ESTIMATORS

The estimator of the total of a characteristic X in domain m is given by:

$$\hat{X}_m = \sum_{j \in m} X_j \cdot F_j \,,$$

where X_j is the value of the characteristic X from questionnaire j belonging to domain m.

F_j is the elevation factor from questionnaire j that is calculated as follows:

    a) If the company j was selected in stratum h and according to the questionnaire it is included within the different stratum k, then:

$$F_j \;=\; \frac{N_h}{n_h} \quad (1)$$

    b) If the company j continues to belong to the same stratum h, where it was selected, then:

$$F_j \;=\; \frac{\hat{N}_h^{*}}{n_h^{*}} \quad (2)$$

    c) In specific cases that are appropriately specified :

$$F_j = 1 \quad (3)$$

Variables used

N_h , number of companies in stratum h.

n_h , number of companies selected in stratum h.

n^{*}_h, number of companies that have replied, selected in stratum h and that have not changed stratum.

$$\hat{N}_h^{*} \;=\; N_h \left(1 - \frac{n_h^{''}}{n_h}\right) - \sum_{k \neq h} \sum_{j=1}^{n_h^{k}} F_j$$

being $n_h^{''}$ the number of companies selected in stratum h and which have the following incidents: temporal closure or they are duplicated.

n^{k}_h, number of companies selected in stratum h, and which according to the questionnaire are in the different stratum k.

Sample errors are also calculated by expressing the variation of the estimator of the total stratified sample.