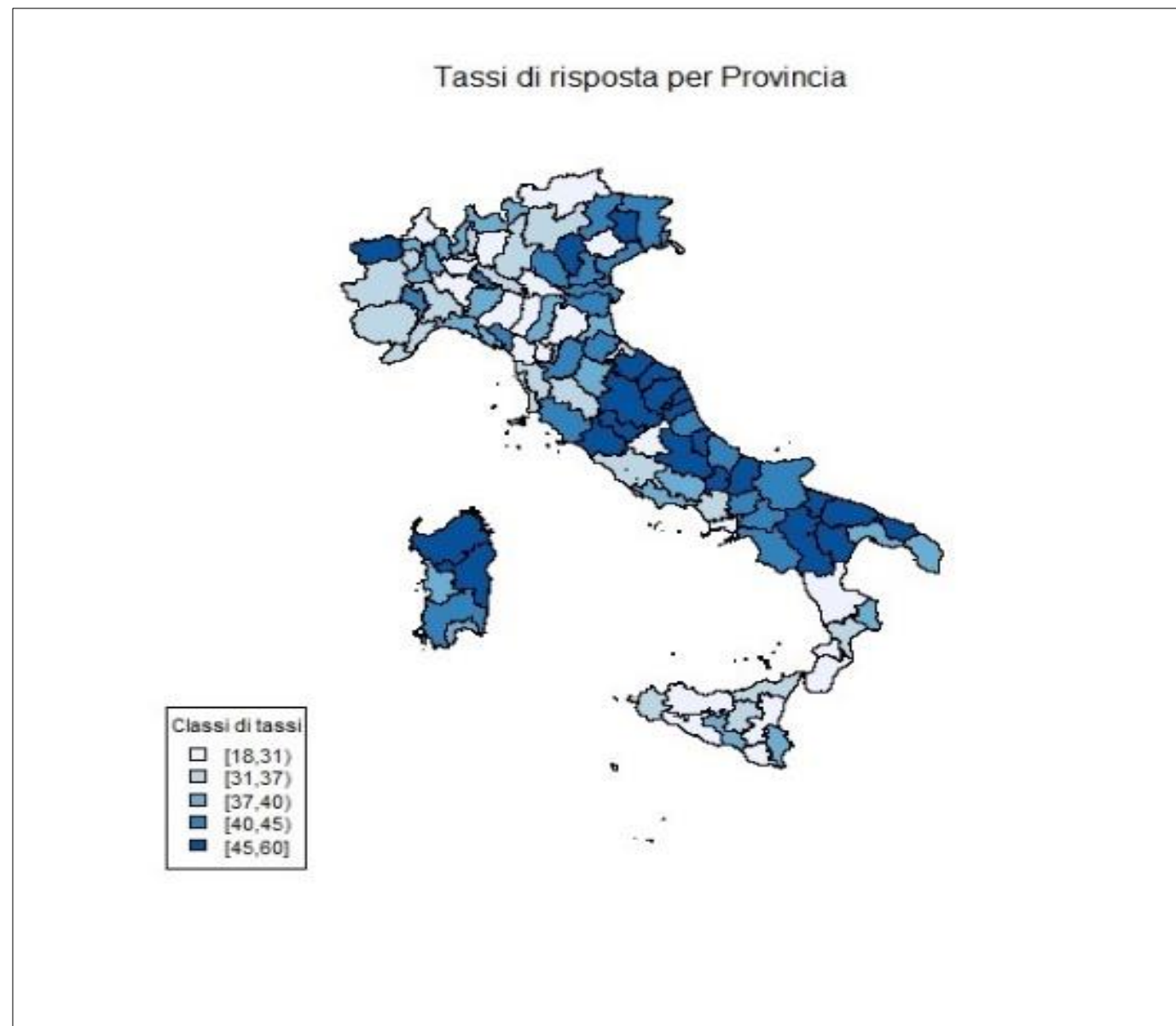
Modelli sintetici degli errori: Italia, Regioni

DOMINIO		a	b	r^2	10000	20000	50000	70000	100000	200000	500000	1000000	2000000
	ITALIA	11,99332	- 1,36748	0,929	74,021	46,082	24,629	24,629	15,333	9,545	5,102	3,176	2,407
REGIONI													
¹ ₁	Piemonte	11,23392	- 1,40470	0,899	42,659	26,217	13,775	13,775	8,466	5,203	2,734	1,680	1,264
² ₂	Valle d'Aosta	6,56678	- 1,43177	0,886	3,651	2,223	1,154	1,154	0,702	0,428	0,222	0,135	0,101
³ ₃	Lombardia	11,07151	- 1,37186	0,915	45,755	28,441	15,170	15,170	9,430	5,862	3,127	1,943	1,472
⁵ ₅	Veneto	10,92177	- 1,40657	0,893	36,182	22,222	11,666	11,666	7,165	4,401	2,310	1,419	1,067
⁶ ₆	Friuli-Venezia Giulia	9,23261	- 1,39454	0,867	16,435	10,136	5,350	5,350	3,300	2,035	1,074	0,663	0,499
⁷ ₇	Liguria	9,37704	- 1,36231	0,905	20,492	12,780	6,847	6,847	4,270	2,663	1,427	0,890	0,675
⁸ ₈	Emilia-Romagna	10,98014	- 1,38352	0,904	41,426	25,647	13,607	13,607	8,424	5,215	2,767	1,713	1,294
⁹ ₉	Toscana	10,70237	- 1,35980	0,886	40,214	25,102	13,463	13,463	8,404	5,246	2,814	1,756	1,333
¹⁰ ₁₀	Umbria	8,07687	- 1,30061	0,914	14,212	9,055	4,990	4,990	3,179	2,026	1,116	0,711	0,546
¹¹ ₁₁	Marche	9,53435	- 1,40351	0,876	18,338	11,274	5,927	5,927	3,644	2,240	1,178	0,724	0,545
¹² ₁₂	Lazio	11,08717	- 1,37309	0,907	45,852	28,490	15,187	15,187	9,437	5,863	3,126	1,942	1,470

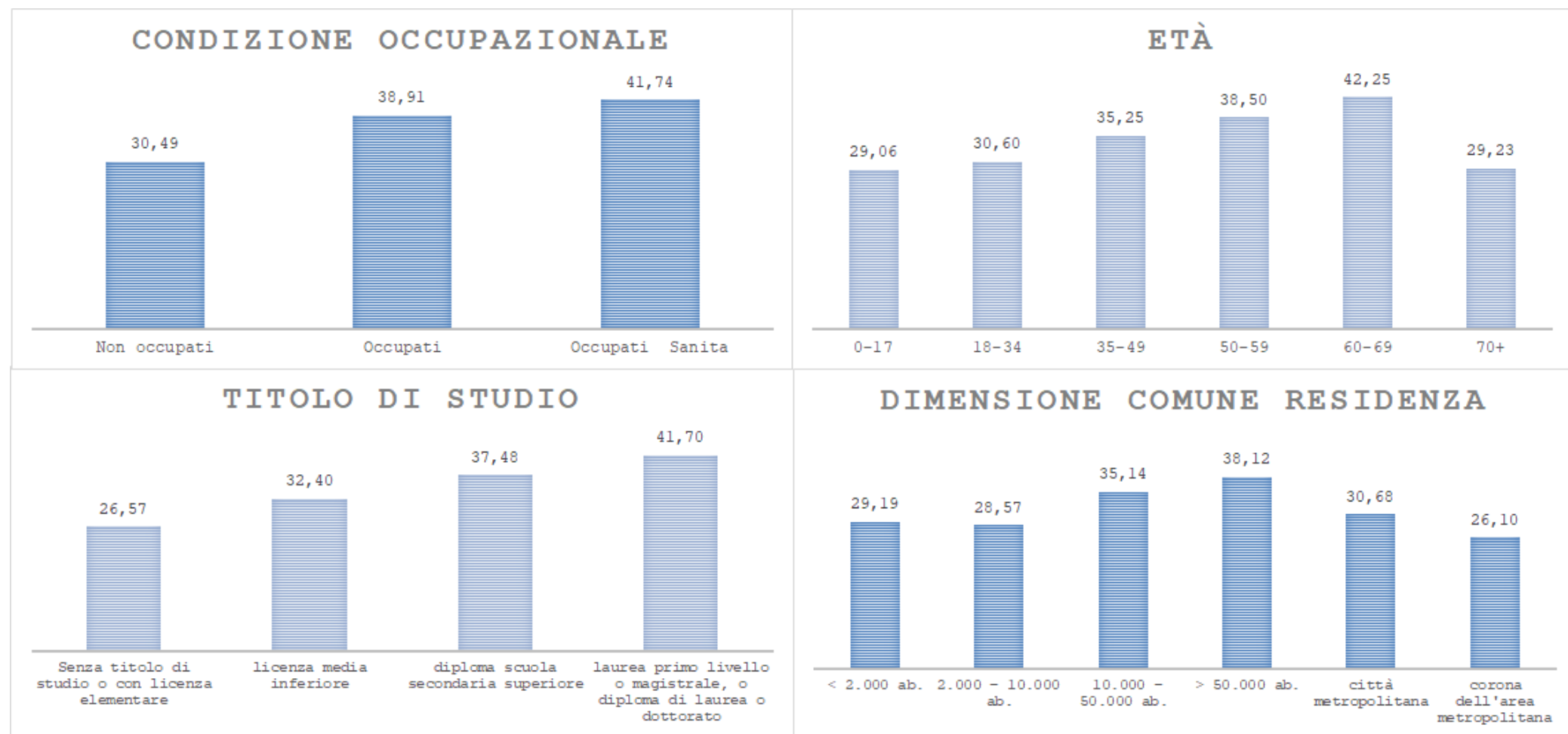
Modelli sintetici degli errori: Restanti Regioni

DOMINIO		a	b	r^2	10000	20000	50000	70000	100000	200000	500000	1000000	2000000
REGIONI													
<div>13</div>	Abruzzo	8,86452	-1,34149	0,833	17,455	10,965	5,931	5,931	3,725	2,340	1,266	0,795	0,606
<div>14</div>	Molise	6,26845	-1,20906	0,917	8,771	5,769	3,315	3,315	2,180	1,434	0,824	0,542	0,424
<div>15</div>	Campania	9,62466	-1,22958	0,905	42,737	27,909	15,889	15,889	10,376	6,776	3,857	2,519	1,963
<div>16</div>	Puglia	8,96387	-1,19634	0,920	35,794	23,645	13,668	13,668	9,029	5,964	3,448	2,278	1,787
<div>17</div>	Basilicata	6,72494	-1,24944	0,840	9,150	5,934	3,348	3,348	2,171	1,408	0,794	0,515	0,400
<div>18</div>	Calabria	8,39077	-1,20626	0,838	25,675	16,903	9,726	9,726	6,403	4,215	2,426	1,597	1,250
<div>19</div>	Sicilia	9,70389	-1,23824	0,857	42,726	27,818	15,774	15,774	10,270	6,687	3,792	2,469	1,921
<div>20</div>	Sardegna	7,84526	-1,18745	0,915	21,314	14,123	8,197	8,197	5,432	3,599	2,089	1,384	1,088
<div>41</div>	Bolzano	9,19680	-1,38728	0,850	16,691	10,320	5,466	5,466	3,379	2,090	1,107	0,684	0,516
<div>42</div>	Trento	8,88656	-1,39713	0,887	13,659	8,417	4,438	4,438	2,734	1,685	0,888	0,547	0,412

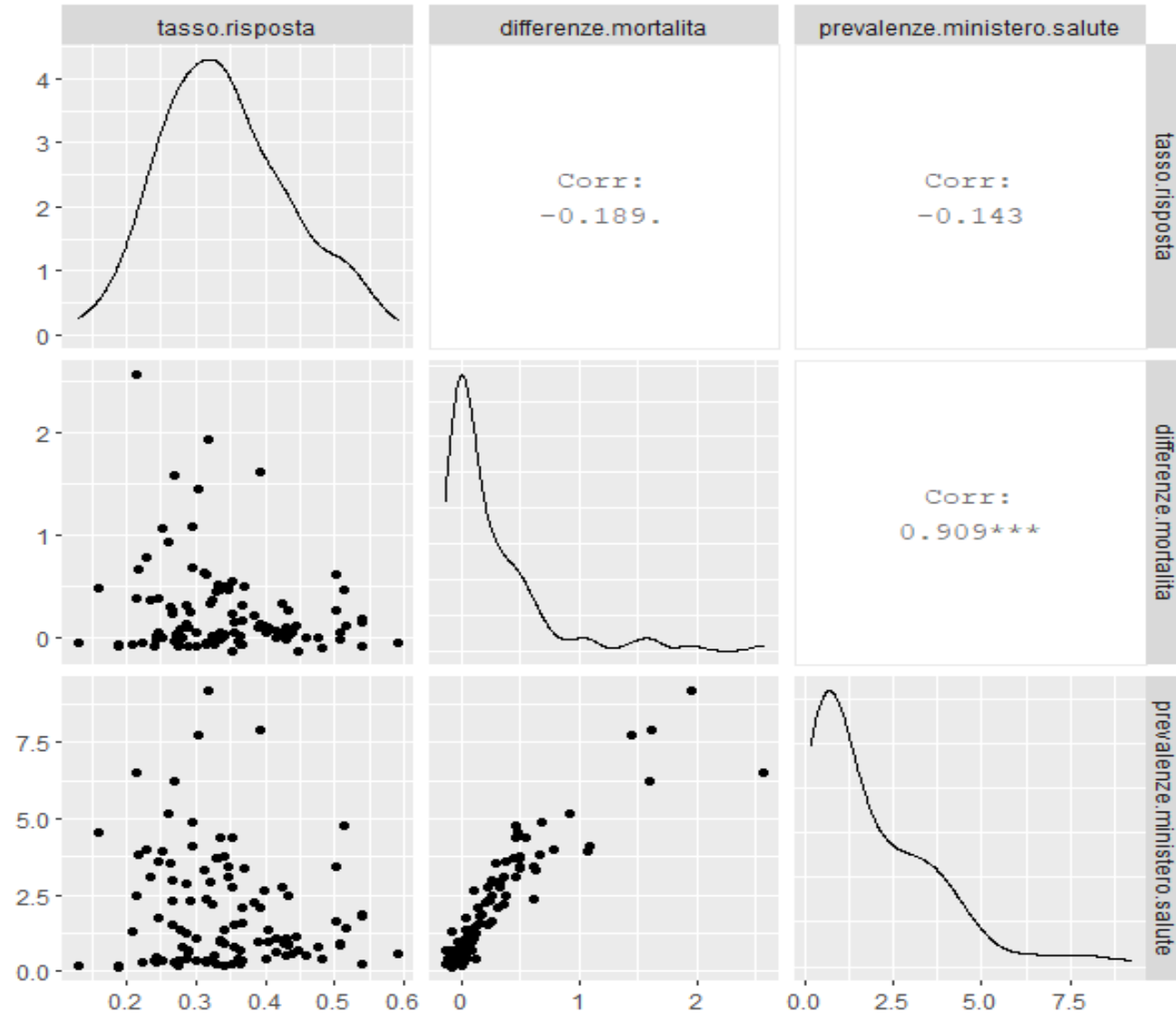
Distribuzione territoriale dei tassi di risposta



Distribuzione dei tassi di risposta rispetto a caratteristiche strutturali



Relazioni tra i tassi di risposta, le infezioni da SARS-COV2 del ministero della salute e le variazioni percentuali della mortalità 2019-2020



I predittori della probabilità di risposta utilizzati nel modello sono costituiti da:

- 21 regioni geografiche (Bolzano e Trento sono state trattate distintamente);
- 6 tipologie comunali (città metropolitana; corona dell'area metropolitana; minore di 2000 abitanti; tra 2000 e 10000 abitanti; tra 10000 e 50000 abitanti; oltre 50000 abitanti);
- sesso;
- sei classi d'età (0-17; 18-34; 35-49; 50-59; 60-69; 70+);
- quattro classificazioni dello stato ATECO (occupati sospesi, occupati non sospesi PA + Istruzione, occupati non sospesi sanità, altri occupati non sospesi, non occupati);
- 8 modalità del titolo di studio (Analfabeti, Alfabeti privi di titolo di studio, Licenza di scuola elementare, Licenza di scuola media inferiore, Diploma di scuola secondaria superiore, Laurea o Diploma accademico di I livello, Laurea magistrale/specialistica o Diploma accademico II livello, Dottorato di ricerca);
- tasso di positività comunali, stimato sulla base dei contagi cumulati dall'inizio della pandemia a maggio (previsioni fornite dall'Istituto Superiore di Sanità);
- differenza percentuale dei tassi di mortalità comunali rispetto allo stesso periodo dell'anno precedente;
- numero di tentativi di contatto.

La percentuale di concordanti del *working-model* è buona ed è pari al 71,2 per cento, mentre la bontà di adattamento del modello ai dati misurata tramite l'AIC è pari a 223684,29 (il valore più basso rispetto ad altri modelli studiati).

Stimatore calibrato

$$t_{Y_d} = \sum_{k \in U_d} y_k.$$

$$\mu_{Y_d} = \frac{\sum_{k \in U_d} y_k}{N_d} = \frac{t_{Y_d}}{N_d}.$$

$$\hat{t}_{Y_{CAL}} = \sum_{k \in R} y_k w_k$$

$$\begin{cases} \min \left\{ \sum_{k \in R} \text{dist}(d_k, w_k) \right\} \\ \sum_{k \in R} x_k w_k = t_X \end{cases}$$

Tavola 2. Statistiche, e valori dell' $1 + CV^2$, calcolate sui pesi campionari e sui pesi campionari corretti per mancata risposta totale.

Statistiche, e valori dell' $1 + CV^2$, calcolate sui pesi campionari e sui pesi campionari corretti per mancata risposta totale.

	Media	Mediana	Minimo	Massimo	$1 + CV^2$
Pesi campionari	288.43	231.30	0.94	5629.78	1.781168
Tecnica:					
Decili della distribuzione del campione nazionale	778.39	545.62	1.31	16934.94	2.112526
Quintili delle distribuzioni regionali del campione	769.29	543.87	1.39	14533.33	2.082994