# Sampling strategy and degree of precision of the results

#### 1. Knowledge aims

The population included in the multi-purpose survey "Aspects of daily life", i.e. the set of statistical units around which it is designed to inquire, consists of households that are resident in Italy and the members that comprise them; therefore permanent members of communities are excluded. The terms "household" is used to mean *de facto* family, i.e. a group of people who live together and are bound by marriage, kinship, affinity, adoption, guardianship or emotional ties.

The reference period is primarily constituted by the twelve months prior to the interview, although for some questions the reference is to the time of interview.

- The domains of study, i.e. the areas to which the parameters of the population being studied refer, are:
- the country overall;
- the five geographical macro-areas (North-west Italy, North-east Italy, Central Italy, South Italy and the Islands);
- the geographical regions (with the exception of Trentino-Alto Adige, for which estimations are produced separately for the provinces of Bolzano and Trento);
- the type of municipality, obtained be dividing Italian municipalities into six classes formed according to socio-economic and demographic characteristics:
  - A) municipalities belonging to the metropolitan area, divided into:
    - A<sub>1</sub>, municipalities that are metropolitan area centres: Turin, Milan, Venice, Genoa, Bologna, Florence, Rome, Naples, Bari, Palermo, Catania and Cagliari;
    - A<sub>2</sub>, municipalities which gravitate around municipalities that are metropolitan area centres;
  - B) municipalities not belonging to the metropolitan area, divided into:
    - B<sub>1</sub> municipalities with up to 2,000 inhabitants;
    - B<sub>2</sub> municipalities with 2,001-10,000 inhabitants;
    - B<sub>3</sub> municipalities with10,001-50,000 inhabitants;
    - B<sub>4</sub> municipalities with over 50,000 inhabitants.

#### 2. Sampling strategy

#### 2.1 General description of the sampling design

The sampling design is of the complex type and makes use of two different sampling schemes. Within each of the domains defined by the crossing of the geographical region with the six areas  $A_1$ ,  $A_2$ ,  $B_1$ ,  $B_2$ ,  $B_3$  and  $B_4$ , the municipalities are divided into two subsets according to resident population:

- the set of self-representative municipalities (which we will denote hereafter as Ar municipalities) constituted by the municipalities of greater demographic dimension;
- the set of non-self-representative municipalities (or Nar) constituted by the remaining municipalities.

Within the set of Ar municipalities, each municipality is considered as a standalone stratum and a design known as cluster sampling is adopted. The primary sampling units are represented by the households extracted systematically from the municipality's own population register. For each household included in the sample the characteristics being studied are gathered for all of the *de facto* members belonging to the household itself.

Within the Nar municipalities a two-stage design is adopted with stratification of the primary units. The primary units (Up) are the municipalities, while the secondary units are the households taken from the municipal population registers. For each household included in the sample the characteristics being studied are gathered for all of the *de facto* members belonging to the household itself.

The municipalities are selected with probabilities that are proportional to their demographic size and without replacement, while the households are extracted with equal probability and without replacement.

#### 2.2 Definition of the sample size

For a survey with multiple objectives, such as the one under consideration, it is unrealistic to expect to be able to design a sampling strategy that ensures predetermined levels of precision for all of the estimations produced. The question is complicated by the fact that the purpose of the survey is to produce estimations for different area levels, which entails the adoption of various, opposing optimal solutions. If, for example, the sole scope of publication of the estimations were the national level, an approximately optimal solution would be to determine the national sample size and to distribute it between regions in proportion to their demographic size; conversely, if the aim were to produce estimates with equal reliability at the regional level, an approximately optimal solution would be to select an equal sample in all regions. The latter solution, however, is inefficient for estimations at the national level. In order to deal with this problem, in keeping with what has been carried out in other countries, use has been made of a strategy that enables the sample size to be established by means of successive approximations.

On the basis of the foregoing considerations it was decided to adopt a mixed approach, based on criteria of both cost and organisation, as well as on an evaluation of sampling errors in the main estimates at the national level and with reference to each of the area domains concerned.

The criteria followed can be summed up in the following points:

- the theoretical sample size in terms of households, which was predetermined at the national level essentially on the basis of cost and operational criteria, was around 24,000 households;
- the number of sample municipalities involved could not be greater than 900 in order to allow adequate checking and supervision.

The allocation of the sample of households and of municipalities between the various regions was therefore calculated by adopting a criterion of compromise that would guarantee both the reliability of the estimates at the national level and the reliability of estimates for each of the area domains described in Section 1.

#### 2.3 Stratification and selection of sample units

The aim of stratification is to form groups (or strata) of units that are characterised, in relation to the target variables of the survey, by the greatest possible internal consistency of the strata and the greatest heterogeneity between strata. The achievement of this aim, in statistical terms, translates into gains in precision of the estimates, or in other words a reduction of the sampling error, sample size remaining equal.

In the survey under consideration, municipalities are stratified according to demographic size and in accordance with the following conditions:

- self-weighting of the sample at the regional level;
- selection of a sample municipality within each stratum defined on the municipalities of the Nar set;
- selection of a minimum number of households to interview in each sample municipality. This number was set at 23;
- formation of strata with approximately constant breadth in terms of resident population.

The stratification procedure, implemented within each area domain identified by the areas  $A_1$ ,  $A_2$ ,  $B_1$ ,  $B_2$ ,  $B_3$  and  $B_4$  of each geographical region, is structured according to the following stages:

- ordering of the municipalities in the domain in descending order according to their demographic size in terms of resident population;
- establishment of a population threshold for defining Ar municipalities, by means of the relation

$$_{r}\lambda = \frac{r\overline{m}_{r}\delta}{rf}$$

in which for the generic geographical region r,  $_{r}\overline{m}$  indicates the minimum number of households to interview in each sample municipality,  $_{r}\delta$  the average number of members per household, and  $_{r}f$  the sampling fraction;

- division of all municipalities into the two subsets Ar and Nar: municipalities greater than or equal to  $_{r}\lambda$  in size are defined as Ar municipalities, and the remainder are defined as Nar municipalities;
- division of municipalities in the Nar set into strata with approximately constant size and roughly equal to the threshold  $\lambda$ .

After stratification, the Ar municipalities are included with certainty in the sample, while for the Nar municipalities, within each stratum a sample municipality is extracted with probability proportional to demographic size, by means of the systematic selection procedure proposed by Madow.<sup>1</sup>

Households to interview in each sample municipality are selected from the population register of each municipality without replacement and with equal probabilities.

Specifically, the selection technique is of the systematic type and within each municipality is performed according to the following stages:

- the household records from the municipal population register are placed in sequence;
- the sampling interval e<sub>hi</sub> is calculated as the ratio between the number of households resident in municipality i of stratum h and the corresponding number of sample households, e<sub>hi</sub>=M<sub>hi</sub>/m<sub>hi</sub>;
- $m_{hi}$  households which occupy the following positions in the sequence constructed in point 1) are selected:

1, 1+ehi, 1+2ehi, ....., 1+(mhi-1)ehi.

Summary 1 gives the regional distribution of the universe and the sample of municipalities, households and individuals.

<sup>&</sup>lt;sup>1</sup> Madow, W.G. "On the theory of systematic sampling II", Annals of Mathematical Statistics, 20, (1949): 333-354.

| Summary 1 – | Regional distribution | of municipalities, | households | and individuals | in the universe | and in the |
|-------------|-----------------------|--------------------|------------|-----------------|-----------------|------------|
|             | sample - 2009         |                    |            |                 |                 |            |

| REGIONS                        | Municip | Housel       | nolds  | Individuals  |        |              |
|--------------------------------|---------|--------------|--------|--------------|--------|--------------|
|                                | Sample  | Universe (a) | Sample | Universe (a) | Sample | Universe (a) |
| Piemonte                       | 62      | 1.206        | 1.426  | 1.929        | 3.326  | 4.391        |
| Valle d'Aosta - Vallée d'Aoste | 21      | 74           | 453    | 56           | 1.032  | 126          |
| Lombardia                      | 84      | 1.546        | 1.716  | 4.051        | 4.153  | 9.674        |
| Trentino-Alto Adige            | 48      | 339          | 1.076  | 414          | 2.652  | 1.008        |
| Bolzano - Bozen                | 23      | 116          | 550    | 200          | 1.366  | 494          |
| Trento                         | 25      | 223          | 526    | 214          | 1.286  | 514          |
| Veneto                         | 53      | 581          | 1.089  | 1.930        | 2.739  | 4.839        |
| Friuli-Venezia Giulia          | 32      | 219          | 705    | 528          | 1.642  | 1.217        |
| Liguria                        | 26      | 235          | 843    | 764          | 1.810  | 1.601        |
| Emilia-Romagna                 | 46      | 341          | 1.052  | 1.877        | 2.466  | 4.305        |
| Toscana                        | 50      | 287          | 1.120  | 1.558        | 2.678  | 3.682        |
| Umbria                         | 22      | 92           | 580    | 356          | 1.428  | 888          |
| Marche                         | 36      | 246          | 755    | 608          | 1.942  | 1.560        |
| Lazio                          | 33      | 378          | 1.005  | 2.348        | 2.378  | 5.582        |
| Abruzzo                        | 37      | 305          | 726    | 520          | 1.832  | 1.328        |
| Molise                         | 23      | 136          | 560    | 123          | 1.420  | 319          |
| Campania                       | 55      | 551          | 1.316  | 2.021        | 3.710  | 5.794        |
| Puglia                         | 50      | 258          | 1.135  | 1.479        | 3.125  | 4.064        |
| Basilicata                     | 27      | 131          | 602    | 228          | 1.555  | 588          |
| Calabria                       | 41      | 409          | 881    | 752          | 2.330  | 1.999        |
| Sicilia                        | 53      | 390          | 1.293  | 1.916        | 3.373  | 5.015        |
| Sardegna                       | 38      | 377          | 794    | 653          | 2.012  | 1.662        |
| Italia                         | 837     | 8.101        | 19.127 | 24.112       | 47.603 | 59.643       |

(a) Multi-purpose survey "Aspects of daily life" estimate

#### 2.4 Procedure for calculation of estimates

The estimates produced by the survey are essentially estimates of absolute and relative frequencies, referring to households and individuals.

The estimates are obtained by means of a calibration estimator, which is the estimation method used in most Istat surveys of enterprises and households.

The principle on which each sampling estimation method is based is that the units belonging to the sample also represent the units of the population which are not included in the sample.

This principle is satisfied by assigning to each sampling unit a weight indicating the number of units of the populations represented by that unit. If, for example, a sampling unit is assigned a weight of 30, then this unit represents itself and another 29 units of the population which have not been included in the sample.

In order to make the exposition which follows clearer, we shall introduce the following symbols: d, index of geographical reference level for the estimates; i, index of municipality; j, index of household; p, index of household member; h, index of stratum of municipalities; y, generic survey target variable; Yhijp, value of y observed for member p of household j of municipality i of stratum h; P<sub>hij</sub>, number of members of household j

of municipality i of stratum h;  $Y_{hij} = \sum_{p=1}^{P_{hij}} Y_{hijp}$ , total for variable y observed for household j of municipality i of

stratum h;  $M_{hi}$ , number of households resident in municipality i of stratum h;  $m_{hi}$ , sample of households in municipality i of stratum h;  $N_h$ , total of municipalities in stratum h;  $n_h$ , number of sample municipalities in stratum h (in the survey under consideration  $n_h = 1$ );  $H_d$ , total number of strata in the generic area domain d.

It is supposed that we wish to estimate, with reference to a generic domain d, the total of the generic survey target variable y, expressed by the following relation:

$$Y_{d} = \sum_{h=1}^{H_{d}} \sum_{i=1}^{N_{h}} \sum_{j=1}^{M_{hj}} Y_{hij} .$$
 (1)

The estimate of the total (1) is given by

$$\hat{Y}_{d} = \sum_{h=1}^{H_{d}} \hat{Y}_{h}$$
, since  $\hat{Y}_{h} = \sum_{i=1}^{n_{h}} \sum_{j=1}^{m_{hi}} W_{hij} Y_{hij}$ , (2)

in which Whij is the final weight to attribute to all of the members of household j of municipality i of stratum h.

From the previous relation it follows that in order to obtain the estimate of the total (1) it is necessary to multiply the value of the variable y assumed by each sampling unit by the weight of that unit<sup>2</sup> and perform, at the level of the domain in question, the sum of the products thus obtained.

The weight to be assigned to the sampling units is obtained by means of a complex procedure which:

- corrects the distorting effect of the lack of total response due to the impossibility of interviewing some
  of the selected households due to unavailability or refusal to be interviewed;
- takes account of knowledge of known totals of important auxiliary variables (available from sources external to the survey), in the sense that the sampling estimates of known totals of auxiliary variables must coincide with the known values for those auxiliary variables.

In the survey under consideration, for each geographical region we define 18 known totals, which refer to the distributions of the regional population by sex and six age classes<sup>3</sup> and of the regional population in the six areas A<sub>1</sub>, A<sub>2</sub>, B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub> and B<sub>4</sub>. Thus by indicating with  $_kX$  (k=1,...,18) the known total of the k-th auxiliary variable for the generic geographical region and with  $_kX_{hij}$  the value assumed by the k-th auxiliary variable for the respondent household hij, the condition described above is expressed by the following equation:

$$_{k}X = _{k}\hat{X} = \sum_{h=1}^{H} \sum_{i=1}^{n_{h}} \sum_{j=1}^{m_{hi}} W_{hijk} X_{hij}$$
 (k=1,...., 18)

in which H indicates the overall number of strata defined in the region. If, for example,  $_{6}X$  indicates the number of males aged sixty-five or over, the auxiliary variable  $_{6}X$   $_{hij}$  represents the number of males aged sixty-five or over in the household hij.

The procedure that enables the construction of the *final weights* to assign to respondent sampling units is structured according to the following stages:

- 1) the *direct weights* are calculated as the reciprocal of the probability of inclusion of the units;
- 2) the corrective factors due to lack of total response are calculated as the inverse of the response rate for the municipality to which each units belongs;
- 3) the *base weights*, or weights corrected for lack of total response, are calculated by multiplying the direct weights by the corresponding corrective factors due to lack of total response;
- 4) the corrective factors that make it possible to satisfy the condition of equality between known totals of auxiliary variables and the corresponding sampling estimates are calculated;
- 5) lastly, the final weights are calculated by means of the product of the base weights and the corrective factors obtained in stage 4.

The corrective factors in stage 4 are obtained by solving a minimum bound problem, in which the function to minimise is a function of distance (suitably selected in advance) between the base weights and the final weights and the constraints are defined by the condition of equality between sampling estimates of known population totals and known values of those totals. The preselected distance function is the truncated

 $<sup>^2</sup>$  In order to obtain consistent estimated for individuals and households the final weights are defined so that each household hij and all of the members of the household are assigned the same final weight  $W_{hij}$ .

<sup>&</sup>lt;sup>3</sup> The age classes considered are: 0-5, 6-13, 14-24, 25-44, 45-64, and 65 and over.

logarithmic function; the adoption of this function ensures that the final weights are positive and contained within a predetermined range of possible values, thus eliminating extreme positive weights (too large or too small).

All of the estimation methods that stem from the solution of a minimum bound problem of the type described above fall within a general class of estimators known as calibration estimators.<sup>4</sup> An important estimator belonging to this class, which is obtained using the Euclidean distance function, is the *generalised regression estimator*. As will be clarified in Section 3, this estimator assumes a central role, as it is possible to demonstrate that all calibration estimators converge asymptotically as sampling size increases towards the generalised regression estimator.

#### 3. Evaluation of the level of precision of estimates

#### 3.1 Method of calculating sampling errors

The main statistics of interest for evaluating the sampling variability of estimates produced by a survey are the absolute sampling error and the relative sampling error. By denoting with  $\hat{V}ar(\hat{Y}_d)$  the estimate of variance of the generic estimate  $\hat{Y}_d$ , the estimate of the absolute sampling error for  $\hat{Y}_d$  can be obtained by means of the following expression:

$$\hat{\sigma}(\hat{Y}_{d}) = \sqrt{\hat{V}ar(\hat{Y}_{d})}; \qquad (3)$$

while the estimate of the relative sampling error for  $\hat{Y}_d$  is defined by the expression:

$$\hat{\varepsilon}(\hat{Y}_{d}) = \frac{\hat{\sigma}(\hat{Y}_{d})}{\hat{Y}_{d}}.$$
(4)

As described in 2.4 above, the estimates produced by the survey were obtained by means of a calibration estimator defined on the basis of a truncated logarithmic distance function. Since the estimator adopted is not a linear function of the sampling data, for the estimation of the variance  $\hat{Var}(\hat{Y}_d)$  the method proposed by Woodruff was used; on the basis of this method, which makes use of the Taylor series linearised expression, the variance of each non-linear estimator can be obtained (regular function of totals) by calculating the variance of the linearised expression obtained. Specifically, for the definition of the linearised expression of the estimator, reference was made to the generalised regression estimator, making use of the asymptotic convergence of all calibration estimators towards this estimator, as in the case of calibration estimators that use distance functions which are different from Euclidean distance (which leads to the generalised regression estimator) it is not possible to derive the linearised expression of the estimator.

The linearised expression of the estimator (2) is thus given by

$$\hat{Y}_{d} \cong \hat{Z}_{d} = \sum_{h=1}^{H_{d}} \hat{Z}_{h} \text{ , since } \hat{Z}_{h} = \sum_{i=1}^{n_{h}} \sum_{j=1}^{m_{hj}} Z_{hij} W_{hij}$$
(5)

where  $Z_{hij}$  is the linearised variable expressed as  $Z_{hij} = Y_{hij} - X'_{hij}\beta$ , since  $X_{hij} = ({}_{1}X_{hij},...,{}_{K}X_{hij},...,{}_{K}X_{hij})'$ , the vector containing the values of the K (K=18) auxiliary variables, observed for the generic household hij and  $\hat{\beta}$ , the vector of the regression coefficients of the linear model that binds the variable in question y to the K

<sup>&</sup>lt;sup>4</sup> In the Anglo-Saxon literature these estimators are known as *calibration estimators*.

auxiliary variables x. From (5) it thus follows that the estimation of the variance of estimate  $\hat{Y}_d$  is obtained by means of the following relation:

$$\hat{\mathsf{V}}ar(\hat{\mathsf{Y}}_{\mathsf{d}}) \cong \hat{\mathsf{V}}ar(\hat{\mathsf{Z}}_{\mathsf{d}}) = \sum_{\mathsf{h}=1}^{\mathsf{H}_{\mathsf{d}}} \hat{\mathsf{V}}ar(\hat{\mathsf{Z}}_{\mathsf{h}}). \tag{6}$$

From (6) it follows that the estimation of the variance of estimate  $\hat{Y}_d$  is calculated as the sum of the estimate of variances of the individual strata, Ar and Nar, belonging to domain d. The formula for calculating the variance,  $\hat{V}ar(\hat{Z}_h)$ , of estimate  $\hat{Z}_h$ , differs according to whether the stratum is Ar or Nar, and may thus be broken down as follows:

$$\hat{V}ar(\hat{Y}_{d}) \cong \hat{V}ar(\hat{Z}_{d}) = \sum_{h=1}^{H_{AR}} \hat{V}ar(\hat{Z}_{h}) + \sum_{h=1}^{H_{NAR}} \hat{V}ar(\hat{Z}_{h}) , \qquad (7)$$

in which  $H_{AR}$  and  $H_{NAR}$  indicate respectively the number of Ar and Nar strata belonging to domain d.

In the Ar strata (in which each municipality is its own stratum and  $N_h = n_h = 1$ , the municipality index i being superfluous and therefore omitted) the variance is estimated by means of the following expression:

$$\sum_{h=1}^{H_{AR}} \hat{V}ar(\hat{Z}_{h}) = \sum_{h=1}^{H_{AR}} M_{h}^{2} \frac{(M_{h} - m_{h})}{m_{h}(m_{h} - 1)} \sum_{j=1}^{m_{h}} (Z_{hj} - \overline{Z}_{h})^{2}, \qquad (8)$$

$$m_{h} = m_{hi} , \ Z_{hj} = Z_{hij} \ \text{and} \ \overline{Z}_{h} = \frac{1}{m_{h}} \sum_{j=1}^{m_{h}} Z_{hj}.$$

where  $M_h = M_{hi}$ ,  $m_h = m_{hi}$ ,  $Z_{hj} = Z_{hij}$  and  $\overline{Z}_h = \frac{1}{m_h} \sum_{j=1}^{n} Z_{hj}$ .

In the Nar strata, in which a single sample municipality is extracted from each stratum, in order to estimate the sampling variance use is made of the *strata collapsing technique*. This technique consists of forming G groups each containing  $L_g$  ( $L_g \ge 2$ ) strata; the variance is estimated by means of the following formula:

$$\sum_{h=1}^{H_{NAR}} \hat{V}ar(\hat{Z}_h) = \sum_{g=1}^{G} \hat{V}ar(\hat{Z}_g) = \sum_{g=1}^{G} \frac{L_g}{L_g - 1} \sum_{h=1}^{L_g} \left( \hat{Z}_{hg} - \frac{\hat{Z}_g}{L_g} \right)^2$$
(9)

where the quantities are expressed as:

$$\hat{Z}_{hg} = \sum_{j=1}^{m_{hi}} Z_{hij} W_{hij} \quad \text{and} \quad \hat{Z}_g = \sum_{h=1}^{L_g} \sum_{j=1}^{m_{hi}} Z_{hij} W_{hij}.$$

Using expressions (8) and (9) it is possible, finally, to calculate the sampling variance,  $\hat{Var}(\hat{Y}_d)$ , according to (7) and to calculate, thus, according to (3) and (4) respectively the absolute sampling error and the relative sampling error.

The sampling errors expressed by (3) and by (4) make it possible to evaluate the degree of precision of the estimates; in addition, the absolute error makes it possible to construct a confidence interval, which, with confidence level P contains the target parameter of estimation. The interval is expressed as

$$\left\{ \hat{\mathbf{Y}}_{d} - \mathbf{k}_{p} \hat{\sigma}(\hat{\mathbf{Y}}_{d}) \le \mathbf{Y}_{d} \le \hat{\mathbf{Y}}_{d} + \mathbf{k}_{p} \hat{\sigma}(\hat{\mathbf{Y}}_{d}) \right\}$$
(10)

In (10) the value of  $k_P$  depends on the value set for probability P; for example, for P=0.95 we obtain k=1.96.

#### 3.2 Statistical foundations of the procedure for calculating sampling errors

In order to calculate sampling errors in surveys of households and enterprises conducted by Istat, a computerised system developed within the institute is currently used. Section 3.1 described the methodology implemented by the procedure for calculating sampling errors in estimates produced by surveys while the current section discusses the statistical foundations and limitations of such a methodology.

In the Ar strata, in which a cluster sampling design is adopted and in which the primary units (households) are selected without replacement and equal probabilities, the procedure makes it possible to obtain estimates of sampling variance that are correct.

In the Nar strata, for which a two-stage sampling design is adopted with selection of the primary units (municipalities) without replacement and variable probabilities, the procedure makes it possible to obtain correct estimates of sampling variances when:

- in each stratum two or more primary units are selected;
- the primary units are chosen by means of independent extractions.

The first condition is not satisfied, as in the survey under consideration, a single sample municipality is selected from each stratum and to estimate the sampling variance the *strata collapsing* technique is used. This technique, which consists in forming superstrata each containing a number of strata greater than one, generally leads to overestimation of the actual sampling variance.

The second condition implies that the primary units are selected with replacement. Also this assumption is not satisfied for the Nar municipalities and this entails overestimation of the variance. It should be observed, nevertheless, that such overestimation depends on the sampling fraction for each Nar stratum: it is of negligible size in the strata in which the sampling fraction is small, while conversely it may be more significant for those strata in which the sampling fraction is larger.

#### 3.3 Brief presentation on sampling errors

For each estimate  $\hat{Y}_d$  there is a corresponding relative sampling error  $\hat{\epsilon}(\hat{Y}_d)$ ; this means that to enable a correct reading of the published tables it would be necessary to indicate for each published estimate the corresponding relative sampling error. This, however, is not possible, both because if time limitations and data processing costs and because the tables in the publication would be overburdened and not easy for the end user to consult. In addition, the errors for unpublished estimates, which the user can obtain independently, would not be available in any case.

For the reasons set out above, use is frequently made of an abridged presentation of relative errors, based on the *regression models method*. This method is based on the definition of a mathematical function which relates each estimate to its own relative error.

In the current survey, the model used for estimating absolute and relative frequencies is of the following type:

$$\log(\hat{\varepsilon}^{2}(\hat{\mathbf{Y}}_{d})) = \mathbf{a} + \mathbf{b}\log(\hat{\mathbf{Y}}_{d})$$
(11)

where the parameters a and b are estimated using the least square method.

Summary 2 shows the values of the coefficients a and b and of the determination index  $R^2$  of the model used for interpolation of sampling errors for absolute and relative frequency estimates, by Italy total, geographical macro-region, type of municipality and region.

On the basis of the information contained in the summary, it is possible to calculate the estimate of the relative sampling error of a specific estimate of absolute frequency  $\hat{Y}_d$  by means of the following formula:

$$\hat{\varepsilon}(\hat{Y}_{d}) = \sqrt{\exp(a + b \log(\hat{Y}_{d}))}$$
(12)

which can easily be obtained from (11).

If, for example, the estimate  $\hat{Y}_d$  refers to individuals in North-west Italy, the corresponding relative error is obtained by introducing into (12) the values of parameters a and b indicated in the second row of Summary 2 under Individuals (a = 8.886722, b = -1.121521).

Summaries 3 and 4, presented in addition, enable sampling errors to be calculated more easily. They regard, respectively, households and individuals, and have the following structure: a) to the side the estimate values are listed in ascending order (20,000, 30,000, ..., 25,000,000); b) the successive columns contain the relative sampling errors for each area domain concerned, calculated by means of Formula (12), corresponding to the estimates of absolute frequencies in the first column.

The information contained in these summaries make it possible to calculate the relative error for a generic estimate of absolute (or relative) frequency by means of two easily applied procedures, although they lead to less precise results than those obtainable with Expression (12). The first method consists in identifying in the first column of the summary the estimate level which most closely approximates the estimate desired, and in considering as the relative error the value found in the same row, in the column which corresponds to the relevant area domain.

With the second method, the sampling error for the estimate  $\hat{Y}_d$  is obtained by means of the following expression:

$$\hat{\epsilon}(\hat{Y}_{d}) = \hat{\epsilon}(\hat{Y}_{d}^{k-1}) - \frac{\hat{\epsilon}(\hat{Y}_{d}^{k-1}) - \hat{\epsilon}(\hat{Y}_{d}^{k})}{\hat{Y}_{d}^{k} - \hat{Y}_{d}^{k-1}}(\hat{Y}_{d} - \hat{Y}_{d}^{k-1})$$
(13)

where  $\hat{Y}_d^{k-1}$  and  $\hat{Y}_d^k$  are the values of the estimates, shown in the first column, within which the estimate desired  $\hat{Y}_d$  is contained, and  $\hat{\epsilon}(\hat{Y}_d^{k-1})$  and  $\hat{\epsilon}(\hat{Y}_d^k)$  are the corresponding relative errors.

Summary 2 – Values of coefficients a and b and of index of determination R2 (%) of functions used in interpolating sampling errors for estimates referring to households and individuals for Italy total, geographical macro-area, type of municipality and region – 2009

| a         b         R <sup>2</sup> (%)         a         b         R <sup>2</sup> (%)           ITALY         8,542317828         -1,089033063         97,58267602         9,547620201         -1,159970875         92,64258047           GEOGRAPHICAL MACRO-AREAS         North         8,312101741         -1,071633118         98,05511266         9,630430131         -1,171775517         91,97376327           North-west         8,046586751         -1,049151526         97,3382424         9,449040783         -1,177595514         91,57547384           Centre         8,046961765         -1,061696733         97,161600799         9,449040783         -1,177595514         91,57547384           South (rislanda)         7,645568346         -1,1552928         92,0177157         51,48639811         92,3877157           South (rislanda)         7,645568346         -1,0457995         9,4127288         8,557335646         -1,11528228         92,0177157           South (rislands)         7,743459294         -1,048777952         94,84227495         8,2071289         1,107294787         92,13349089           A1         8,393022484         -1,087776226         96,7309111         9,24372164         -1,186238911         92,1282789           A2         7,924180505         -1,047577622         94,84227495   |                                |             | Households   |                    |             | Individuals  |                    |
|---|--------------------------------|-------------|--------------|--------------------|-------------|--------------|--------------------|
| TALY         8,542317828         -1,089033063         97,58267602         9,647620201         -1,159970875         92,64258047           GEOGRAPHICAL MACRO-AREAS         North-west         8,046856751         -1,049151526         97,3322424         9,474727766         -1,171775517         91,97376327           North-west         8,046856751         -1,049151526         97,3322424         9,474727766         -1,162400473         -1,177595514         91,96966479           North-west         8,04685751         -1,04157392         9,71670739         9,133139177         -1,168293911         92,317157           South         7,840812894         -1,055613916         95,73051043         8,527021939         -1,107294787         92,0177177           South (islands)         7,743459294         -1,043775822         94,84227495         8,20128782         -1,068023837         91,13322283           TYPE OF MUNICIPALITY         8,390322484         -1,08073203         98,2109756         9,717474681         -1,192544298         93,49984295           A2         7,924180505         -1,043776822         98,6703920674         -1,049306514         86,613027188         -1,192544298         93,49984295           A2         7,924180505         -1,043776822         94,84227495         8,201287728         +1,6423012 </th <th>GEOGRAPHICAL AREAS</th> <th>а</th> <th>b</th> <th>R<sup>2</sup> (%)</th> <th>а</th> <th>b</th> <th>R<sup>2</sup> (%)</th>                        | GEOGRAPHICAL AREAS             | а           | b            | R <sup>2</sup> (%) | а           | b            | R <sup>2</sup> (%) |
| GEOGRAPHICAL MACRO-AREAS           North         8,312101741         -1,071633118         98,05511266         9,630430131         -1,171775517         91,97376327           North-west         8,046856751         -1,049151526         97,3382424         9,474727766         -1,162400439         91,5954738           North-west         8,046856751         -1,0649230923         97,61600739         9,44904783         -1,177595514         91,57547384           Centre         8,048961765         -1,061696733         97,1457397         9,13139177         -1,16839811         92,38771757           South         7,840812894         -1,055613916         95,73051043         8,527021939         -1,10794767         92,1047672           South (islands)         7,743459294         -1,04777562         94,84227495         8,20128782         -1,066823837         91,13322283           TYPE OF MUNICIPALITY         8,390322484         -1,080732303         96,2109756         9,71474681         -1,192544296         93,49984295           A2         7,924180505         -1,04776826         96,7309111         9,624372164         -1,168239311         92,12828781           B1         7,23830483         -1,024191717         89,21599898         7,49206074         -1,049306541         86,64130213 <t< td=""><td>ITALY</td><td>8,542317828</td><td>-1,089033063</td><td>97,58267602</td><td>9,547620201</td><td>-1,159970875</td><td>92,64258047</td></t<>                               | ITALY                          | 8,542317828 | -1,089033063 | 97,58267602        | 9,547620201 | -1,159970875 | 92,64258047        |
| North         8.312101741         -1.071633118         98.05511266         9.630430131         -1.71775517         91.97376327           North-west         8.04686751         -1.049151526         97.3382424         9.474727766         -1.162400439         91.95754738           Centre         8.046901765         -1.061696733         97.1457397         9.13139177         -1.16839911         92.38771757           South         7.840812894         -1.055613916         95.73051043         8.527021939         -1.10794787         92.13434098           South (islands)         7.743459294         -1.048777562         94.84227495         8.20128782         -1.068623837         91.13322283           TYPE OF MUNICIPALITY          9.13930322484         -1.080732303         98.2109756         9.71474681         -1.148254298         93.49984295           A2         7.924180505         -1.043776826         96.7309111         9.624372164         -1.168623911         92.18286761           B1         7.23830648         -1.024191717         89.21599898         7.49206074         -1.049306541         86.6130213           B2         7.996605868         -1.032620146         95.56209324         8.96173218         -1.13722445         90.94868937           B2         7.93806483  | GEOGRAPHICAL MACRO-AREAS       |             |              |                    |             |              |                    |
| North-west         8,046856751         -1,049151526         97,3382424         9,474727766         -1,162400439         91,89665479           North-est         8,296272206         -1,084230923         97,61600799         9,44904783         -1,177595514         91,57547384           Centre         8,0446856751         -1,061696733         97,1457397         913139177         1,146839811         92,38771757           South         7,840812894         -1,055613916         95,73051043         8,527021939         -1,107294787         92,13434098           South (inainland)         7,615568346         -1,042579155         95,41827258         8,557335646         -1,15892328         92,0176126           South (indis)         7,743459294         -1,048777662         94,84227495         8,20128762         -1,068623837         91,13322283           TYPE OF MUNICIPALITY         8,390322484         -1,040776826         96,7309111         9,64372164         -1,10239112         92,18289781           B1         7,238306483         -1,024191717         89,21599898         7,49206074         -1,049306541         86,46130213           B2         7,996605888         -1,036282924         8,961352168         -1,107572665         90,68137634           B4         8,32781916         -1,1061382   | North                          | 8,312101741 | -1,071633118 | 98,05511266        | 9,630430131 | -1,171775517 | 91,97376327        |
| North-east         8,296272206         -1,084230923         97,61600799         9,449040783         -1,177595514         91,57547384           Centre         8,084961765         -1,061696733         97,1457397         9,133139177         -1,146839811         92,38771757           South         7,615568346         -1,061696733         97,1457397         9,137294787         92,13343098           South (mainland)         7,615568346         -1,042579195         95,41827258         8,557335646         -1,175892328         92,00176126           South (islands)         7,743458294         -1,048777562         94,84227495         8,20128782         -1,086823837         91,3322283           TYPE OF MUNICIPALITY         8,390322484         -1,080732303         96,2109756         9,717474681         -1,192544298         93,49984295           A2         7,924180505         -1,043776826         96,7309111         9,624372164         -1,186283911         92,18298781           B1         7,238306483         -1,024191717         89,2159988         7,49206074         -1,04306541         86,46130213           B2         7,91854423         -1,051615433         94,85433041         8,635325265         -1,107572665         90,68137634           B4         8,27381916         -1,10613822   | North-west                     | 8,046856751 | -1,049151526 | 97,3382424         | 9,474727766 | -1,162400439 | 91,89665479        |
| Centre         8,084961765         -1,061696733         97,1457397         9,133139177         -1,146839811         92,38771757           South         7,840612894         -1,055613916         95,74051043         8,55733564         -1,017294787         92,1343098           South (islands)         7,743459294         -1,08773203         94,84227495         8,25733564         -1,118628331         92,1343098           TYPE OF MUNICIPALITY         8         390322484         -1,080732203         98,2109756         9,717474681         -1,192544298         93,49984295           A2         7,924180505         -1,043776826         96,7309111         9,624372164         -1,186283911         92,18289781           B1         7,238306483         -1,024191717         89,21599898         7,44206074         -1,148230541         96,61310213           B2         7,96605888         -1,051615433         94,8453041         8,635325265         -1,107572665         90,681376143           B4         8,327381916         -1,10613822         98,29713694         9,09033231         -1,167207004         93,75625462           REGIONS         -         -1,0075555238         94,48990756         6,31276283         -1,216213432         87,8143241           Lombardia         8,48188737   | North-east                     | 8,296272206 | -1,084230923 | 97,61600799        | 9,449040783 | -1,177595514 | 91,57547384        |
| South         7,840812894         -1,055613916         95,73051043         8,527021939         -1,107294787         92,13434098           South (mainland)         7,615568346         -1,042779195         95,41827258         8,557335466         -1,115892328         92,0176126           South (islands)         7,743459294         -1,048777562         94,84227495         8,20128762         -1,086823837         91,1332283           TYPE OF MUNICIPALITY         3300322484         -1,080732303         98,2109756         9,717474681         -1,192544298         93,49984295           A2         7,924180505         -1,043776826         96,7309111         9,624372164         -1,186283911         92,18289781           B1         7,924180505         -1,03219171         89,21599898         7,4920074         -1,049306541         66,64130213           B2         7,96605888         -1,036260146         95,86209324         8,961372188         -1,107272665         90,68137634           B4         3,327381916         -1,10613822         98,80756         6,312762838         -1,1072004         93,75625462           Piemonte         7,646708797         -1,047541519         96,11905441         8,174624012         -1,099822398         8,10768688           Valle d'Aosta - Vallée d'Aoste         5,2  | Centre                         | 8,084961765 | -1,061696733 | 97,1457397         | 9,133139177 | -1,146839811 | 92,38771757        |
| South (mainland)         7,615568346         -1,042579195         95,41827258         8,557335646         -1,115892328         92,00176126           South (islands)         7,743459294         -1,048777562         94,84227495         8,20128782         -1,086823837         91,13322283           TYPE OF MUNICIPALITY         8,390322484         -1,04073203         98,2109756         9,717474681         -1,192544298         93,49984295           A2         7,924180505         -1,043776826         96,7309111         9,624372164         -1,104683911         92,18289781           B1         7,238306483         -1,024191717         89,21599898         7,49206074         -1,049306541         86,4130213           B2         7,916058888         -1,036260146         95,86209324         8,961372188         -1,10752656         90,68137634           B4         8,327381916         -1,10613822         98,29713694         9,090933231         -1,167207004         93,75625462           REGIONS         -         -         -1,0613822         98,29713694         9,09093231         -1,167207034         91,54342946           Joedsta - Vallée d'Aoste         5,244693266         -1,075555238         94,48990756         6,312762838         -1,216213432         87,84143241           Lombardia   | South                          | 7,840812894 | -1,055613916 | 95,73051043        | 8,527021939 | -1,107294787 | 92,13434098        |
| South (islands)         7,743459294         -1,048777562         94,84227495         8,20128782         -1,086823837         91,13322283           TYPE OF MUNICIPALITY         A1         8,39032248         -1,080732303         98,2109756         9,717474681         -1,192544298         93,49984295           A2         7,924180505         -1,043776826         96,7309111         9,624372164         -1,18228911         92,18289761           B1         7,238306483         -1,024191717         89,21599898         7,49206074         -1,049306541         86,6130213           B2         7,79660588         -1,035260146         95,86209324         8,961372188         -1,132728445         90,94886937           B3         7,913854423         -1,06151822         98,29713694         9,090933231         -1,16720704         93,75625462           REGIONS          9         9,61372188         -1,216213432         87,84143241           Lombardia         8,48189737         -1,06955564         97,28105871         9,652002852         -1,1662067         91,47935093           Trento         6,539105863         -1,07292979         96,41905411         8,174624012         -1,98922398         88,10768688           Bolzano - Bozen         6,56257168         -1,0923926861         <  | South (mainland)               | 7,615568346 | -1,042579195 | 95,41827258        | 8,557335646 | -1,115892328 | 92,00176126        |
| TYPE OF MUNICIPALITY         A1       8,390322484       -1,080732303       98,2109756       9,717474681       -1,192544298       93,49984295         A2       7,924180505       -1,043776826       96,7309111       9,624372164       -1,186283911       92,18289781         B1       7,23806483       -1,024191717       89,21599898       7,49206074       -1,049306541       86,46130213         B2       7,96605888       -1,051615433       94,85433041       8,635325265       -1,107572665       90,68137634         B4       8,32738196       -1,10613822       98,29713694       9,09093231       -1,16727004       93,7562462         Piemonte       7,646708797       -1,047541519       96,11905441       8,174624012       -1,099822398       88,10768688         Valle d'Aosta - Vallée d'Aoste       5,244693266       -1,075555238       94,48990756       6,312762838       -1,1662067       91,47935093         Trentino-Alto Adige       6,539105863       -1,074524059       96,14653482       7,326588656       -1,17799668       91,2995592         Trento       6,560257168       -1,099390861       94,74996183       7,57455103       -1,16220479       90,5881115         Friuli-Venezia Giulia       7,483601355       -1,093997504       93,79945718  | South (islands)                | 7,743459294 | -1,048777562 | 94,84227495        | 8,20128782  | -1,086823837 | 91,13322283        |
| A1       8,390322484       -1,080732303       98,2109756       9,717474681       -1,192544298       93,49984295         A2       7,924180505       -1,043776826       96,7309111       9,624372164       -1,186283911       92,18289781         B1       7,238306483       -1,024191717       89,21599898       7,49206074       -1,049306541       86,66130213         B2       7,796605888       -1,036260146       95,86209324       8,961372188       -1,132728445       90,94886937         B3       7,913854423       -1,01613822       98,29713694       9,090933231       -1,16772665       90,681376344         B4       8,327381916       -1,0613822       98,29713694       9,090933231       -1,16727065       90,68187634         REGIONS         -1,07555538       94,48990756       6,312762838       -1,216213432       87,84143241         Lombardia       8,481889737       -1,047541519       96,11905441       8,174624012       -1,09822398       88,10768688         Valle d'Aoste       S,244693266       -1,075555538       94,48990756       6,312762838       -1,1662067       91,47935093         Trentino-Alto Adige       6,579105863       -1,079390861       94,74996183       7,57455103       -1,216614875       89,50851967   | TYPE OF MUNICIPALITY           |             |              |                    |             |              |                    |
| A2       7,924180505       -1,043776826       96,7309111       9,624372164       -1,186283911       92,18289781         B1       7,238306483       -1,024191717       89,21599898       7,49206074       -1,049306541       86,46130213         B2       7,96605888       -1,036260146       95,86209324       8,961372188       -1,132728445       90,4886937         B3       7,913854423       -1,0613822       98,29713694       8,635325265       -1,107572665       90,68137634         B4       8,327381916       -1,10613822       98,29713694       8,635325265       -1,107572665       90,88137634         REGIONS        -1,047541519       96,11905441       8,174624012       -1,099822398       88,10768688         Valle d'Aosta - Vallée d'Aoste       5,244693266       -1,075555238       94,48990756       6,31276238       -1,1662067       91,47935093         Trentino-Alto Adige       6,539105863       -1,074294063       96,83740275       7,644578113       -1,192070374       91,54342946         Bolzano - Bozen       6,550257168       -1,090390861       94,74996183       7,757455103       -1,216614875       89,56851967         Veneto       8,380360111       -1,08498219       97,13521114       9,142395737       -1,152284197       90,058   | A1                             | 8,390322484 | -1,080732303 | 98,2109756         | 9,717474681 | -1,192544298 | 93,49984295        |
| B1       7,238306483       -1,024191717       89,21599898       7,49206074       -1,049306541       86,46130213         B2       7,796605888       -1,036260146       95,66209324       8,961372188       -1,132728445       90,94886937         B3       7,913854423       -1,051615433       94,85433041       8,653325265       -1,107727665       90,68137634         B4       8,327381916       -1,10613822       98,29713694       9,090933231       -1,16720704       93,75625462         REGIONS       Piemonte       7,646708797       -1,047541519       96,11905441       8,174624012       -1,099822398       88,10768688         Valle d'Aosta - Vallée d'Aoste       5,244693266       -1,075555238       94,48990756       6,312762838       -1,216213432       87,84143241         Lombardia       8,481889737       -1,069055864       97,28105871       9,652002852       -1,16662067       91,47935093         Trentio-Alto Adige       6,576227063       -1,087922979       96,14653482       7,75455103       -1,216213432       89,50851967         Veneto       8,380360111       -1,08498219       97,13521114       9,142395737       -1,17799668       91,26955629         Friuli-Venezia Giulia       7,467289748       -1,079094912       96,7167393       7,991235518  | A2                             | 7,924180505 | -1,043776826 | 96,7309111         | 9,624372164 | -1,186283911 | 92,18289781        |
| B2       7,796605888       -1,036260146       95,86209324       8,961372188       -1,132728445       90,94886937         B3       7,913854423       -1,051615433       94,85433041       8,635325265       -1,107572665       90,68137634         B4       8,327381916       -1,10613822       98,29713694       9,090933231       -1,167207004       93,75625462         REGIONS       -   | B1                             | 7,238306483 | -1,024191717 | 89,21599898        | 7,49206074  | -1,049306541 | 86,46130213        |
| B3       7,913854423       -1,051615433       94,85433041       8,635325265       -1,107572665       90,68137634         B4       8,327381916       -1,10613822       98,29713694       9,090933231       -1,167207004       93,75625462         REGIONS       -  | B2                             | 7,796605888 | -1,036260146 | 95,86209324        | 8,961372188 | -1,132728445 | 90,94886937        |
| B4         8,327381916         -1,10613822         98,29713694         9,090933231         -1,16720704         93,75625462           REGIONS         Piemonte         7,646708797         -1,047541519         96,11905441         8,174624012         -1,099822398         88,10768688           Valle d'Aosta - Vallée d'Aoste         5,244693266         -1,075555238         94,48990756         6,312762838         -1,216213432         87,84143241           Lombardia         8,481889737         -1,069055864         97,28105871         9,652002852         -1,16602067         91,47935093           Trentino-Alto Adige         6,576227063         -1,074294063         96,83740275         7,644578113         -1,192070374         91,26955629           Bolzano - Bozen         6,576227063         -1,0809390861         97,4996183         7,757455103         -1,16614875         89,50851967           Veneto         8,380360111         -1,08498219         97,13521114         9,142395737         -1,152284197         90,05881115           Friuli-Venezia Giulia         7,467289748         -1,079094912         96,7167393         7,991235518         -1,113855819         92,45110025           Emilia-Romagna         7,86049698         -1,046090558         92,52516152         9,418947844         -1,183204127         90,5339536 </td <td>B3</td> <td>7,913854423</td> <td>-1,051615433</td> <td>94,85433041</td> <td>8,635325265</td> <td>-1,107572665</td> <td>90,68137634</td> | B3                             | 7,913854423 | -1,051615433 | 94,85433041        | 8,635325265 | -1,107572665 | 90,68137634        |
| REGIONS         Piemonte         7,646708797         -1,047541519         96,11905441         8,174624012         -1,099822398         88,10768688           Valle d'Aosta - Vallée d'Aoste         5,244693266         -1,075555238         94,48990756         6,312762838         -1,216213432         87,84143241           Lombardia         8,481889737         -1,069055864         97,28105871         9,652002852         -1,16662067         91,47935093           Trentino-Alto Adige         6,539105863         -1,074294063         96,83740275         7,644578113         -1,12070374         91,54342946           Bolzano - Bozen         6,576227063         -1,087922979         96,14653482         7,326588656         -1,17799668         91,26955629           Trento         6,650257168         -1,090390861         94,74996183         7,757455103         -1,216614875         89,50851967           Veneto         8,380360111         -1,08498219         97,13521114         9,142395737         -1,152284197         90,05881115           Eriuli-Romagna         7,467289748         -1,079094912         96,7167393         7,99123518         -1,14231002         89,54550844           Liguria         7,86049698         -1,046090558         92,52516152         9,418947844         -1,183204127         90,5339536 <td>B4</td> <td>8,327381916</td> <td>-1,10613822</td> <td>98,29713694</td> <td>9,090933231</td> <td>-1,167207004</td> <td>93,75625462</td>                  | B4                             | 8,327381916 | -1,10613822  | 98,29713694        | 9,090933231 | -1,167207004 | 93,75625462        |
| Piemonte7,646708797-1,04754151996,119054418,174624012-1,09982239888,10768688Valle d'Aosta - Vallée d'Aoste5,244693266-1,07555523894,489907566,312762838-1,21621343287,84143241Lombardia8,481889737-1,06905586497,281058719,652002852-1,1666206791,47935093Trentino-Alto Adige6,539105863-1,07429406396,837402757,644578113-1,19207037491,54342946Bolzano - Bozen6,576227063-1,08792297996,146534827,326588656-1,1779966891,26955629Trento6,650257168-1,09039086194,749961837,757455103-1,21661487589,50851967Veneto8,380360111-1,0849821997,135211149,142395737-1,15228419790,05881115Friuli-Venezia Giulia7,467289748-1,07909491296,71673937,991235518-1,13185581992,45110025Emilia-Romagna7,86049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,08052487496,831338579,220301488-1,13890879592,15024614Abruzzo6,927324225-1,03838254793,99491   | REGIONS                        |             |              |                    |             |              |                    |
| Valle d'Aosta - Vallée d'Aoste5,244693266-1,07555523894,489907566,312762838-1,21621343287,84143241Lombardia8,481889737-1,06905586497,281058719,652002852-1,1666206791,47935093Trentino-Alto Adige6,539105863-1,07429406396,837402757,644578113-1,19207037491,54342946Bolzano - Bozen6,576227063-1,08792297996,146534827,326588656-1,1779966891,26955629Trento6,650257168-1,09039086194,749961837,757455103-1,21661487589,50851967Veneto8,380360111-1,0849821997,135211149,142395737-1,15228419790,05881115Friuli-Venezia Giulia7,483601355-1,09397500493,799457188,163219842-1,16423100289,54550844Liguria7,467289748-1,07909491296,71673937,991235518-1,13185581992,45110025Emilia-Romagna7,886049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,1044997595,787682848,09830825-1,1467193591,13771696Lazio8,532449227-1,0852487496,831338579,220301488-1,13890879592,15024614Abruzzo6,927324225-1,03838254793,99491701<   | Piemonte                       | 7,646708797 | -1,047541519 | 96,11905441        | 8,174624012 | -1,099822398 | 88,10768688        |
| Lombardia8,481889737-1,06905586497,281058719,652002852-1,1666206791,47935093Trentino-Alto Adige6,539105863-1,07429406396,837402757,644578113-1,19207037491,54342946Bolzano - Bozen6,576227063-1,08792297996,146534827,326588656-1,1779966891,26955629Trento6,650257168-1,09039086194,749961837,757455103-1,21661487589,50851967Veneto8,380360111-1,0849821997,135211149,142395737-1,15228419790,05881115Friuli-Venezia Giulia7,483601355-1,09397500493,799457188,163219842-1,16423100289,54550844Liguria7,467289748-1,07909491296,71673937,991235518-1,13185581992,45110025Emilia-Romagna7,86049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,0852487496,831338579,220301488-1,13890879592,15024614Abruzzo6,927324225-1,03838254793,994917017,493461864-1,10384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658 <td>Valle d'Aosta - Vallée d'Aoste</td> <td>5,244693266</td> <td>-1,075555238</td> <td>94,48990756</td> <td>6,312762838</td> <td>-1,216213432</td> <td>87,84143241</td>  | Valle d'Aosta - Vallée d'Aoste | 5,244693266 | -1,075555238 | 94,48990756        | 6,312762838 | -1,216213432 | 87,84143241        |
| Trentino-Alto Adige6,539105863-1,07429406396,837402757,644578113-1,19207037491,54342946Bolzano - Bozen6,576227063-1,08792297996,146534827,326588656-1,1779966891,26955629Trento6,650257168-1,09039086194,749961837,757455103-1,21661487589,50851967Veneto8,380360111-1,0849821997,135211149,142395737-1,15228419790,05881115Friuli-Venezia Giulia7,483601355-1,09397500493,799457188,163219842-1,16423100289,54550844Liguria7,467289748-1,07909491296,71673937,991235518-1,3185581992,45110025Emilia-Romagna7,886049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,0852487496,831338579,220301488-1,13890879592,15024614Abruzzo6,927324225-1,03838254793,994917017,493461864-1,10384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658-1,10668945190,79661513Campania7 915713360-1 04848249894 380368769 086062888 <td>Lombardia</td> <td>8,481889737</td> <td>-1,069055864</td> <td>97,28105871</td> <td>9,652002852</td> <td>-1,16662067</td> <td>91,47935093</td>  | Lombardia                      | 8,481889737 | -1,069055864 | 97,28105871        | 9,652002852 | -1,16662067  | 91,47935093        |
| Bolzano - Bozen6,576227063-1,08792297996,146534827,326588656-1,1779966891,26955629Trento6,650257168-1,09039086194,749961837,757455103-1,21661487589,50851967Veneto8,380360111-1,0849821997,135211149,142395737-1,15228419790,05881115Friuli-Venezia Giulia7,467289748-1,07909491296,71673937,991235518-1,113185581992,45110025Emilia-Romagna7,86049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,09830825-1,14670193591,13771696Lazio8,532449227-1,08052487496,831338579,220301488-1,1384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658-1,1608945190,79661513Campania7,915713366-1,0488249894,380366769,08062888-1,14778747591,820623   | Trentino-Alto Adige            | 6,539105863 | -1,074294063 | 96,83740275        | 7,644578113 | -1,192070374 | 91,54342946        |
| Trento6,650257168-1,09039086194,749961837,757455103-1,21661487589,50851967Veneto8,380360111-1,0849821997,135211149,142395737-1,15228419790,05881115Friuli-Venezia Giulia7,483601355-1,09397500493,799457188,163219842-1,16423100289,54550844Liguria7,467289748-1,07909491296,71673937,991235518-1,13185581992,45110025Emilia-Romagna7,86049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,08052487496,831338579,220301488-1,1384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658-1,1608945190,79661513Gampania7,915713366-1,04848249894,380368769,08062888-1,14778747591,8206513  | Bolzano - Bozen                | 6,576227063 | -1,087922979 | 96,14653482        | 7,326588656 | -1,17799668  | 91,26955629        |
| Veneto8,380360111-1,0849821997,135211149,142395737-1,15228419790,05881115Friuli-Venezia Giulia7,483601355-1,09397500493,799457188,163219842-1,16423100289,54550844Liguria7,467289748-1,07909491296,71673937,991235518-1,13185581992,45110025Emilia-Romagna7,86049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,08052487496,831338579,220301488-1,1384076788,3863238Molise6,927324225-1,03838254793,994917017,493461864-1,10384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658-1,1608945190,79661513Campania7,9157133936-1,04848249894,380368769,086062888-1,14778747591,8206233   | Trento                         | 6,650257168 | -1.090390861 | 94,74996183        | 7,757455103 | -1.216614875 | 89,50851967        |
| Friuli-Venezia Giulia7,483601355-1,09397500493,799457188,163219842-1,16423100289,54550844Liguria7,467289748-1,07909491296,71673937,991235518-1,13185581992,45110025Emilia-Romagna7,860049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,08052487496,831338579,220301488-1,13890879592,15024614Abruzzo6,927324225-1,03838254793,994917017,493461864-1,10384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658-1,1608945190,79661513Campania7,9157133936-1,04848249894,380368769,086062888-1,14778747591,8206275  | Veneto                         | 8,380360111 | -1,08498219  | 97,13521114        | 9,142395737 | -1,152284197 | 90,05881115        |
| Liguria7,467289748-1,07909491296,71673937,991235518-1,13185581992,45110025Emilia-Romagna7,86049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,08052487496,83138579,220301488-1,13890879592,15024614Abruzzo6,927324225-1,03838254793,994917017,493461864-1,10384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658-1,16068945190,7966151Campania7,9157133936-1,04848249894,380368769,086062888-1,14778747591,820623  | Friuli-Venezia Giulia          | 7,483601355 | -1,093975004 | 93,79945718        | 8,163219842 | -1,164231002 | 89,54550844        |
| Emilia-Romagna7,886049698-1,04609055892,525161529,418947844-1,18320412790,5339536Toscana7,891121011-1,06902297296,808241258,669421357-1,14066732492,02445347Umbria7,060839136-1,07836281596,30688718,333420432-1,20398050492,09151429Marche7,654593499-1,11044997595,787682848,098330825-1,14670193591,13771696Lazio8,532449227-1,08052487496,831338579,220301488-1,13890879592,15024614Abruzzo6,927324225-1,03838254793,994917017,493461864-1,10384076788,3863238Molise6,217197735-1,10365258594,767874376,748765658-1,16068945190,7966151Campania7,915713336-1,04848249894,380368769,086062888-1,14778747591,820623   | Liguria                        | 7,467289748 | -1,079094912 | 96,7167393         | 7,991235518 | -1,131855819 | 92,45110025        |
| Toscana         7,891121011         -1,069022972         96,80824125         8,669421357         -1,140667324         92,02445347           Umbria         7,060839136         -1,078362815         96,3068871         8,333420432         -1,203980504         92,09151429           Marche         7,654593499         -1,110449975         95,78768284         8,098330825         -1,146701935         91,13771696           Lazio         8,532449227         -1,080524874         96,8313857         9,220301488         -1,138908795         92,15024614           Abruzzo         6,927324225         -1,038382547         93,99491701         7,493461864         -1,103840767         88,3863238           Molise         6,217197735         -1,103652585         94,76787437         6,748765658         -1,16089451         90,79661513           Campania         7,915713936         -1<048482498  | Emilia-Romagna                 | 7,886049698 | -1,046090558 | 92,52516152        | 9,418947844 | -1,183204127 | 90,5339536         |
| Umbria         7,060839136         -1,078362815         96,3068871         8,333420432         -1,203980504         92,09151429           Marche         7,654593499         -1,110449975         95,78768284         8,098330825         -1,146701935         91,13771696           Lazio         8,532449227         -1,080524874         96,83133857         9,220301488         -1,138908795         92,15024614           Abruzzo         6,927324225         -1,038382547         93,99491701         7,493461864         -1,103840767         88,3863238           Molise         6,217197735         -1,103652585         94,76787437         6,748765658         -1,16089451         90,79661513           Campania         7,915713936         -1<048482498   | Toscana                        | 7,891121011 | -1,069022972 | 96,80824125        | 8,669421357 | -1,140667324 | 92,02445347        |
| Marche         7,654593499         -1,110449975         95,78768284         8,098330825         -1,146701935         91,13771696           Lazio         8,532449227         -1,080524874         96,83133857         9,220301488         -1,138908795         92,15024614           Abruzzo         6,927324225         -1,038382547         93,99491701         7,493461864         -1,103840767         88,3863238           Molise         6,217197735         -1,103652585         94,76787437         6,748765658         -1,160689451         90,79661513           Campania         7,915713936         -1<048482498  | Umbria                         | 7,060839136 | -1,078362815 | 96,3068871         | 8,333420432 | -1,203980504 | 92,09151429        |
| Lazio         8,532449227         -1,080524874         96,83133857         9,220301488         -1,138908795         92,15024614           Abruzzo         6,927324225         -1,038382547         93,99491701         7,493461864         -1,103840767         88,3863238           Molise         6,217197735         -1,103652585         94,76787437         6,748765658         -1,160689451         90,79661513           Campania         7 915713936         -1 048482498         94 38036876         9 086062888         -1 147787475         91 820623  | Marche                         | 7,654593499 | -1,110449975 | 95,78768284        | 8,098330825 | -1,146701935 | 91,13771696        |
| Abruzzo         6,927324225         -1,038382547         93,99491701         7,493461864         -1,103840767         88,3863238           Molise         6,217197735         -1,103652585         94,76787437         6,748765658         -1,160689451         90,79661513           Campania         7,915713936         -1,048482498         94,38038876         9,086062888         -1,147787475         91,820623  | Lazio                          | 8,532449227 | -1,080524874 | 96,83133857        | 9,220301488 | -1,138908795 | 92,15024614        |
| Molise         6,217197735         -1,103652585         94,76787437         6,748765658         -1,160689451         90,79661513           Campania         7,915713936         -1,048482498         94,38036876         9,086062888         -1,147787475         91,820623   | Abruzzo                        | 6.927324225 | -1.038382547 | 93,99491701        | 7.493461864 | -1.103840767 | 88.3863238         |
| Campania 7 915713936 -1 048482498 94 38036876 9 086062888 -1 147787475 91 820623  | Molise                         | 6,217197735 | -1,103652585 | 94,76787437        | 6,748765658 | -1,160689451 | 90,79661513        |
|   | Campania                       | 7,915713936 | -1,048482498 | 94,38036876        | 9,086062888 | -1,147787475 | 91,820623          |
| Puglia 7,847783689 -1,068287135 94,78934556 8,150062658 -1,088716404 90.75073392  | Puglia                         | 7,847783689 | -1,068287135 | 94,78934556        | 8,150062658 | -1,088716404 | 90,75073392        |
| Basilicata 6,509493266 -1,075352952 95,82988695 7,11892378 -1,139235499 92,04649626   | Basilicata                     | 6,509493266 | -1,075352952 | 95,82988695        | 7,11892378  | -1,139235499 | 92,04649626        |
| Calabria 7,383549973 -1,069947611 94,33257096 8.074425379 -1,132074685 88.82593787  | Calabria                       | 7,383549973 | -1,069947611 | 94,33257096        | 8,074425379 | -1,132074685 | 88,82593787        |
| Sicilia 7,853981898 -1,049991006 94,24851967 8,247163626 -1,081695771 90,55817952   | Sicilia                        | 7,853981898 | -1,049991006 | 94,24851967        | 8,247163626 | -1,081695771 | 90,55817952        |

(a) North-west Italy: Piedmont, Aosta Valley, Lombardy, Liguria; North-east Italy: Bolzano, Trento, Veneto, Friuli-Venezia Giulia, Emilia-Romagna; Central Italy: Tuscany, Umbria, Marche, Lazio; South Italy: Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria; Italian Islands: Sicily, Sardinia.

(b) Municipalities, type A1: central metropolitan area; type A2: peripheral metropolitan area; type B1: municipalities with up to 2,000 inhabitants; type B2: from 2,001 to 10,000 inhabitants; type B3: from 10,001 to 50,000 inhabitants; type B4: over 50,000 inhabitants.

| ESTIMATES  | Italy | North | North-<br>west | orth-east | Centre | South | South<br>(mainland) | South<br>(islands) | A1      | A2   | B1   | B2   | В3   | B4   |
|------------|-------|-------|----------------|-----------|--------|-------|---------------------|--------------------|---------|------|------|------|------|------|
| 20.000     | 32,6  | 31,7  | 31,0           | 29,5      | 29,7   | 27,1  | 25,8                | 26,7               | 31,5    | 29,9 | 23,4 | 29,1 | 28,6 | 26,9 |
| 30.000     | 26,1  | 25,5  | 25,0           | 23,7      | 23,9   | 21,9  | 20,9                | 21,6               | 25,3    | 24,2 | 19,0 | 23,6 | 23,1 | 21,5 |
| 40.000     | 22,3  | 21,8  | 21,5           | 20,3      | 20,5   | 18,8  | 18,0                | 18,5               | 21,6    | 20,8 | 16,4 | 20,3 | 19,9 | 18,3 |
| 50.000     | 19,8  | 19,4  | 19,2           | 18,0      | 18,2   | 16,7  | 16,0                | 16,5               | 19,2    | 18,6 | 14,6 | 18,1 | 17,7 | 16,2 |
| 60.000     | 17,9  | 17,6  | 17,4           | 16,3      | 16,6   | 15,2  | 14,6                | 15,0               | 17,4    | 16,9 | 13,3 | 16,5 | 16,1 | 14,6 |
| 70.000     | 16,5  | 16,2  | 16,1           | 15,0      | 15,3   | 14,0  | 13,4                | 13,8               | 16,0    | 15,6 | 12,3 | 15,2 | 14,8 | 13,4 |
| 80.000     | 15,3  | 15,1  | 15,0           | 13,9      | 14,2   | 13,0  | 12,5                | 12,9               | 14,9    | 14,5 | 11,5 | 14,2 | 13,8 | 12,5 |
| 90.000     | 14,4  | 14,1  | 14,1           | 13,1      | 13,4   | 12,2  | 11,8                | 12,1               | 14,0    | 13,7 | 10,8 | 13,4 | 13,0 | 11,7 |
| 100.000    | 13,6  | 13,4  | 13,3           | 12,3      | 12,6   | 11,6  | 11,1                | 11,5               | 13,2    | 12,9 | 10,3 | 12,7 | 12,3 | 11,0 |
| 200.000    | 9,3   | 9,2   | 9,3            | 8,5       | 8,7    | 8,0   | 7,8                 | 8,0                | 9,1     | 9,0  | 7,2  | 8,8  | 8,5  | 7,5  |
| 300.000    | 7,5   | 7,4   | 7,5            | 6,8       | 7,0    | 6,5   | 6,3                 | 6,4                | 7,3     | 7,3  | 5,8  | 7,2  | 6,9  | 6,0  |
| 400.000    | 6,4   | 6,4   | 6,4            | 5,8       | 6,1    | 5,6   | 5,4                 | 5,5                | 6,2     | 6,3  | 5,0  | 6,2  | 5,9  | 5,1  |
| 500.000    | 5,6   | 5,6   | 5,7            | 5,2       | 5,4    | 5,0   | 4,8                 | 4,9                | 5,5     | 5,6  | 4,5  | 5,5  | 5,3  | 4,5  |
| 750.000    | 4,5   | 4,5   | 4,6            | 4,1       | 4,3    | 4,0   | 3,9                 | 4,0                | 4,4     | 4,5  | 3,7  | 4,5  | 4,3  | 3,6  |
| 1.000.000  | 3,9   | 3,9   | 4,0            | 3,5       | 3,7    | 3,4   | 3,4                 | 3,4                | 3,8     | 3,9  | 3,2  | 3,8  | 3,7  | 3,1  |
| 2.000.000  | 2,7   | 2,7   | 2,8            | 2,4       | 2,6    | 2,4   | 2,3                 | 2,4                | 2,6     | 2,7  | 2,2  | 2,7  | 2,5  | 2,1  |
| 3.000.000  | 2,1   | 2,2   | 2,2            | 2,0       | 2,1    | 1,9   | 1,9                 | 1,9                | 2,1     | 2,2  | -    | 2,2  | 2,1  | 1,7  |
| 4.000.000  | 1,8   | 1,9   | 1,9            | 1,7       | 1,8    | 1,7   | 1,6                 | -                  | 1,8     | -    | -    | 1,9  | 1,8  | 1,4  |
| 5.000.000  | 1,6   | 1,6   | 1,7            | 1,5       | 1,6    | 1,5   | 1,5                 | -                  | -       | -    | -    | 1,7  | 1,6  | 1,3  |
| 7.500.000  | 1,3   | 1,3   | 1,4            | -         | -      | 1,2   | 1,2                 | -                  | -       | -    | -    | 1,4  | 1,3  | -    |
| 10.000.000 | 1,1   | 1,1   | -              | -         | -      | -     | -                   | -                  | -       | -    | -    | -    | -    | -    |
| 15.000.000 | 0,9   | 0,9   | -              | -         | -      | -     | -                   | -                  | -       | -    | -    | -    | -    | -    |
| 20.000.000 | 0,8   | -     | -              | -         | -      | -     | -                   | -                  | -       | -    | -    | -    | -    | -    |
| 25.000.000 | 0,7   | -     | -              | -         | -      | -     | -                   | -                  | -       | -    | -    | -    | -    | -    |
|            |       | Valle | e              |           |        |       |                     | ,                  | =riuli_ |      |      |      |      |      |

| Summary 3 – Interpolated percentage values of relative sampling errors for estimates referring to households for |  |
|--|--|
| Italy total, geographical macro-area, type of municipality and region – 2009                                     |  |

| ESTIMATES  | Piemonte   | d'Aosta -<br>Vallée<br>d'Aoste   | Lombardia   | Trentino-<br>Alto Adige   | Bolzano  | Trento   | Veneto   | Friuli-<br>Venezia<br>Giulia   | Liguria  | Emilia-<br>Romagna  | Toscana   | Umbria  |
|--|--|--|---|---|--|--|--|--|--|---|---|---|
| 20.000   | 25,6   | 6,7  | 34,9  | 25,2  | 12,3   | 12,6   | 30,7   | 18,7   | 20,0   | 29,0  | 26,0  | 16,4  |
| 30.000   | 20,7   | 5,4  | 28,1  | 20,4  | 9,8  | 10,1   | 24,6   | 15,0   | 16,1   | 23,5  | 20,9  | 13,2  |
| 40.000   | 17,8   | 4,6  | 24,1  | 17,5  | 8,4  | 8,6  | 21,0   | 12,8   | 13,8   | 20,2  | 17,9  | 11,3  |
| 50.000   | 15,8   | 4,1  | 21,4  | 15,6  | 7,4  | 7,6  | 18,6   | 11,3   | 12,2   | 18,0  | 15,9  | 10,0  |
| 60.000   | 14,4   | 3,7  | 19,4  | 14,2  | 6,7  | 6,9  | 16,9   | 10,3   | 11,1   | 16,3  | 14,4  | 9,1   |
| 70.000   | 13,3   | -  | 17,9  | 13,1  | 6,2  | 6,3  | 15,5   | 9,4  | 10,2   | 15,1  | 13,3  | 8,3   |
| 80.000   | 12,4   | -  | 16,6  | 12,2  | 5,8  | 5,9  | 14,5   | 8,8  | 9,5  | 14,1  | 12,4  | 7,8   |
| 90.000   | 11,6   | -  | 15,6  | 11,5  | 5,4  | 5,5  | 13,6   | 8,2  | 8,9  | 13,2  | 11,6  | 7,3   |
| 100.000  | 11,0   | -  | 14,8  | 10,9  | 5,1  | 5,2  | 12,8   | 7,8  | 8,4  | 12,5  | 11,0  | 6,9   |
| 200.000  | 7,7  | -  | 10,2  | 7,6   | 3,5  | 3,6  | 8,8  | 5,3  | 5,8  | 8,7   | 7,6   | 4,7   |
| 300.000  | 6,2  | -  | 8,2   | 6,1   | -  | -  | 7,1  | 4,3  | 4,6  | 7,0   | 6,1   | 3,8   |
| 400.000  | 5,3  | -  | 7,0   | 5,3   | -  | -  | 6,0  | 3,6  | 4,0  | 6,1   | 5,2   | 3,3   |
| 500.000  | 4,7  | -  | 6,2   | 4,7   | -  | -  | 5,3  | 3,2  | 3,5  | 5,4   | 4,6   | -   |
| 750.000  | 3,8  | -  | 5,0   | 3,8   | -  | -  | 4,3  | 2,6  | 2,8  | 4,4   | 3,7   | -   |
| 1.000.000  | 3,3  | -  | 4,3   | 3,3   | -  | -  | 3,7  | -  | 2,4  | 3,8   | 3,2   | -   |
| 2.000.000  | 2,3  | -  | 3,0   | 2,3   | -  | -  | 2,5  | -  | -  | 2,0   | ۷,۷   | -   |
|  |  |  |   |   |  |  |  |  |  |   |   |   |
| ESTIMA   | TES  | Marche   | Lazio   | Abruzzo   | Molise   | Campania   | Pug  | ia Basil   | icata (  | Calabria  | Sicilia   | Sardegna  |
| ESTIMA<br>20   | ATES 0.000   | Marche<br>18,8   | Lazio<br>33,8   | Abruzzo<br>18,7   | Molise<br>9,5  | Campania<br>29,1   | Pug<br>25  | ia Basil   | licata (   | Calabria<br>20,1  | Sicilia<br>28,0   | Sardegna<br>20,3  |
| ESTIMA<br>20<br>30   | ATES<br>0.000<br>0.000   | Marche<br>18,8<br>15,0   | Lazio<br>33,8<br>27,2   | Abruzzo<br>18,7<br>15,1   | Molise<br>9,5<br>7,6   | Campania<br>29,1<br>23,5   | Pug<br>25<br>20  | ia Basil<br>,5<br>,5   | icata (<br>12,6<br>10,1  | Calabria<br>20,1<br>16,2  | Sicilia<br>28,0<br>22,6   | Sardegna<br>20,3<br>16,4  |
| ESTIMA<br>20<br>30<br>40   | ATES<br>0.000<br>0.000<br>0.000  | Marche<br>18,8<br>15,0<br>12,8   | Lazio<br>33,8<br>27,2<br>23,3   | Abruzzo<br>18,7<br>15,1<br>13,0   | Molise<br>9,5<br>7,6<br>6,5  | Campania<br>29,1<br>23,5<br>20,2   | Pug<br>25<br>20<br>17  | ia Basil<br>,5<br>,5<br>,6   | icata (<br>12,6<br>10,1<br>8,7   | 20,1<br>16,2<br>13,8  | Sicilia<br>28,0<br>22,6<br>19,5   | Sardegna<br>20,3<br>16,4<br>14,1  |
| ESTIMA<br>20<br>30<br>40<br>50   | ATES<br>0.000<br>0.000<br>0.000<br>0.000   | Marche<br>18,8<br>15,0<br>12,8<br>11,3   | Lazio<br>33,8<br>27,2<br>23,3<br>20,6   | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6   | 9,5<br>7,6<br>6,5<br>5,7   | Campania<br>29,1<br>23,5<br>20,2<br>18,0   | Pug<br>25<br>20<br>17<br>15  | ia Basil<br>,5<br>,5<br>,6<br>,6   | icata (<br>12,6<br>10,1<br>8,7<br>7,7  | Calabria<br>20,1<br>16,2<br>13,8<br>12,3  | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3   | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6  |
| ESTIMA<br>20<br>30<br>40<br>50<br>60   | ATES<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000  | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2   | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7   | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6   | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2  | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4   | Pug<br>25<br>20<br>17<br>15<br>14  | ia Basil<br>,5<br>,6<br>,6<br>,2   | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0   | 20,1<br>16,2<br>13,8<br>12,3<br>11,1  | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7   | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4  |
| ESTIMA<br>20<br>30<br>40<br>55<br>60<br>70   | ATES<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000   | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4  | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2   | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7  | 9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7   | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1   | Pug<br>25<br>20<br>17<br>15<br>14<br>13  | ia Basil<br>,5<br>,6<br>,6<br>,2<br>,1   | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4  | Calabria<br>20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3  | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5   | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6  |
| ESTIMA<br>20<br>30<br>40<br>50<br>66<br>70<br>80   | ATES<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000  | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7   | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0   | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1   | 9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4  | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1   | Pug<br>25<br>20<br>17<br>15<br>14<br>13<br>12  | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,2<br>,1<br>,2   | 12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0  | 20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6   | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5   | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8   |
| ESTIMA<br>20<br>30<br>40<br>50<br>60<br>77<br>80<br>90   | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000  | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2  | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0   | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1<br>8,6  | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1                                   | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2   | Pug<br>25<br>20<br>17<br>15<br>14<br>13<br>12<br>11                                    | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4   | 12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6   | 20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0  | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7   | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,3  |
| ESTIMA<br>20<br>30<br>40<br>50<br>60<br>70<br>70<br>80<br>90<br>100  | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000   | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2<br>7,7   | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0<br>14,2   | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>9,7<br>9,1<br>8,6<br>8,1   | 9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1<br>3,9                                      | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2<br>12,5   | Pug<br>25<br>20<br>17<br>15<br>14<br>13<br>12<br>11<br>10                              | ia Basil<br>,5<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4<br>,8   | 12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6<br>5,3  | 20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0<br>8,5   | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7<br>12,0   | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,8<br>9,3<br>8,8                                      |
| ESTIMA<br>20<br>30<br>40<br>50<br>60<br>70<br>88<br>90<br>100<br>200   | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000  | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2<br>7,7<br>5,2                                  | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0<br>14,2<br>9,7                                    | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1<br>8,6<br>8,1<br>5,6                                  | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1<br>3,9<br>2,7                     | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2<br>12,5<br>8,7                                    | Pug<br>25<br>20<br>17<br>15<br>14<br>13<br>12<br>11<br>10<br>7                         | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4<br>,8<br>,5                                     | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6<br>5,3<br>3,7                            | 20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0<br>8,5<br>5,9  | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7<br>12,0<br>8,4                                    | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,8<br>9,3<br>8,8<br>6,1                               |
| ESTIMA<br>20<br>30<br>40<br>50<br>60<br>70<br>80<br>80<br>90<br>100<br>200<br>300                                      | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000   | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2<br>7,7<br>5,2<br>4,2                           | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0<br>14,2<br>9,7<br>7,8                             | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1<br>8,6<br>8,1<br>5,6<br>4,6                           | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1<br>3,9<br>2,7                     | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2<br>12,5<br>8,7<br>7,0                             | Pug<br>25<br>20<br>17<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>6                    | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4<br>,8<br>,5<br>,0                         | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6<br>5,3<br>3,7<br>2,9                     | 20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0<br>8,5<br>5,9<br>4,7                                       | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7<br>12,0<br>8,4<br>6,8                             | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,3<br>8,8<br>6,1<br>4,9                               |
| ESTIMA<br>20<br>30<br>40<br>55<br>50<br>70<br>80<br>70<br>80<br>100<br>200<br>300<br>300<br>400                        | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000  | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2<br>7,7<br>5,2<br>4,2<br>3,6                    | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0<br>14,2<br>9,7<br>7,8<br>6,7                      | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1<br>8,6<br>8,1<br>5,6<br>4,6<br>3,9                    | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1<br>3,9<br>2,7                     | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2<br>12,5<br>8,7<br>7,0<br>6,1                      | Pug<br>25<br>20<br>17<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>6<br>5               | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4<br>,8<br>,5<br>,0<br>,2                         | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6<br>5,3<br>3,7<br>2,9<br>-                | Calabria<br>20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0<br>8,5<br>5,9<br>4,7<br>4,0                    | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7<br>12,0<br>8,4<br>6,8<br>5,8                      | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,3<br>8,8<br>8,9,3<br>8,8<br>6,1<br>4,9<br>4,2        |
| ESTIMA<br>20<br>30<br>40<br>50<br>66<br>70<br>80<br>90<br>100<br>200<br>300<br>400<br>500                              | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000                                     | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2<br>7,7<br>5,2<br>4,2<br>3,6<br>3,1             | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0<br>14,2<br>9,7<br>7,8<br>6,7<br>5,9               | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1<br>8,6<br>8,1<br>5,6<br>4,6<br>3,9<br>3,5             | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1<br>3,9<br>2,7<br>-                | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2<br>12,5<br>8,7<br>7,0<br>6,1<br>5,4               | Pug<br>25<br>20<br>17<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>6<br>5<br>5          | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4<br>,8<br>,5<br>,0<br>,2<br>,6<br>,2<br>,5       | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6<br>5,3<br>3,7<br>2,9<br>-                | Calabria<br>20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0<br>8,5<br>5,9<br>4,7<br>4,0<br>3,6             | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7<br>12,0<br>8,4<br>6,8<br>5,8<br>5,2               | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,3<br>8,8<br>8,9,3<br>8,8<br>6,1<br>4,9<br>4,2<br>3,8 |
| ESTIMA<br>20<br>30<br>40<br>50<br>66<br>70<br>80<br>99<br>100<br>200<br>300<br>400<br>500<br>756                       | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000                   | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2<br>7,7<br>5,2<br>4,2<br>3,6<br>3,1<br>2,5      | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0<br>14,2<br>9,7<br>7,8<br>6,7<br>5,9<br>4,8        | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1<br>8,6<br>8,1<br>5,6<br>4,6<br>3,9<br>3,5<br>2,8      | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1<br>3,9<br>2,7<br>-                | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2<br>12,5<br>8,7<br>7,0<br>6,1<br>5,4<br>4,4        | Pug<br>25<br>20<br>17<br>14<br>13<br>12<br>11<br>10<br>7<br>6<br>5<br>4<br>3           | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4<br>,8<br>,5<br>,0<br>,2<br>,6<br>,7<br>,7       | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6<br>5,3<br>3,7<br>2,9<br>-<br>-           | 20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0<br>8,5<br>5,9<br>4,7<br>4,0<br>3,6<br>2,9                  | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7<br>12,0<br>8,4<br>6,8<br>5,8<br>5,2<br>4,2        | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,3<br>8,8<br>6,1<br>4,9<br>4,2<br>3,8<br>3,1          |
| ESTIMA<br>20<br>30<br>40<br>50<br>66<br>67<br>70<br>80<br>90<br>100<br>200<br>300<br>300<br>400<br>500<br>750<br>1.000 | ATES 0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000 | Marche<br>18,8<br>15,0<br>12,8<br>11,3<br>10,2<br>9,4<br>8,7<br>8,2<br>7,7<br>5,2<br>4,2<br>3,6<br>3,1<br>2,5<br>- | Lazio<br>33,8<br>27,2<br>23,3<br>20,6<br>18,7<br>17,2<br>16,0<br>15,0<br>14,2<br>9,7<br>7,8<br>6,7<br>5,9<br>4,8<br>4,1 | Abruzzo<br>18,7<br>15,1<br>13,0<br>11,6<br>10,6<br>9,7<br>9,1<br>8,6<br>8,1<br>5,6<br>4,6<br>3,9<br>3,5<br>2,8<br>- | Molise<br>9,5<br>7,6<br>6,5<br>5,7<br>5,2<br>4,7<br>4,4<br>4,1<br>3,9<br>2,7<br>-<br>-<br>-<br>- | Campania<br>29,1<br>23,5<br>20,2<br>18,0<br>16,4<br>15,1<br>14,1<br>13,2<br>12,5<br>8,7<br>7,0<br>6,1<br>5,4<br>4,4<br>3,7 | Pug<br>25<br>20<br>17<br>14<br>13<br>12<br>11<br>10<br>7<br>6<br>5<br>4<br>4<br>3<br>3 | ia Basil<br>,5<br>,5<br>,6<br>,6<br>,6<br>,2<br>,1<br>,2<br>,4<br>,8<br>,5<br>,0<br>,2<br>,6<br>,7<br>,2 | icata (<br>12,6<br>10,1<br>8,7<br>7,7<br>7,0<br>6,4<br>6,0<br>5,6<br>5,3<br>3,7<br>2,9<br>-<br>-<br>-<br>- | Calabria<br>20,1<br>16,2<br>13,8<br>12,3<br>11,1<br>10,3<br>9,6<br>9,0<br>8,5<br>5,9<br>4,7<br>4,0<br>3,6<br>2,9<br>- | Sicilia<br>28,0<br>22,6<br>19,5<br>17,3<br>15,7<br>14,5<br>13,5<br>12,7<br>12,0<br>8,4<br>6,8<br>5,8<br>5,2<br>4,2<br>3,6 | Sardegna<br>20,3<br>16,4<br>14,1<br>12,6<br>11,4<br>10,6<br>9,8<br>9,3<br>8,8<br>6,1<br>4,9<br>4,2<br>3,8<br>3,1          |

| ESTIMATE   | S Italy   | North   | North-<br>west  | ord-east C   | entre   | South   | Sout<br>(mainland   | h Soutl<br>I) (island   | n A1   | A2  | B1  | B2   | В3  | B4  |
|--|---|---|---|--|---|---|---|---|--|---|---|--|---|---|
| 20.00  | 0 37,9  | 37,3  | 36,1  | 33,1   | 32,9  | 29,5  | 28.   | 7 27,8  | 3 35,1   | 34,6  | 23,5  | 32,4   | 31,1  | 29,1  |
| 30.00  | 0 30.0  | 29.4  | 28.5  | 26.0   | 26.1  | 23.6  | 22.9  | 9 22.3  | 3 27.6   | 27.2  | 19.0  | 25.7   | 24.9  | 23.0  |
| 40.00  | 0 25.4  | 24.8  | 24.1  | 22.0   | 22.1  | 20.1  | 19.   | 5 19.1  | 23.2   | 22.9  | 16.3  | 21.9   | 21.2  | 19.4  |
| 50.00  | 0 22.3  | 21.8  | 21.2  | 19.3   | 19.4  | 17.8  | 17.   | 2 16.9  | 20.3   | 20.1  | 14.5  | 19.3   | 18.7  | 17.1  |
| 60.00  | 0 20,0  | 19,6  | 19,1  | 17,3   | 17,5  | 16,1  | 15,   | 6 15,3  | 3 18,2   | 18,0  | 13,2  | 17,4   | 16,9  | 15,3  |
| 70.00  | 0 18,3  | 17,9  | 17,4  | 15,8   | 16,0  | 14,8  | 14,   | 3 14,1  | 16,6   | 16,4  | 12,2  | 15,9   | 15,6  | 14,0  |
| 80.00  | 0 17.0  | 16.5  | 16.1  | 14.6   | 14.8  | 13.7  | 13.   | 3 13.1  | 15.4   | 15.2  | 11.3  | 14.8   | 14.5  | 13.0  |
| 90.00  | 0 15,8  | 15,4  | 15,1  | 13,6   | 13,9  | 12,8  | 12,4  | 4 12,3  | 3 14,3   | 14,2  | 10,7  | 13,8   | 13,5  | 12,1  |
| 100.00   | 0 14,9  | 14,5  | 14,2  | 12,8   | 13,1  | 12,1  | 11,   | 7 11,6  | 3 13,5   | 13,3  | 10,1  | 13,0   | 12,8  | 11,4  |
| 200.00   | 0 10,0  | 9,7   | 9,5   | 8,5  | 8,8   | 8,3   | 8,0   | 0 7,9   | 8,9  | 8,8   | 7,0   | 8,8  | 8,7   | 7,6   |
| 300.00   | 0 7,9   | 7,6   | 7,5   | 6,7  | 7,0   | 6,6   | 6,  | 3 6,4   | 1 7,0  | 6,9   | 5,7   | 7,0  | 6,9   | 6,0   |
| 400.00   | 0 6,7   | 6,4   | 6,3   | 5,7  | 5,9   | 5,6   | 5,4   | 4 5,5   | 5 5,9  | 5,8   | 4,9   | 5,9  | 5,9   | 5,1   |
| 500.00   | 0 5,9   | 5,7   | 5,6   | 5,0  | 5,2   | 5,0   | 4,8   | 8 4,8   | 3 5,2  | 5,1   | 4,3   | 5,2  | 5,2   | 4,4   |
| 750.00   | 0 4,6   | 4,5   | 4,4   | 3,9  | 4,1   | 4,0   | 3,8   | B 3,9   | 9 4,0  | 4,0   | 3,5   | 4,2  | 4,2   | 3,5   |
| 1.000.00   | 0 3,9   | 3,8   | 3,7   | 3,3  | 3,5   | 3,4   | 3,  | 2 3,3   | 3,4  | 3,4   | 3,0   | 3,5  | 3,6   | 3,0   |
| 2.000.00   | 0 2,6   | 2,5   | 2,5   | 2,2  | 2,3   | 2,3   | 2,  | 2 2,3   | 3 2,3  | 2,3   | 2,1   | 2,4  | 2,4   | 2,0   |
| 3.000.00   | 0 2,1   | 2,0   | 2,0   | 1,7  | 1,9   | 1,8   | 1,8   | B 1,8   | 3 1,8  | 1,8   | 1,7   | 1,9  | 1,9   | 1,6   |
| 4.000.00   | 0 1,8   | 1,7   | 1,7   | 1,5  | 1,6   | 1,6   | 1,  | 5 1,6   | 6 1,5  | 1,5   | 1,5   | 1,6  | 1,7   | 1,3   |
| 5.000.00   | 0 1,5   | 1,5   | 1,5   | 1,3  | 1,4   | 1,4   | 1,:   | 3 1,4   | l 1,3  | 1,3   | -   | 1,4  | 1,5   | 1,2   |
| 7.500.00   | 0 1,2   | 1,2   | 1,2   | 1,0  | 1,1   | 1,1   | 1,  | <b>1 1</b> ,1   | l 1,0  | 1,0   | -   | 1,1  | 1,2   | 0,9   |
| 10.000.00  | 0 1,0   | 1,0   | 1,0   | 0,9  | 0,9   | 0,9   | 0,9   | 9.  | - 0,9  | -   | -   | 1,0  | 1,0   | 0,8   |
| 15.000.00  | 0 0,8   | 0,8   | 0,8   | 0,7  | 0,7   | 0,8   | 0,  | 7.  |  | -   | -   | 0,8  | 0,8   | 0,6   |
| 20.000.00  | 0 0,7   | 0,7   | 0,7   | -  | -   | 0,6   |   |   |  | -   | -   | -  | -   | -   |
| 25.000.00  | 0 0,6   | 0,6   | -   | -  | -   | 0,6   |   |   |  | -   | -   | -  | -   | -   |
|  |   | Valle   |   |  |   |   |   |   | Friuli-  |   |   |  |   |   |
| ESTIMATES  | Diamonto  | d'Aosta -   | Lombordi  | Trentino   | - Bol   | 7000  |   |   |  |   | Emilia-   |  |   | م المعالية ال   |
|  | Plemonte  | Vallée<br>d'Aoste   | Lombardia   | Alto Adige   | 9 00  | 20110   | Trento  | Veneto  | Venezia<br>Giulia  | Liguria   | Romagna   | Tosca  | na  | Umbria  |
|  | Plemonte  | Vallée<br>d'Aoste   | Lombardia   | Alto Adigo   |   | 2010  | Trento  | Veneto  | Venezia<br>Giulia  | Liguria   | Romagna   | Tosca  | na  | Umbha   |
| 20.000   | 25,7  | Vallée<br>d'Aoste<br>5,7  | 38,6  | Alto Adigo   | e   | 11,4  | Trento<br>11,7  | Veneto<br>32,2  | Venezia<br>Giulia<br>18,6  | Liguria   | Romagna   | Tosca<br>26  | 5,9   | Umbria<br>16,6  |
| 20.000<br>30.000   | 25,7<br>20,6  | Vallée<br>d'Aoste<br>5,7<br>4,4   | 38,6<br>30,5  | Alto Adige   | 5<br>5  | 11,4<br>9,0   | Trento<br>11,7<br>9,1   | Veneto<br>32,2<br>25,5  | Venezia<br>Giulia<br>18,6<br>14,7  | Liguria<br>20,0<br>15,9   | 31,7<br>24,9  | Tosca<br>26<br>21  | 5,9<br>,3   | 16,6<br>13,0  |
| 20.000<br>30.000<br>40.000   | 25,7<br>20,6<br>17,6  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7  | 38,6<br>30,5<br>25,8  | Alto Adigo<br>12,5<br>9,8<br>8,8,3   |   | 11,4<br>9,0<br>7,6  | Trento<br>11,7<br>9,1<br>7,7  | 32,2<br>25,5<br>21,6  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4  | Liguria<br>20,0<br>15,9<br>13,5   | 31,7<br>24,9<br>21,0  | Tosca<br>26<br>21<br>18  | 5,9<br>,3<br>5,1  | 16,6<br>13,0<br>10,9  |
| 20.000<br>30.000<br>40.000<br>50.000   | 25,7<br>20,6<br>17,6<br>15,5  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3   | 38,6<br>30,5<br>25,8<br>22,6  | Alto Adigo<br>12,5<br>9,6<br>8,8,5<br>6,7,2  |   | 11,4<br>9,0<br>7,6<br>6,7   | Trento<br>11,7<br>9,1<br>7,7<br>6,7   | 32,2<br>25,5<br>21,6<br>19,0  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9  | Liguria<br>20,0<br>15,9<br>13,5<br>11,9   | 31,7<br>24,9<br>21,0<br>18,4  | Tosca<br>26<br>21<br>18<br>15  | 5,9<br>,3<br>5,1<br>5,9   | 16,6<br>13,0<br>10,9<br>9,6   |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9  | 38,6<br>30,5<br>25,6<br>22,6<br>20,4  | Alto Adigo<br>12,5<br>9,8<br>8,8,5<br>7,2<br>4,6,5   |   | 11,4<br>9,0<br>7,6<br>6,7<br>6,0  | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0  | 32,2<br>25,5<br>21,6<br>19,0<br>17,1  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8   | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7   | 31,7<br>24,9<br>21,0<br>18,4<br>16,5  | Tosca<br>26<br>21<br>18<br>15<br>14  | 5,9<br>,3<br>5,1<br>5,9   | 16,6<br>13,0<br>10,9<br>9,6<br>8,6  |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7   | 38,6<br>30,5<br>25,8<br>22,6<br>20,4<br>18,6  | Alto Adigu<br>12,5<br>9,8<br>8,3<br>6,7,2<br>6,5<br>6,5,5  |   | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5   | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5   | 32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0  | 20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8   | 31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1  | Tosca<br>26<br>21<br>18<br>15<br>14<br>13  | 5,9<br>,3<br>5,9<br>5,9<br>5,9  | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8   |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000<br>80.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5  | 38,6<br>30,5<br>25,8<br>22,6<br>20,4<br>18,6<br>17,7  | Alto Adigo<br>12,5<br>3 8,5<br>3 8,5<br>3 7,2<br>4 6,5<br>5 5,5<br>5 5,5<br>5 5,5  |   | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0  | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0  | Veneto<br>32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3   | 20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1  | 31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0  | Tosca<br>26<br>21<br>18<br>15<br>14<br>13  | 5,9<br>,3<br>5,9<br>5,9<br>5,9<br>5,2<br>2,2  | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8<br>7,2  |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000<br>80.000<br>90.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3   | 38,6<br>30,5<br>25,6<br>22,6<br>20,4<br>18,6<br>17,2<br>16,1  | Alto Adigu<br>12,5<br>3 12,5<br>3 8,5<br>3 7,2<br>4 6,5<br>5 5,5<br>5 5, |   | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7   | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7   | Veneto<br>32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7  | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>8,5  | 31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0  | Tosca<br>26<br>21<br>18<br>15<br>14<br>13<br>12<br>11  | 5,9<br>,3<br>5,9<br>5,9<br>5,9<br>5,9<br>5,2<br>2,2<br>2,2  | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8<br>7,2<br>6,7   |
| 20.000<br>30.000<br>40.000<br>60.000<br>70.000<br>80.000<br>90.000<br>100.000  | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2<br>10,6  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3<br>2,1  | 38,6<br>30,5<br>25,8<br>22,6<br>20,4<br>18,6<br>17,2<br>16,7  | Alto Adigu<br>12,5<br>9,8<br>9,8<br>9,8<br>9,8<br>9,8<br>9,8<br>9,8<br>9,8   |   | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4                                  | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4  | Veneto<br>32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5<br>12,7  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7<br>7,3   | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>8,5<br>8,0   | Romagna<br>31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0<br>12,2   | Tosca<br>26<br>21<br>18<br>15<br>14<br>13<br>12<br>11<br>10  | 5,9<br>,3<br>5,9<br>5,9<br>5,9<br>5,2<br>2,2<br>2,2<br>,4   | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8<br>7,2<br>6,7<br>6,3  |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000<br>80.000<br>90.000<br>100.000<br>200.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2<br>10,6<br>7,2   | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3<br>2,1<br>1,4   | 38,6<br>30,7<br>25,8<br>22,6<br>20,4<br>18,6<br>17,2<br>16,7<br>10,7  | Alto Adigu<br>12,5<br>9,6<br>8,7,2<br>6,5<br>5,5,5<br>2,5,5<br>4,8<br>3,2<br>3,2<br>4,8<br>3,2<br>4,8<br>3,2<br>5,5<br>5,5<br>4,8<br>3,2<br>5,5<br>5,5<br>5,5<br>5,5<br>5,5<br>5,5<br>5,5<br>5   |   | 11,4<br>9,0<br>7,6<br>6,7<br>6,7<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9                           | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9                                       | 32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5<br>12,7<br>8,5   | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7<br>7,3<br>4,9  | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>8,5<br>8,0<br>5,4  | 31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0<br>12,2<br>8,1   | Tosca<br>26<br>21<br>18<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>7  | 5,9<br>,3<br>5,9<br>1,4<br>5,9<br>1,4<br>5,2<br>2,2<br>,4<br>0,7  | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>6,7,8<br>7,2<br>6,7<br>6,3<br>4,2                                     |
| 20.000<br>30.000<br>40.000<br>50.000<br>70.000<br>80.000<br>90.000<br>100.000<br>200.000<br>300.000  | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2<br>10,6<br>7,2<br>5,8  | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3<br>2,1<br>1,4   | 38,6<br>30,5<br>25,5<br>22,6<br>20,4<br>18,6<br>17,2<br>16,7<br>15,7<br>10,7<br>8,6   | Alto Adigu<br>5 12,5<br>9,6<br>8,3,5<br>5,7,2<br>6,5,5<br>5,5,5<br>5,5,5<br>4,5<br>3,2<br>0,2,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1  |   | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3                    | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>1,0                         | 32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5<br>12,7<br>8,5<br>6,8  | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7<br>7,3<br>4,9<br>3,8<br>3,8<br>2,2                             | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>8,5<br>8,5<br>8,5<br>8,0<br>5,4<br>4,3                             | Romagna<br>31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0<br>12,2<br>8,1<br>6,4   | Tosca<br>26<br>21<br>18<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>5  | 5,9<br>,3<br>5,9<br>5,9<br>5,9<br>5,4<br>5,2<br>2,2<br>,4<br>5,7<br>7,2<br>5,7  | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>6,7<br>,8<br>7,2<br>6,7<br>6,3<br>4,2<br>3,3                          |
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| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000<br>80.000<br>90.000<br>100.000<br>200.000<br>300.000<br>400.000<br>500.000<br>750.000<br>1.000.000<br>2.000.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2<br>10,6<br>7,2<br>5,8<br>4,9<br>4,4<br>3,5<br>3,0<br>2,0               | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3<br>2,1<br>1,4<br>-<br>-<br>-<br>-                     | 38,6<br>30,5<br>22,6<br>20,4<br>18,6<br>17,2<br>16,7<br>15,7<br>10,7<br>8,6<br>6,7<br>5,5<br>4,7<br>3,5                       | Alto Adigu<br>12,5<br>9,8<br>8,7,2<br>6,5<br>5,5<br>5,5<br>4,5<br>5,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>2,5<br>4,5<br>5,5<br>5,5<br>5,5<br>4,5<br>5,5<br>5,5<br>5  | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5 | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>2,0<br>1,7<br>- | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>1,9<br>1,7<br>1,3<br>-      | Veneto<br>32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5<br>12,7<br>8,5<br>6,8<br>5,7<br>5,0<br>4,0<br>3,4                              | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7<br>7,3<br>4,9<br>3,8<br>3,2<br>2,9<br>2,3<br>1,9<br>2,3<br>1,2 | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>8,5<br>8,0<br>5,4<br>4,3<br>3,7<br>3,2<br>2,6<br>2,2               | Romagna<br>31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0<br>12,2<br>8,1<br>6,4<br>5,4<br>4,7<br>3,7<br>3,1                             | Tosca<br>26<br>21<br>18<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>4<br>4<br>3<br>2<br>2  | 5,9<br>,3<br>,3<br>,1<br>,5<br>,9<br>,4<br>,4<br>,5<br>,2<br>,4<br>,4<br>,7<br>,2<br>,7<br>,9<br>,3<br>,4<br>,9<br>,3<br>,4<br>,9<br>,3<br>,4<br>,5<br>,9<br>,3<br>,3<br>,1<br>,5<br>,9<br>,3<br>,3<br>,1<br>,5<br>,9<br>,3<br>,3<br>,1<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,5<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7<br>,7 | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8<br>7,2<br>6,7<br>6,3<br>4,22<br>3,3<br>2,7<br>2,4<br>1,9<br>1,6   |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000<br>80.000<br>90.000<br>100.000<br>200.000<br>300.000<br>500.000<br>750.000<br>1.000.000<br>2.000.000<br>3 000.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2<br>10,6<br>7,2<br>5,8<br>4,9<br>4,4<br>3,5<br>3,0<br>2,0               | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3<br>2,1<br>1,4<br>-<br>-<br>-<br>-<br>-<br>-           | 38,6<br>30,5<br>25,8<br>22,6<br>20,4<br>18,6<br>17,2<br>16,7<br>10,7<br>8,1<br>6,7<br>5,5<br>4,7<br>3,5<br>2,6                | Alto Adigu<br>12,5<br>9,8<br>8,7,2<br>6,5<br>5,5,7<br>4,5<br>3,2<br>2,5,7<br>4,5<br>3,2<br>2,5,7<br>4,5<br>3,2<br>2,5,7<br>4,5<br>3,2<br>2,5,7<br>4,5<br>3,2<br>2,5<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>4,5<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5   | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5 | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>2,0<br>1,7      | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>1,9<br>1,7<br>1,3<br>-      | Veneto<br>32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5<br>12,7<br>8,5<br>5,7<br>5,0<br>4,0<br>3,4<br>2,3                              | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7<br>7,3<br>4,9<br>3,8<br>3,2<br>2,9<br>2,3<br>1,9<br>1,3        | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>8,5<br>8,0<br>5,4<br>4,3<br>3,7<br>3,2<br>2,6<br>2,2<br>1,5        | Romagna<br>31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0<br>12,2<br>8,1<br>6,4<br>5,4<br>4,7<br>3,7<br>3,1<br>2,1                      | Tosca<br>26<br>21<br>18<br>14<br>13<br>12<br>11<br>10<br>7<br>5<br>4<br>4<br>3<br>2<br>2<br>1<br>1   | 5,9<br>5,3<br>5,9<br>5,4<br>5,2<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7<br>5,7   | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8<br>7,2<br>6,7<br>6,3<br>4,2<br>3,3<br>2,7<br>2,4<br>1,9<br>1,6    |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000<br>80.000<br>90.000<br>100.000<br>200.000<br>500.000<br>750.000<br>1.000.000<br>2.000.000<br>3.000.000<br>4.000.000   | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2<br>10,6<br>7,2<br>5,8<br>4,9<br>4,4<br>3,5<br>3,0<br>2,0<br>1,6        | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3<br>2,1<br>1,4<br>-<br>-<br>-<br>-<br>-<br>-<br>-      | 38,6<br>30,5<br>25,6<br>22,6<br>20,4<br>18,6<br>17,2<br>16,7<br>15,7<br>10,7<br>8,6<br>6,7<br>5,5<br>4,7<br>3,5<br>2,6<br>2,7 | Alto Adigu<br>12,5<br>9,6<br>8,7,2<br>6,5<br>5,5,5<br>4,8<br>3,2<br>2,7<br>9,6<br>9,7<br>9,7<br>9,7<br>9,7<br>9,7<br>9,7<br>9,7<br>9,7   | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5 | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>2,0<br>1,7<br>- | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>1,9<br>1,7<br>1,3<br>-      | Veneto<br>32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5<br>12,7<br>8,5<br>6,8<br>5,7<br>5,0<br>4,0<br>3,4<br>2,3<br>1,8                | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7<br>7,3<br>4,9<br>3,8<br>3,2<br>2,9<br>2,3<br>1,9<br>1,3        | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>1,9<br>8,5<br>8,0<br>5,4<br>4,3<br>3,7<br>3,2<br>2,6<br>2,2<br>1,5 | Romagna<br>31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0<br>12,2<br>8,1<br>6,4<br>5,4<br>4,7<br>3,7<br>3,7<br>3,1<br>2,1<br>1,6<br>6   | Tosca<br>26<br>21<br>18<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>5<br>4<br>4<br>4<br>2<br>2<br>1<br>1<br>10<br>7<br>7<br>5<br>4<br>4<br>4<br>10<br>7<br>7<br>10<br>7<br>7<br>10<br>7<br>7<br>10<br>7<br>10<br>7<br>10 | 5,9<br>3,1<br>5,9<br>4,2<br>2,2<br>4,7<br>5,7<br>5,9<br>3,4<br>5,9<br>9,5<br>3,1<br>5,9<br>9,5<br>3,1<br>5,9<br>9,5<br>3,1<br>5,9<br>9,5<br>3,1<br>5,9<br>9,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1,5<br>1   | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8<br>7,2<br>6,7<br>6,3<br>4,2<br>3,3<br>2,7<br>2,4<br>1,9<br>1,6    |
| 20.000<br>30.000<br>40.000<br>50.000<br>60.000<br>70.000<br>80.000<br>90.000<br>100.000<br>200.000<br>300.000<br>750.000<br>1.000.000<br>2.000.000<br>3.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.0000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.0000<br>5.00000<br>5.00000<br>5.000000<br>5.0000000000 | 25,7<br>20,6<br>17,6<br>15,5<br>14,0<br>12,9<br>12,0<br>11,2<br>10,6<br>7,2<br>5,8<br>4,9<br>4,4<br>3,5<br>3,0<br>2,0<br>1,6<br>1,4 | Vallée<br>d'Aoste<br>5,7<br>4,4<br>3,7<br>3,3<br>2,9<br>2,7<br>2,5<br>2,3<br>2,1<br>1,4<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | 38,6<br>30,5<br>25,6<br>22,6<br>20,4<br>18,6<br>17,2<br>16,7<br>10,7<br>8,6<br>6,7<br>5,9<br>4,7<br>3,5<br>2,6<br>2,7<br>1,6  | Alto Adigu<br>12,5<br>9,6<br>8,8,7<br>6,5<br>5,5<br>5,5<br>4,8<br>3,2<br>2,5<br>9,7<br>4,8<br>3,2<br>1,7<br>2,5<br>1,7<br>2,5<br>1,7<br>2,5<br>1,7<br>2,5<br>1,7<br>2,5<br>1,7<br>2,5<br>1,7<br>1,7<br>1,7<br>1,7<br>1,7<br>1,7<br>1,7<br>1,7  | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5 | 11,4<br>9,0<br>7,6<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>2,0<br>1,7<br>- | Trento<br>11,7<br>9,1<br>7,7<br>6,7<br>6,0<br>5,5<br>5,0<br>4,7<br>4,4<br>2,9<br>2,3<br>1,9<br>1,7<br>1,3<br>-<br>- | Veneto<br>32,2<br>25,5<br>21,6<br>19,0<br>17,1<br>15,6<br>14,5<br>13,5<br>12,7<br>8,5<br>6,8<br>5,7<br>5,0<br>4,0<br>3,4<br>2,3<br>1,8<br>1,5<br>12,7 | Venezia<br>Giulia<br>18,6<br>14,7<br>12,4<br>10,9<br>9,8<br>9,0<br>8,3<br>7,7<br>7,3<br>4,9<br>3,8<br>3,2<br>2,9<br>2,3<br>1,9<br>1,3<br>-   | Liguria<br>20,0<br>15,9<br>13,5<br>11,9<br>10,7<br>9,8<br>9,1<br>8,5<br>8,0<br>5,4<br>4,3<br>3,7<br>3,2<br>2,6<br>2,2<br>2,2<br>1,5 | Romagna<br>31,7<br>24,9<br>21,0<br>18,4<br>16,5<br>15,1<br>14,0<br>13,0<br>12,2<br>8,1<br>6,4<br>5,4<br>4,7<br>3,7<br>3,7<br>3,1<br>2,1<br>1,6<br>1,4 | Tosca<br>26<br>21<br>18<br>15<br>14<br>13<br>12<br>11<br>10<br>7<br>5<br>4<br>4<br>3<br>3<br>2<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,   | 16,6<br>13,0<br>10,9<br>9,6<br>8,6<br>7,8<br>7,2<br>6,7<br>6,3<br>4,2<br>3,3<br>2,7<br>2,4<br>1,6<br>-<br>- |

## Summary 4 – Interpolated percentage values of relative sampling errors for estimates referring to individuals for Italy total, geographical macro-area, type of municipality and region – 2009

| ESTIMATES | Marche | Lazio | Abruzzo | Molise | Campania | Puglia | Basilicata | Calabria | Sicilia | Sardegna |
|-----------|--------|-------|---------|--------|----------|--------|------------|----------|---------|----------|
|           |        |       |         |        |          |        |            |          |         |          |
| 20.000    | 19,6   | 35,7  | 17,9    | 9,3    | 32,0     | 26,8   | 12,5       | 20,8     | 29,2    | 20,3     |
| 30.000    | 15,5   | 28,4  | 14,3    | 7,4    | 25,3     | 21,5   | 9,9        | 16,6     | 23,4    | 16,1     |
| 40.000    | 13,2   | 24,1  | 12,2    | 6,2    | 21,5     | 18,4   | 8,4        | 14,1     | 20,0    | 13,7     |
| 50.000    | 11,6   | 21,2  | 10,8    | 5,5    | 18,9     | 16,3   | 7,4        | 12,4     | 17,8    | 12,1     |
| 60.000    | 10,4   | 19,1  | 9,8     | 4,9    | 17,0     | 14,7   | 6,7        | 11,2     | 16,1    | 10,9     |
| 70.000    | 9,6    | 17,5  | 9,0     | 4,5    | 15,6     | 13,6   | 6,1        | 10,3     | 14,8    | 10,0     |
| 80.000    | 8,9    | 16,2  | 8,3     | 4,2    | 14,4     | 12,6   | 5,7        | 9,5      | 13,8    | 9,3      |
| 90.000    | 8,3    | 15,2  | 7,8     | 3,9    | 13,5     | 11,8   | 5,3        | 8,9      | 12,9    | 8,7      |
| 100.000   | 7,8    | 14,3  | 7,4     | 3,7    | 12,7     | 11,2   | 5,0        | 8,4      | 12,2    | 8,2      |
| 200.000   | 5,2    | 9,6   | 5,0     | 2,4    | 8,5      | 7,7    | 3,4        | 5,7      | 8,4     | 5,5      |
| 300.000   | 4,2    | 7,6   | 4,0     | 1,9    | 6,8      | 6,1    | 2,7        | 4,5      | 6,7     | 4,4      |
| 400.000   | 3,5    | 6,5   | 3,4     | -      | 5,7      | 5,3    | 2,3        | 3,8      | 5,8     | 3,7      |
| 500.000   | 3,1    | 5,7   | 3,0     | -      | 5,0      | 4,7    | 2,0        | 3,4      | 5,1     | 3,3      |
| 750.000   | 2,5    | 4,5   | 2,4     | -      | 4,0      | 3,7    | 1,6        | 2,7      | 4,1     | 2,6      |
| 1.000.000 | 2,1    | 3,8   | 2,1     | -      | 3,4      | 3,2    | -          | 2,3      | 3,5     | 2,2      |
| 2.000.000 | 1,4    | 2,6   | 1,4     | -      | 2,3      | 2,2    | -          | 1,5      | 2,4     | 1,5      |
| 3.000.000 | -      | 2,1   | -       | -      | 1,8      | 1,8    | -          | -        | 1,9     | -        |
| 4.000.000 | -      | 1,7   | -       | -      | 1,5      | 1,5    | -          | -        | 1,7     | -        |
| 5.000.000 | -      | 1,5   | -       | -      | 1,3      | 1,3    | -          | -        | 1,5     | -        |

### Summary 4 (continued) – Interpolated percentage values of relative sampling errors for estimates referring to individuals for Italy total, geographical macro-area, type of municipality and region – 2009

#### 3.4 Examples of calculation of sampling errors

#### 3.4.1 Examples relating to estimates of households

Example 1

In 2009, 389,000 households in Piedmont owned between 26 and 50 books.

We seek the level of estimate closest to 389,000 in the column corresponding to the Piedmont region in Summary 3.

The relative percentage error of the estimate under consideration, for Piedmont, is 5.3%.

and the extremes of the confidence interval are:

389,000 - (1.96 x 20,617) = 348,591 389,000 + (1.96 x 20,617) = 429,409

#### Example 2

Considering the previous estimate, more precise values can be obtained for the sampling error by using linear interpolation of the two consecutive levels of estimation between which the value of the estimate falls. These levels are 300,000 and 400,000, which correspond to the percentage values 6.2% and 5.3%.

The relative error corresponding to 389,000 is

| $\sigma(389,000) = 6.2 - \{ [(6.2 - 5.3) / (400,000 - 300) ] \}$ | $(000)$ ] x (389,000 - 300,000) } = 5.4%                                   |
|--|--|
| The corresponding absolute error is:                             | 0.054 x 389,000= 21,006  |
| and the extremes of the confidence interval are:                 | 389,000 - (1.96 x 21,006) = 347,828<br>389,000 + (1.96 x 21,006) = 430,172 |

Example 3

The error can be calculated directly by means of the interpolating function

$$\hat{\varepsilon}(\hat{Y}) = \sqrt{\exp(a + b \log(\hat{Y}))}$$

whose parameters, which are provided in Summary 2 at the Piedmont row, are the following:

$$a = 7.646708797$$
  $b = -1.047541519$ 

For  $\hat{Y} = 389,000$  we obtain

$$\hat{\varepsilon}(\hat{Y}) = \sqrt{\exp(7.646708797 - 1.047541519 \times \log(389,000))} = 0.054.$$

The relative percentage error is thus 5.4% and the absolute error and confidence interval are calculated in exactly the same way as in examples 1 and 2.

#### 3.4.2 Examples regarding estimates of individuals

#### Example 1

In 2009, 1,586,000 people in Italy in the 20-24 age class had read at least one book in the 12 months prior to the interview.

We seek the level of estimate closest to 1,586,000 in the first column of Summary 4 for the Italy total.

The relative percentage error of the estimate under consideration is 2.6 %.

| The absolute error is thus:                      | $\sigma$ (1,586,000) = 0.026 x 1,586,000 = 41,236 |
|--|---|
| and the extremes of the confidence interval are: | 1,586,000 - (1.96 x 41,236) = 1,505,177           |
|  | 1,586,000 + (1.96 x 41,236) = 1,666,823           |

#### Example 2

Considering the previous estimate, more precise values can be obtained for the sampling error by using linear interpolation of the two consecutive levels of estimation between which the value of the estimate falls. These levels are 1,000,000 and 2,000,000, which correspond to the percentage values 3.9% and 2.6%.

The relative error corresponding to 1,586,000 is

 $\sigma$  (1,586,000) = 3.9 - (3.9 - 2.6) / (2,000,000 - 1,000,000) x (1,586,000 - 1,000,000) = 3.1%

| The corresponding absolute error is:             | 0.031 x 1,586,000 = 49,166                     |
|--|--|
| and the extremes of the confidence interval are: | $1,586,000 - (1.96 \times 49,166) = 1,489,635$ |
|  | 1,586,000 + (1.96  x  49,166) = 1,682,365      |

Example 3

The error can be calculated directly by means of the interpolating function

$$\hat{\epsilon}(\hat{\Upsilon}) = \sqrt{\exp(a + b \log(\hat{\Upsilon}))}$$

whose parameters, which are provided in Summary 2 at the Italy row, are the following:

$$a = 9.547620201$$
  $b = -1.159970875.$ 

For  $\hat{Y} = 1,586,000$  we obtain

$$\hat{\varepsilon}(\hat{Y}) = \sqrt{\exp(9.547620201 - 1.159970875 \times \log(1,586,000))} = 0.030$$

The relative percentage error is thus 3.0% and the absolute error and confidence interval are calculated in exactly the same way as in examples 1 and 2.