Annual survey on constructions

TYPE

Sampling survey. The sampling method used is the single stratified random sampling. The enterprises included in the survey are stratified as following:

- By region - NUTS II
- By Class of NACE Rev.1.1 (4digit level of economic activity), within each administrative region
- By size class of the enterprise. In each of the major strata (major stratum = Geography x Economic Activity), the enterprises were stratified into L = 5 size classes, according to their size, determined by their annual turnover in the business register, as follows.

Size Class	Turnover (in €)
Class 1	1 – 89.999
Class 2	90.000 – 249.999
Class 3	250.000 – 1.499.999
Class 4	1.500.000 – 9.999.999
Class 5	10.000.000+

Let h be one of the final strata (Final stratum = Geography X Economic Activity X Size Class). The final strata that contain size classes with L = 4,5, are census strata (take-all).

Survey characteristics estimation

a. Symbols

Defining with index i the selection order of an enterprise from the sampling frame in the stratum h and symbolizing with the y one of the survey characteristics, we can define the following:

y_{hi} : The value of the survey characteristic y of the enterprise of order i in the stratum h

Y_h : The sum of the values of the characteristic y for all enterprises falling into the survey and belonging to the stratum h

Y : The sum of the values of the characteristic y for all enterprises under the survey of the stratum h. That is: $Y = \sum_h Y_{hi}$

N_h : The number of all enterprises falling into the survey and belonging to the stratum h

n_h : The sample size in the stratum h

m_h : The number of respondent units in the stratum h

r_h: Response rate in the stratum h ($r_h = \dfrac{m_h}{n_h}$)

w_{hi} : The extrapolation factor of the enterprise of order i belonging to the stratum

h , ($w_{hi} = 1/$(Probability of selected unit i in stratum h) $\cdot r^{-1} = \dfrac{N_h}{n_h} \cdot \dfrac{n_h}{m_h} = \dfrac{N_h}{m_h}$)

b. Estimation process

The estimation of Y_h and Y is given by the following formulas:

$$\hat{Y}_h = \frac{N_h}{m_h} \sum_{i=1}^{m_h} y_{hi}$$

$$\hat{Y} = \sum_h \hat{Y}_h$$

c. Variance estimation

The variance estimation of $\hat{Y}_h$ and $\hat{Y}$ is given by:

$$V(\hat{Y}_h) = \frac{N_h(N_h - m_h)}{m_h} S_h^2,$$

Where:

$$S_h^2 = \frac{1}{m_h - 1}\left[\sum_{i=1}^{m_h} y_{hi}^2 - \frac{\left(\sum_{i=1}^{m_h} y_{hi}\right)^2}{m_h} \right],$$

$$V(\hat{Y}) = \sum_h V(\hat{Y}_h)$$

The coefficient of variation (%) of total estimation $\hat{Y}$ is given by:

$$CV(\hat{Y}) = \frac{\sqrt{V(\hat{Y})}}{\hat{Y}} * 100$$

The coefficients of variation (%) of the basic survey characteristics are depicted at the following tables by economic activity, employment size class and region:

Table 1: *Coefficient of variation (%) by economic activity*

NACE Rev. 1	Number of enterprises	Turnover	Value - added at factor cost	Personnel costs	Wages and salaries	Gross investments in tangible goods	Number of persons employed	Number of employees
F	-	2,7	4,2	0,9	3,5	9,7	1,8	2,7
45	-	2,7	4,2	0,9	3,5	9,7	1,8	2,7
451	0,0	1,9	3,2	1,1	4,4	19,3	2,7	4,4
452	0,0	3,4	5,5	1,1	4,6	12,0	2,7	3,6
453	0,0	1,6	3,1	1,1	4,3	22,1	2,9	4,7
454	0,0	1,9	4,1	1,9	6,9	32,7	3,7	7,7
455	0,0	2,5	3,8	1,2	4,4	13,5	2,8	4,1

Table 2: *Coefficient of variation (%) by economic activity and employment size class*

NACE3 Rev. 1	Employment size class	Number of enterprises	Turnover	Value - added at factor cost
451	<= 19.00	0,0	48,6	27,2
451	19.01 - 249.00	0,0	3,1	2,6
451	249.01 - 999.00	0,0	13,1	17,1
451	999.01+	0,0	0,0	0,0
452	<= 19.00	0,0	42	24,7
452	19.01 - 249.00	0,0	3,5	3,1
452	249.01 - 999.00	0,0	6,8	7,5
452	999.01+	0,0	0,0	0,0
453	<= 19.00	0,0	58,9	33,1
453	19.01 - 249.00	0,0	5,9	5,2
453	249.01 - 999.00	0,0	34,6	7,3
453	999.01+	0,0	0,0	0,0
454	<= 19.00	0,0	89,9	49,7
454	19.01 - 249.00	0,0	4,6	3
454	249.01 - 999.00	0,0	0,0	0,0
454	999.01+	0,0	0,0	0,0
455	<= 19.00	0,0	39,5	22,9
455	19.01 - 249.00	0,0	4,5	3,3
455	249.01 - 999.00	0,0	0,0	0,0
455	999.01+	0,0	0,0	0,0

Table 3: *Coefficient of variation (%) by economic activity and region*

NACE2 Rev. 1	Region (NUTS II)	Number of local units	Wages and salaries
45	Eastern Macedonia & Thrace	0,0	3,6
45	Central Macedonia	0,0	3,4
45	Western Macedonia	0,0	5
45	Thessaly	0,0	3,6
45	Epirus	0,0	7,8
45	Ionian islands	0,0	9,5
45	Western Greece	0,0	6,3
45	Central Greece	0,0	6,5
45	Peloponnese	0,0	33,1
45	Attica	0,0	4,4
45	North Aegean	0,0	6,8
45	South Aegean	0,0	12,6
45	Crete	0,0	5,5