Italian Turnover in Services Sector

Cross Cutting Topics – Part 3
"Maintaining Representative Turnover and SPPI: Re-stratification, Resampling, Rebasing, and Updating Weights"

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1. How often do you rebase your indexes?

2. How often do you reweight your indexes?

3. How often do you restratify and/or draw a new sample?

4. Do you have any interim measures to maintain the sample (e.g. birth and death procedures for new or out of business units) ?
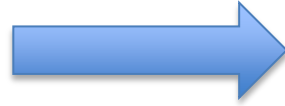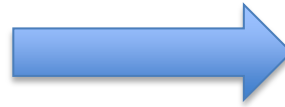
TARGET ➡️ Index number for the estimation i.e of the change on the same quarter of the previous year
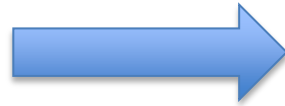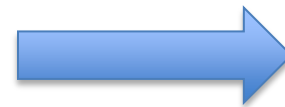
VARIABLE ➡️ Turnover of domestic enterprises
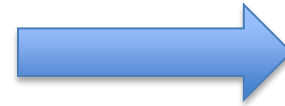
TARGET POPULATION ➡️ Register of the active enterprises (ASIA)

SAMPLING STRATEGY ➡️ Random Stratified Sample (software Mauss-R)

ESTIMATION METHOD ➡️ Weight Calibration (software ReGenesees)

	Frequency of updating weights	Source of weights
BE	None	Not relevant
BG (1)	With base year change - 5 yearly	SBS
CZ	With base year change - assumed to be 5 yearly	Annualised data from the monthly survey
DK	No information	No information
DE	Sections H, J, M and N: with base year change - assumed to be 5 yearly; Divisions 45 and 46, Section I: none.	Sections H, J, M and N: turnover from 2005 SBS data.
EE	None	Not relevant
IE	With base year change - assumed to be 5 yearly	SBS turnover data
EL	None	Not relevant
ES	With base year change - assumed to be 5 yearly	SBS turnover data
FR	With base year change - assumed to be 5 yearly	Turnover data benchmarked to national accounts.
IT	With base year change - 5 yearly	SBS turnover data for activity weights, with business register data used to compile weights for size classes.
CY	With base year change - 5 yearly	SBS turnover data for activity weights.
LV	None	Not relevant
LT	None	Not relevant
LU	With base year change - assumed to be 5 yearly	Annual turnover
HU	None	Not relevant
MT	Weights from 1999 were used up until 2007; recently 2005 weights were introduced for the time series back to 2005.	SBS turnover data
NL	With base year change - 5 yearly	SBS turnover data
AT	With base year change - 5 yearly	SBS, STS or VAT turnover data, and estimations.
PL	None	Not relevant
PT	With base year change - 5 yearly	Annual tax data
RO	With base year change - 5 yearly	SBS turnover data
SI	None	Not relevant
SK	None	Not relevant
FI	No information	No information
SE	Annually	Turnover from the same survey from the previous year.
UK	None	Not relevant
HR	None	Not relevant
NO	None	Not relevant

Nace (Rev. 2)	Economic Activities	Weights 2010
G45	**Wholesale and retail trade and repair of motor vehicles and motorcycles**	10.200
G46	Wholesale trade, except of motor vehicles and motorcycles	46.046
H49	**Land transport and transport via pipelines**	5.827
H50	Water transport	1.085
H51	Air transport	0.726
H52	**Warehousing and support activities for transportation**	4.272
H53	Postal and courier activities	0.625
I 55	**Accommodation**	1.732
I 56	**Food and beverage service activities**	4.267
J	Information and communication	10.153
	Total published before June 2014	**84.933**
M69	Legal and accounting activities**	3.064
M70.2	Management consultancy activities**	1.361
M71	Architectural and engineering activities; technical testing and analysis**	2.227
M73	Advertising and market research**	1.257
M74	Other professional, scientific and technical activities**	1.280
N78	Employment activities**	0.555
N79	Travel agency, tour operator reservation service and related activities**	1.123
N80	Security and investigation activities**	0.318
N81.2	Cleaning activities**	1.224
N82	Office administrative, office support and other business support activities**	2.658
	Total released in June 2014	**15.067**
	Total	**100.000**

Every year the sample size is defined using as input the most recent version of the register of the active enterprises (ASIA) and through the software MAUSS-R
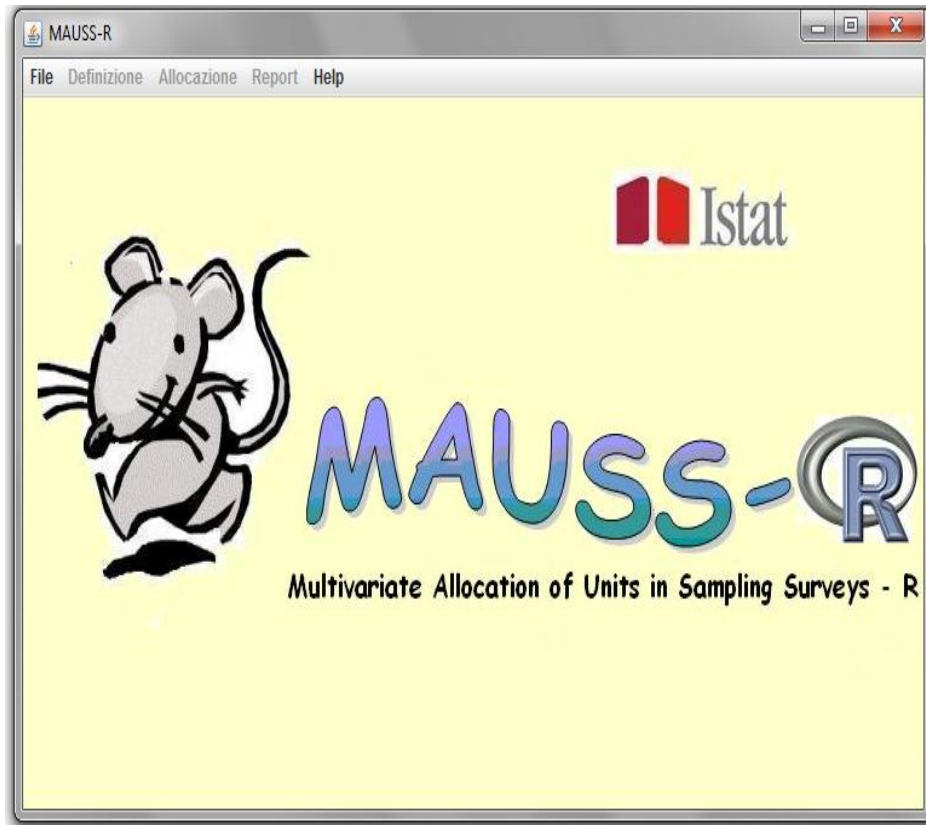
For each stratum:

- ✓ Number of unit in the population
- ✓ Mean of the auxiliary variable (turnover)
- ✓ Measure of the variabilty of turnover
- ✓ Estimation domain

Together with the error size admitted for each domain

- ✓ 3%

- ✓ 5%

1° step: **TARGET POPULATION**

From the register, the active enterprises in the classes of economic activity of NACE Rev.2 of interest are selected considering the variables: **identification code**, **NACE class**, **geographical area**, **annual turnover and number of employees**

2° step: **TARGET POPULATION STRATIFICATION**

- Stratified random sampling

- To reduce sample size determination of strata with low within variability and high between variability

- Stratification variable: number of employees, economic activity (specific aggregation) and geographical area (for some domains)

1° File

STRATO	N	S1	S2	M1	M2	GRUPPO	DOM1	C	CENS
2_451	2.844	4.411.634	4	4.929.825	10	451	451	1	0
3_451	1.057	17.554.512	18	26.466.220	39	451	451	1	0
4_451	87	729.781.542	132	342.567.567	196	451	451	1	1
1_453	5.199	335.088	1	413.201	3	453	453	1	0
2_453	2.620	1.934.087	4	2.050.675	9	453	453	1	0
3_453	214	10.880.161	17	13.278.036	35	453	453	1	0
4_453	17	101.694.552	167	103.861.226	227	453	453	1	1
1_454	2.173	439.460	1	446.066	3	454	454	1	0
2_454	703	1.669.937	3	2.330.436	8	454	454	1	0
3_454	35	19.531.178	10	18.140.800	31	454	454	1	1
4_454	1	-	-	265.611.333	125	454	454	1	1

2° File

dom	cv1	cv2
dom1	0.03	0.99

3° step: **Sample drawn**

Given the sample sizes from the previous steps a sample of enterprises is drawn for each stratum

- Population: register of active enterprises (most recent version)

- The register is released with a delay of one year and half. To take into account birth/death of enterprises

  - ✓ Information from the turnover survey
  - ✓ Information from the Chambers of Commerce
  - ✓ «Portale delle imprese» for enterprises of bigger size

For most of the economic sector a calibration weighting technique is used for adjusting probability-sampling weights to increase the precision of estimates, account for unit nonresponse or frame errors

Conclusion

What are the interconnections between rebasing, reweighting and resampling?

1. Index with fixed base year: chain-linking experiments

2. Even if weight structure stays the same for five years, every year the sample is redrawn to take into account also birth/death of enterprises

3. With the calibration estimation method implicit weight for each stratum are given i.e. the turnover for each quarter is estimated and divided for the turnover in the base year.

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