

*March 2005*

## **Structure of Earnings Survey for the year 2002**

**Implementation of the Commission Regulation 72/2002  
and therefore Council Regulation 530/1999  
and Commission Regulation 1916/2000**

### ***Quality Report***

**ITALY**

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## INTRODUCTION

In accordance with the *Commission Regulation No 72/2002 of 16 January 2002 concerning quality evaluation of Structural Statistics on Earnings*, Istat provides Eurostat with required information on *Quality Indicators and Specific Methodological Notes* concerning Structure of Earnings Survey *year of reference 2002*.

The framework of the quality report is as follows: descriptive analysis of each applicable quality evaluation criteria<sup>1</sup> and specific methodological notes are reported in the text, while required tables with quality indicators on Accuracy and Response are described in Annex I.

## PART I – QUALITY EVALUATION CRITERIA

### 1. ACCURACY

#### 1.1 SAMPLING ERRORS

Variance estimation and therefore coefficient of variation have been calculated for the two interest variables “monthly earnings” and “monthly hours” providing separate data for (a) full-time employees, and (b) part-time employees, broken down by:

- NACE Rev.1 section and by sex,
- occupation (ISCO-88 at the 1-digit level) and by sex,
- age band (15-24, 25-54, 55-64, ≥ 65 years old) and by sex.

The following tables are transmitted in Annex 1:

- Table1a - Structure of Earnings Survey, year 2002 - Monthly earnings: coefficient of variation by Nace rev.1 section and sex - full time employees
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<sup>1</sup> As requested in Reg. 72/2002

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## 1.2 NON SAMPLING ERRORS

- **Coverage and list errors:**

Target population on which in the survey has been designed, is defined by ASIA (Statistical Register on Active Business) Register, year of reference 2001; It consists of a statistical Business Register resulting from the logical and physical combination of data resident in statistical and administrative sources (Tax Register, Register of Enterprises and Local Units provided by the Chambers of Commerce, Social Security Register, Work Accident Insurance Register, Register of the Electric Power Board) treated with statistical methodologies. As a consequence this List could be the only possible misclassifications origin. Out of scope units (2% of the sample), added to wrong addresses (5.9% of the sample) and to change of status (1.5% of the sample) sum up to a final list error of 9.4% of total responding units. No replacement has been performed.

- **Measurement errors**

Measurement errors have been detected with selective editing procedures including scatter plot and istogramms of monthly hours, gross monthly and annual earnings. Finally deterministic imputation have been used. Total measurement errors effected only 0.2 of the records, resulting to be negligible.

- **Non response errors**

- **Unit response rate**

First level unit (business) response rates by economic activity, size class and macroregion have been calculated as “ valid usable returning questionnaires “ divided by “ mailed questionnaires” . Results are presented in Annex 1 according to the following list:

- Table 7 - Structure of Earnings Survey - year 2002 - Response rate by Nace rev.1 division (two digit)
- Table 8 - Structure of Earnings Survey - year 2002 - Response rate by Nace rev.1 division and size class
- Table 9 - Structure of Earnings Survey - year 2002 - Response rate by Nace rev.1 division and macro-region (Nuts1)

- **Item response rate**

Item response rate has been calculated for interest variables monthly hours, monthly earnings, and annual earnings; prospect 1 show absolute figures and percentage. Around 1800 (2.36%) record has a missing value in one of those variables. More in details, 1.39% of the record had a non response on item monthly hours (1141 occurrences), while for data on earnings the percentage was less then 0.9%.

**Prospect 1 - Interest variables monthly hours, monthly earnings, and annual earnings - Item non response: absolute figures and percentage**

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<b>Number of item non response</b>	<b>Number of occurrences</b>	<b>Percentage</b>
0	80122	97.74
1	1307	1.59
2	354	0.43
3	192	0.23
<b>total number of records</b>	<b>81975</b>	<b>100</b>

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## **2. TIMELINESS AND PUNCTUALITY**

Questionnaire have been sent on 7 July 2003 (official date); data collection went on till June 2004; delay mainly due to the difficulty of getting back questionnaire from big enterprises.

Due to the two-stages sample design and the impossibility of integrating total non response, special follow-up of non respondent units was required: personal contact, telephone reminders, missions ecc. Official delivery of updated microdata to Eurostat dated October 2004.

## **3. ACCESSIBILITY**

Online dissemination of SES 2002 main results is available in the Istat web site [www.istat.it](http://www.istat.it) , under the following title: “ Dipendenti, ore lavorate e retribuzioni nelle imprese dell’ industria e dei servizi. Anno 2002” Statistica in Breve. Publication of detailed tables is forecasted in the next months in the “ Collana Informazioni” . No results are sent to reporting units included in the sample.

## **3. COMPARABILITY**

### **Statistical units**

In derogation to Council Reg.530/99 the compilation of statistics is based only on enterprises.

## **5. COMPLETENESS**

No restriction on NACE coverage was performed. All mandatory variables have been surveyed and provided to Eurostat.

## **PART II - SPECIFIC METHODOLOGICAL NOTES**

### **1. GENERAL INFORMATION**

- **Introduction**

The first Structure of Earnings Survey took place in Istat for reference year 1995 in all sectors of economic activity from C to K.

In order to improve the performance of the editing process in terms of quality, timeliness and enterprise burden reduction in 1999 Istat coordinated a Commission of Experts to study the information value of the two forecoming surveys on Structure of Labour Cost (2000) and Structure of Earnings (2002).

The SES for the reference year 2002 (conducted in 2003-2004) covers NACE rev.1 Sections C to K for enterprises employing more than 9 persons. A pilot Survey on three key sectors of Italian economy, namely Textile, Retail trade and Services to business, for micro-enterprises (business with at least 1 employee to 9 employees) has been carried out to test the burden and quality of results of extension of SES to micro-enterprises; results for this pilot survey will be ready soon in specific final report.

In derogation to Council reg.530/99 the compilation of statistics is based only on enterprises. SES will be carried out every 4 years, starting with the year 2002.

- **Sources**

The source of data on Structure of earnings is the SES 2002 survey. It consists of a two stage survey: sample survey of enterprises employing more than 9 persons (a sample of employees in a sample of enterprises), and a total survey for “big enterprises” with 250 employees and more (a sample of employees was drawn too).

Anyway both administrative (i.e business register for sampling) and statistical auxiliary sources of information (other Istat data base such as processed social security files) have been used in different steps of the procedure in order to optimise the quality of final results and the efficiency of the editing and imputation process.

- **Reference period**

Structure of Earning Survey refers to year 2002 for annual variables and to Month of October 2002 for monthly data in line with Commission Reg. 1916/2000.

- **Statistical unit**

In derogation to Council reg.530/99 the compilation of statistics is based only on enterprises.

- **Scope of the survey**

SES 2002 covers all sectors of economic activity from C to K for business with at least 9 employees..

- **Variables and definitions**

Each variable is defined according to Commission Regulation 1916/2000.

- **Improvements proposed for Structure of Earnings Survey 2006**

Improvements for the following SES Survey are under study, with special reference to the extension to business with less than 10 employees.

- **Dissemination of national data on quality by Eurostat**

No national data on quality shall be published without the agreement of Istat.

## 2. SURVEY STRATEGY

- **Sample design, selection procedure, stratification and size of the sample**

The Structure of Earnings survey sample design is based on a two stage sample; first level units consist of a stratified sample of enterprises with 10 or more employees, second level units consist of random simple sample of employees.

The first level sample list was drawn from ASIA (italian business register) 2001: the target population (Universe) consists of around 152000 units (of which 2438 enterprises count for 250 or more employees) and 7000000 employees.

A stratified sample has been studied for enterprises with 10 to 249 employees, which fulfils the bond of 3% for coefficient of variation of a trasformed function of monthly gross earning per employee.

Strata consisted in the combination of 47 2-digit economics activities, 4 employees size-class, and 11 nuts1 region. Probability proportional to size selection has been drawn over a total of around 1900 strata. Multivariate allocation procedures fulfilling accuracy and precision of estimates for each study domain gave the number of units to be selected in each strata.

Full survey is carried out among enterprises with 250 and more employees (2438).

Where possible, an increase of 30% of sample was performed in order to prevent the negative effect of total non-response. Definitive first level sample includes 19032 businesses.

The number of second level units (employees) to be selected in each enterprise is proportional to the size of the enterprise ( from a minimun of 5 to 100 employees). Business have been trained on how to randomly select the requested number of employees. Expected numbers of second level units was 160330.

In the following Prospects 2 and 3 namely Frame and Sample are described by broad Nace rev.1 section of economic activity and employees class.

*Prospect 2 - SES 2002 - Frame: population by Nace rev.1 section and employees class*

Nace rev.1	employees class					total
	10 - 49	50-249	250-499	500-999	1000 and more	
<b>C</b>	744	55	2	1	1	803
<b>D</b>	64985	9901	893	337	215	76331
<b>E</b>	287	124	24	16	19	470
<b>F</b>	16692	1068	57	19	10	17846
<b>G</b>	21533	1947	149	65	58	23752
<b>H</b>	6844	555	47	18	20	7484
<b>I</b>	7092	1299	182	71	51	8695
<b>J</b>	1163	461	82	54	54	1814
<b>K</b>	12075	2212	302	119	76	14784
<b>Total</b>	131415	17622	1738	700	504	151979

*Prospect 3 - SES 2002 - Sampled units by Nace rev.1 section and employees class*

Nace rev.1	employees class					total
	10 - 49	50-249	250-499	500-999	1000 and more	
C	290	54	2	1	1	348
D	6067	3079	893	337	215	10591
E	218	120	24	16	19	397
F	341	226	57	19	10	653
G	941	566	149	65	58	1779
H	300	199	47	18	20	584
I	876	530	182	71	51	1710
J	493	248	82	54	54	931
K	1079	463	302	119	76	2039
<b>Total</b>	10605	5485	1738	700	504	19032

- **Response rate**

The effective response rate taking into account only the valid returning questionnaire is about 46.3% (Prospect 5), representing 54.1 of total expected employees.

First level Respondent Units by Nace rev.1 section and employees class are showed in Prospect 4.

*Prospect 4 - SES 2002 - Respondent units by Nace rev.1 section and employees class absolute figures*

Nace rev.1	employees class					total
	10 - 49	50-249	250-499	500-999	1000 and more	
C	145	24	.	1	.	170
D	2687	1404	497	217	120	4925
E	94	66	12	11	8	191
F	175	96	21	10	1	303
G	498	242	69	34	29	872
H	134	80	17	5	5	241
I	361	206	87	29	24	707
J	291	151	48	41	30	561
K	467	192	101	57	30	847
<b>Total</b>	4852	2461	852	405	247	8817



*Prospect 5- SES 2002 - Response rate by Nace rev.1 section and employees class - percentage*

Nace rev.1	employees class					total
	10 - 49	50-249	250-499	500-999	1000 and more	
<b>C</b>	50,0	44,4	.	100,0	.	48,9
<b>D</b>	44,3	45,6	55,7	64,4	55,8	46,5
<b>E</b>	43,1	55,0	50,0	68,8	42,1	48,1
<b>F</b>	51,3	42,5	36,8	52,6	10,0	46,4
<b>G</b>	52,9	42,8	46,3	52,3	50,0	49,0
<b>H</b>	44,7	40,2	36,2	27,8	25,0	41,3
<b>I</b>	41,2	38,9	47,8	40,8	47,1	41,3
<b>J</b>	59,0	60,9	58,5	75,9	55,6	60,3
<b>K</b>	43,3	41,5	33,4	47,9	39,5	41,5
<b>Total</b>	45,8	44,9	49,0	57,9	49,0	46,3

- **Handling of non-response**

- **Unit no-response**

Where possible an over-sampling of 30% has been considered to prevent from unit non-response. So as to minimize the non response rate, special telephone lines were set up to help information providers in answering the questions; one written reminder together with a new copy of the questionnaire was sent out two months later, while special follow-up of major enterprises has been carried out to ensure minimum response in “ critical cells” ; nearly all business with 250 or more employees which had not yet responded received telephone calls.

Reweighting with post stratification model has been adopted to deal with unit non-response considering ASIA business register as it stood on year 2002.

- **Item non response**

Key variables on monthly and annual earnings have been estimated according to a deterministic model based on auxiliary variables available from Social Security data base; auxiliary variables consisted in the average monthly and annual earning by position in employment in the business.



# Structure of Earnings Survey for the year 2002

Implementation of the Commission Regulation 72/2002  
and therefore Council Regulation 530/1999  
and Commission Regulation 1916/2000

## *Quality Report – Annex I*

ITALY

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