



**NATIONAL INSTITUTE OF STATISTICS
ROMANIA**

**QUALITY REPORT ON
LABOUR COST SURVEY
2004**

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

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Summary

	Page
1. Relevance	
1.1. Summary of core users	4
1.2. Description of users needs	4
1.3. Satisfaction of users needs	6
1.4. Completeness	7
2. Accuracy	
2.1. Sampling errors	9
2.2. Non-sampling errors	10
2.2.1 Coverage errors	10
2.2.2 Measurement errors	11
2.2.3 Non-response errors	14
2.2.4 Model assumption errors	17
3. Punctuality and timeliness	
3.1. Punctuality	18
3.2. Timeliness	18
4. Accessibility and clarity	
4.1. Accessibility	20
4.2. Clarity	21
5. Comparability	
5.1. Geographical comparability	22
5.2. Comparability over time	23
6. Coherence	26

1. RELEVANCE

1.1. Summary of core users

The main Labour Cost Survey data users may be grouped as following:

(i) internal users:

- *governmental bodies*: Ministry of Labour, Social Solidarity and Family, Ministry of Public Finances, National Commission for Prognosis, National Agency for Employment, Ministry of Education and Research, National Council for Adult Education and Training, Ministry of Public Health;
- *employers and employers' associations*;
- *trade unions*;
- *professional associations*;
- *research institutes and universities*: Research Institute of National Economy, Research Institute for Labour Force, Research Institute for Education, Romanian Academy, Academy for Economic Studies etc.
- *mass-media*;
- *students, doctorates*.

(ii) external users:

- European Union and international organisations: Eurostat, ILO, OECD, UNDP, World Bank, IMF;
- foreign research institutes;
- foreign employers.

1.2. Description of users needs

(i) internal users:

The Labour Cost Survey outcomes, in relation with the information provided by other surveys, are used by policy makers in establishing the actions and measures for economic development strategies as well as for implementing the programs on active measures for reducing the unemployment and on remuneration system.

- ✓ Ministry of Labour, Social Solidarity and Family and Ministry of Public Finances are interested in the structure of total labour costs and of the direct costs in relation to the policies for improvements of the net remuneration by reducing the taxes and the compulsory contributions paid by the employee and by the employer.
- ✓ Same Ministries together with the National Commission for Prognosis pay a special attention to the structure of indirect labour costs. Several strategies were already applied for reducing some contributions that the enterprises have to pay by creating and increasing in exchange the number of jobs within the unit.

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

- ✓ Ministry of Labour, Social Solidarity and Family, Ministry of Public Finances and National Commission for Prognosis also analyse the Labour Cost Survey data provided by regions (NUTS3). The information is used to measure the development level of different regions and to build up the strategies of supporting and improving the economic and social welfare of the poorest areas.
 - ✓ Based on the Labour Cost Survey results of the last years, Ministry of Labour, Social Solidarity and Family and National Agency for Employment have developed and implemented special programs with the aim of unemployment decreasing by offering special reductions on taxation and providing subsidies to the enterprises that would employ unemployed persons.
 - ✓ The employers that employed graduates received special advantages (legal acts entered into force proposed by Ministry of Education and Research).
 - ✓ National Council for Adult Education and Training has a high interest on the employers' expenses for vocational training as share of indirect costs, in order to improve the programs in this area. The aim is to reach a higher qualification of the existing labour force (instead of employing directly high educated staff), adequate to the high technologies and innovations.
 - ✓ The labour cost level and structure are of interest when negotiations with trade unions are held. Labour Cost Survey results are key elements for the negotiation of collective agreements in relation not only with the direct remuneration, but as share of payments in kind and other advantages, pension scheme, social and health insurance, programs for vocational training (reconversion of the redundant employees, improvement of level of qualification etc.).
 - ✓ Employers, employers' associations and professional associations carry out several comparative analysis of the labour cost among economic activities, ownership sectors and across the country.
 - ✓ Research institutes and universities are interested in producing analysis on the labour cost level and structure by economic activities, ownership sectors, regional levels (on their own estimations); comparisons with other countries (EU member states and candidates).
- (ii) external users:**
- ✓ European Union and international organisations express their needs by:
 - specific regulations and agreements;
 - through the working groups held with a certain periodicity (Eurostat) and international meetings;
 - regular (for updating of databases) and ad hoc requests sent to INS (ILO, OECD, World Bank);
 - ✓ Foreign research institutes formulate their needs by special requests sent to INS;
 - ✓ Foreign employers (investors) are interested on labour cost level by economic activities for public and private sectors; upon request different levels of aggregated data are disseminated.

1.3. Satisfaction of the users needs

(i) internal users:

Before finalising the survey tools, the questionnaire and explanatory notes are sent to be studied by the main users: Ministry of Labour, Social Solidarity and Family, Ministry of Public Finances and National Commission for Prognosis. After few weeks, agreed in advance, meetings are held and each item and variable is discussed.

Based on their comments and observations different changes (variables added, breakdowns of variables, updates of the legislation in force etc.) are operated before drafting the final version of the questionnaire and explanatory notes.

In Romania, the official statistics is under the responsibility of National Institute of Statistics (INS) but, in order to ensure the objective, transparent and scientific, character of the methodologies, indicators and classifications used in statistics, the Council of Co-ordinating the Statistical Activity is established.

The Council is composed by representatives of:

- Romanian Academy,
- specialised higher education system and research,
- ministries and other specialised bodies sub-ordinate to the Government,
- Romanian National Bank,
- trade unions,
- employers' associations,
- mass-media,
- professional associations.

The Council representatives meet in working groups by statistical fields quarterly or more frequently when necessary. During these meetings, the National Institute of Statistics receives strong feed-back from the users in terms of results already disseminated (including the level of details, breakdowns etc.) and requests for further needed information to be included in next statistical inquiries.

(ii) external users:

- ✓ European Union and international organisations: data are sent according to the format requested; when different levels of aggregations are asked, if it is possible, data are processed accordingly or, if not, the most appropriate are given with the needed explanations;
- ✓ Foreign research institutes: depending on their requests, either data are sent in the available format or are prepared to fulfil as much as possible users' needs;
- ✓ Foreign employers (investors): most of their requests are satisfied by the available data.

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

1.4. Completeness

According to the Commission Regulation no.1737/2005 (amending the Commission Regulation no.1726/1999) as regards the definition and transmission of information on labour costs, all EU member states and candidate countries had to conduct the Labour Cost Survey (LCS) in 2004, collecting and providing to Eurostat a number of 45 variables (mandatory and optional), distributed by:

- economic activities at section and division levels of NACE Rev1.1, for enterprises with 10 or more employees (TableA),
- economic activities at section and division levels of NACE Rev1.1 and size classes of the enterprises (TableB),
- economic activities at section and division levels of NACE Rev1.1 and regions at NUTS1 level, for enterprises with 10 or more employees (TableC¹).

Romania collected and provided **33 mandatory variables** (92% from all mandatory variables) and **3 optional variables** (33% from all optional variables), meaning 80% of all variables requested by the Commission Regulation.

Table 1: Missing variables from Labour Cost Survey 2004

Code	Label	Table A	Table B	Reasons for non-availability
D	TOTAL LABOUR COSTS			
D1112	Payments employees saving schemes	n.a.	n.a.	not covered by the Romanian legislation
D11141	Company products (optional)	n.a.	n.a.	not reliable results where obtained in the past from other data sources
D11142	Staff housing (optional)	n.a.	n.a.	
D11143	Company cars (optional)	n.a.	n.a.	
D11144	Stock options and share purchase schemes (optional)	n.a.	n.a.	not covered by the Romanian legislation
D1212	Collectively agreed, contractual and voluntary social-security contributions	n.a.	n.a.	
D1221	Guaranteed remuneration in event sickness (optional)	n.a.	n.a.	
D1222	Employers' imputed social contributions for pensions and health care (optional)	n.a.	n.a.	
D4	Taxes	n.a.	n.a.	not applicable for Romania

¹ TableC is not required to countries where NUTS1 level corresponds to national level - NUTS0 (Romania is one of these countries)

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

Two of the mandatory variables foreseen by the regulation were not covered by the Romanian survey:

- **D1112** Payments to employees' saving schemes - these kind of payments are not covered by the national legislation;
- **D1212** Collectively agreed, contractual and voluntary social-security contribution - supplementary contributions paid by the employer to pensions schemes, occupational pension schemes, sickness insurance schemes, unemployment insurance schemes or other non-compulsory social security schemes are not covered yet by the national legislation.

Data for variable **D121** Employers' actual social contribution cover only **D1211** Statutory social-security contribution.

Data for variable **D122** Employers' imputed social contribution cover only **D1223** Payments to employees leaving the enterprise and **D1224** Other imputed social contributions of the employer (i.e. $D122 = D1223 + D1224$).

The mandatory variable **D4** Taxes paid by the employees is not applicable for Romania.

Few optional variables were not collected because, according to the Romanian legislation, are not covered (i.e. **D11144** Stock options and share purchase schemes, **D1221** Employers' imputed social contributions for pensions and health care). Also, the variable **D11143** Company cars was tested for SES 2002 and significant under-reporting was noticed (its estimation being a true burden for the respondent enterprises). Thus, the decision of not including it in Labour Cost Survey 2004 was taken.

The variables collected and provided by Romania answer to all Commission Regulation requirements, for data tabulation according to the classification schemes:

- *country level*: **NUTS1** level;
- *economic activities*: section level **A-O** (1-digit), division level **01-93** (2-digit) according to NACE Rev.1.1 and aggregates **C_O**, **COL**, **C_K**, **C_F**, **C_E**, **G_O**, **GOL**, **G_K**, **G_I**, **J_K**, **L_O**, **M_O**;
- *size class of the enterprises*: **1-9**, **10-49**, **50-249**, **250-499**, **500-999**, **1000 and more employees**;
- *categories of variables*: number of employees (**A-variables**), hours actually worked (**B-variables**), hours paid (**C-variables**), labour cost (**D-variables**) and information on units (**E-variables**),
- *categories of employees*: **employees** and **apprentices**.

No breakdown, in terms of **economic activities** or **size classes**, is missing for Labour Cost Survey 2004.

Furthermore, data for NACE sections A and B (which are not requested by the regulation) and for section L (which continues to be optional according to the regulation) were collected and provided by Romania for both tables A and B.

Also, data for size class 1 – 9 employees (which is optional according to the regulation) were available and provided for TableB.

2. ACCURACY

2.1. Sampling errors

The coefficients of variation (CV) are presented below, by NACE Rev1.1 sections and size classes, according to tables A and B sent to Eurostat. The computations of CVs have been produced using the variance programme CLAN, a SAS macro.

Table 2: Coefficients of variation by NACE Rev.1.1 sections

NACE Rev.1.1	Coefficients of variation	
	D	D/B1
A	0.317265	0.073413
B	0.156283	0.093668
C	0.382924	0.068004
D	0.051459	0.032541
E	0.179444	0.075536
F	0.125327	0.122339
G	0.076157	0.079631
H	0.145864	0.100014
I	0.235109	0.089179
J	0.288666	0.090073
K	0.093474	0.081372
L	0.064837	0.056667
M	0.159019	0.091588
N	0.183461	0.104952
O	0.183557	0.080211
Total	0.057011	0.040361

Table 3: Coefficients of variation by size classes

Size class	Coefficients of variation	
	D	D/B1
1 – 9	0.042163	0.049095
10 – 49	0.030878	0.033085
50 – 249	0.012132	0.018069
250 – 499	0.015055	0.014100
500 – 999	0.022454	0.022432
1000 +	0.024753	0.009374
Total	0.057011	0.040361

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

2.2. Non-sampling errors

2.2.1. Coverage errors

No over coverage was registered.

The under coverage rate was 0.6%, representing the proportion of new units not included in the sample frame at the time of sample selection in the total number of units from the updated sample frame.

The over coverage units are not counted in response set. To perform the adjustments of the over- and undercoverage by weighting procedure a model assumption (about the over- and under coverage) was used, applied for each stratum:

- The over coverage rate among the respondents is the same as among the non-respondents.
- The number of over coverage enterprises in the frame is the same as the number of under coverage enterprises.
- The mean value of any variable of interest is the same in the accessible part of the target population as in the under coverage part.

In the tables below (Table 4 and Table 5) are presented the measure of misclassification by NACE sections and size classes:

Table 4: The misclassification by economic activities

- % -

NACE Rev.1.1 sampling frame	NACE. Rev.1.1 – after collection data phase															Total
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
A	95.84	0.00	0.11	1.11	0.00	0.44	1.72	0.11	0.33	0.00	0.28	0.00	0.00	0.06	0.00	100.0
B	0.00	96.99	0.00	0.00	0.00	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	100.0
C	0.00	0.00	98.28	0.38	0.00	0.58	0.38	0.00	0.19	0.00	0.19	0.00	0.00	0.00	0.00	100.0
D	0.11	0.00	0.00	99.02	0.00	0.14	0.34	0.01	0.13	0.00	0.20	0.00	0.00	0.00	0.05	100.0
E	0.00	0.00	0.00	0.46	95.44	1.14	1.14	0.23	0.00	0.00	0.68	0.00	0.00	0.00	0.91	100.0
F	0.00	0.00	0.00	0.40	0.00	98.88	0.36	0.00	0.05	0.04	0.27	0.00	0.00	0.00	0.00	100.0
G	0.11	0.00	0.00	1.15	0.00	0.36	96.50	0.67	0.38	0.00	0.65	0.00	0.02	0.05	0.11	100.0
H	0.18	0.00	0.00	0.65	0.00	0.55	1.85	95.94	0.19	0.00	0.46	0.00	0.00	0.09	0.09	100.0
I	0.10	0.00	0.05	0.70	0.00	0.20	1.10	0.15	97.04	0.00	0.16	0.00	0.10	0.00	0.40	100.0
J	0.00	0.00	0.00	0.53	0.00	0.26	1.19	0.13	0.53	96.30	0.66	0.00	0.00	0.00	0.40	100.0
K	0.00	0.05	0.00	1.02	0.00	0.31	0.93	0.45	0.27	0.00	96.89	0.00	0.04	0.00	0.04	100.0
L	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60	0.00	0.00	0.24	100.0
M	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.52	0.00	98.96	0.00	0.00	100.0
N	0.00	0.00	0.00	0.19	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.62	0.00	100.0
O	0.10	0.00	0.00	1.05	0.00	0.19	1.14	0.09	0.67	0.19	0.38	0.00	0.00	0.00	96.19	100.0
Total	3.25	0.16	0.49	23.41	0.00	10.41	26.18	8.13	8.62	0.49	12.36	0.00	0.65	0.65	5.20	100.0

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

Table 5: The misclassification by size classes

- % -

Size classes – sampling frame	Size classes - after data collection phase						Total
	1-9	10-49	50-249	250-499	500-999	1000+	
1-9	92.82	4.66	2.13	0.26	0.08	0.05	100.00
10-49	19.77	75.00	5.04	0.15	0.02	0.02	100.00
50-249	4.97	4.48	88.39	1.89	0.05	0.22	100.00
250-499	3.37	0.16	5.48	83.55	5.87	1.57	100.00
500-999	2.10	0.16	0.64	3.07	89.18	4.85	100.00
1000+	1.58	0.22	0.22	0.23	1.35	96.40	100.00
Total	48.58	23.64	16.16	6.21	2.71	2.19	100.00

2.2.2. Measurement and processing errors

The IT solution for Romanian Labour Cost Survey 2004 was developed to find out the measurement and processing errors occurred in different stages of the survey. The application was designed using Visual Fox and divided into two components:

- IT solution at local level – territorial statistical offices;
- IT solution at central level – INS headquarters (Bucharest).

The IT solution at local level allowed to perform the data entry and validation at county level (42 counties in total – NUTS3 level), as a first checking of the data integrity and correctness. Two procedures were created to be performed by each territorial statistical office: one for data files logic control (checking) and one for data tabulation.

The IT solution at local level contained the following categories of logical tests that check:

- the primary data from the questionnaires;
- the logical flows among the questionnaire chapters;
- the data comparability with the previous survey for the common variables.

The logical tests have the scope:

- to follow and check the logical flows of the questionnaire,
- to correlate data from related chapters of the questionnaire,
- to define and check certain limits to which different indicators must belong,
- to find out the outliers or non-logical values.

The tests for data integrity check the identification information from the sample of units with the information from respondent files.

The IT solution at central level contained beside the procedures developed for local level (checking data integrity and correctness), more accurate and detailed procedures for:

- integrity checking (identification data of the selected units and of the respondent units are checked – address, fiscal code, NACE activity, ownership type, information on the local units subordinated etc.),
- data correctness and correlation,

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Quality Report On Labour Cost Survey 2004

- adjustment and weighting procedures,
- non-weighted and weighted data tabulation.

Further activities for solving the errors or diminishing the number of errors were carried out at central level:

- data comparability with the previous survey for the main and common variables,
- data comparability with other data sources (i.e. Monthly survey on wages and salaries),
- preparation of counties databases,
- codification of the national variables accordingly to the variables stipulated in the regulation;
- automatic transformation of final results into the standard format for data transmission designed by Eurostat.

Since 1994, when first Labour Cost Survey was performed in Romania, the largest part of the respondents is the same, especially the medium and big enterprises which are exhaustively surveyed each year. Thus, a certain routine and experience in respect of variables content occurred during the time.

The explanatory notes provided together with the questionnaires contain clear and detailed references for all cost variables. Generally no variable related to the labour costs posed special problems.

In total, 171 logical tests were performed for data checking and correlation, focussing on key variables, such as: number of employees, hours worked, hours paid, direct remuneration, indirect labour cost, other labour costs. **Since the same tests were conducted at local level as well as at central level, the largest part of the errors found was solved from the beginning (at local level).** The figures were corrected after re-contacting the corresponding enterprises.

The questionnaire design, detailed explanatory notes and the IT solutions developed had as result a complete and of good quality data set.

No item of **partial non-response** was finally recorded into the data. When discovered at local level, enterprises were re-contacted for filling in all missing variables.

Compared with Labour Cost Survey 2000, in 2004 data for variables related to the apprentices were also collected, since due to change in national legislation, this category was no longer considered as part of the Initial Vocational Training (educational system). Even if the apprentices have a insignificant proportion compared with the number of employees (0.006%), a special attention was paid to the collected data, especially for the variables hours actually worked and hours paid. The working time of the apprentices was checked with the working time stipulated by law and also in relation with the working time of the other employees from the same enterprise.

The information below is an estimation of **errors and cases corrected at central level**, after the data files were received from all over the country. Statistics on the first level of checking (local level) are not available.

One error may need several variables to be corrected or, if the figures correspond to reality due to unusual phenomena, figures were accepted as such and no correction was made.

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

Most frequent errors that occurred during data checking period:

- **17.12%** of error coded A68 (in Romanian Logic tests); the taxes paid by the *employee* should fall between 3% – 40% of total gross payments;
- **6.99%** of error coded A65; the *employee* contribution for unemployment insurance should fall between 0.5% – 1.2% of gross payments related to direct remuneration;
- **6.99%** of error coded A66; the *employee* contribution for statutory social security should fall between 7.0% – 10.0% of gross payments related to direct remuneration;
- **6.89%** of error coded A213; the *employer* contribution for social insurance should fall between 20%-25% of gross payments related to direct remuneration;
- **6.78%** of error coded A34; the yearly paid, but not worked hours for full-time employees should fall between 144-400 hours/year (18-50 paid, but not worked days * 8 hours/day);
- **6.58%** of error coded A33; the yearly hours worked by full-time employees should fall between 1600-2040 hours/year (200-255 working days * 8 hours/day);
- **4.59%** of error coded A67; the *employee* contribution for health insurance should fall between 3.5% – 7.0% of gross payments related to direct remuneration;
- **3.86%** of error coded A36; the yearly paid, but not worked hours for all employees should fall between 144-400 hours/year (18-50 paid, but not worked days * 8 hours/day);
- **3.55%** of error coded A193; the rapport between women and men earnings shall fall between 0.5 –2%.

The number of cases needed to be corrected was not so significant to have an impact on the accuracy of the final results. In the table below are estimated the percentages of cases corrected at central level, by collected variables.

Table 6: Percentage of cases corrected

Variables		% of cases corrected
Code	Label	
A. Number of employees		
A1	Total number of employees	3.66%
A11	Full-time employees (excluding apprentices)	2.03%
A12	Part-time employees (excluding apprentices)	3.33%
A121	Part-time employees converted into full-time equivalents (excluding apprentices)	2.75%
A13	Apprentices	0.00%
A131	Apprentices converted into full-time employees	0.00%
B. Hours actually worked		
B1	Total hours actually worked	1.72%
B11	Hours actually worked by full-time employees (excluding apprentices)	1.15%
B12	Hours actually worked by part-time employees (excluding apprentices)	0.57%
B13	Hours actually worked by apprentices	0.00%
C. Paid hours		
C1	Total hours paid	0.86%

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

continued

Variables		% of cases corrected
Code	Label	
C11	Paid hours for full-time employees (excluding apprentices)	0.86%
C12	Paid hours for part-time employees (excluding apprentices)	0.00%
C13	Paid hours for apprentices	0.00%
D. Total labour costs		
D1	Compensation of employees	5.23%
D11	Wages and salaries	5.18%
D111	Wages and salaries (excluding apprentices)	5.18%
D1111	Direct remuneration, bonuses and allowances	4.46%
D11111	Direct remuneration, bonuses and allowances paid at each pay period	0.00%
D11112	Direct remuneration, bonuses and allowances not paid at each pay period	1.72%
D1113	Payments for days not worked	1.44%
D1114	Wages and salaries in kind	1.15%
D11145	Other	1.15%
D121	Wages and salaries of apprentices	0.00%
D12	Employers' social contributions	5.75%
D121	Employers' actual social contributions (excluding apprentices)	5.75%
D1211	Statutory social security contributions	5.75%
D122	Employers' imputed social contributions (excluding apprentices)	0.07%
D1223	Payments to employees leaving the enterprise	0.05%
D1224	Other imputed social contributions of the employer	0.06%
D123	Employers' social contributions for apprentices	0.00%
D2	Vocational training costs	0.29%
D3	Other expenditure paid by the employer	2.01%
D5	Subsidies received by the employer	0.00%

2.2.3. Non-response errors

The response rates broken down by economic activity (NACE Rev.1.1. 2 digits) and by size classes are presented in Table 7 and Table 8.

Table 7: Response rates by NACE Rev.1.1 divisions and size classes

NACE Rev. 1.1 (2 digit)	Size classes						Total
	1-9	10-49	50-249	250-499	500-999	1000 +	
1	80.84	92.87	97.64	100.00	100.00	100.00	89.28
2	80.49	91.32	100.00	100.00	100.00		85.08
5	69.61	92.59	100.00	100.00			75.19
10	80.00	100.00	100.00	100.00	100.00	100.00	90.91
11	73.33	92.86	100.00	100.00	100.00	100.00	87.50
13	100.00	100.00	100.00	100.00	100.00	100.00	100.00

- % -

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

continued

NACE Rev. 1.1 (2 digit)	Size classes						Total
	1-9	10-49	50-249	250-499	500-999	1000 +	
14	81.98	92.47	100.00	100.00			85.92
15	80.73	94.27	98.21	98.65	100.00	100.00	93.65
16	100.00	100.00	100.00	100.00			100.00
17	81.16	88.89	98.07	100.00	100.00	100.00	94.41
18	84.65	94.92	97.72	97.83	100.00	100.00	95.31
19	92.39	90.00	97.48	97.78	100.00	100.00	96.14
20	81.34	91.46	97.13	100.00	100.00	100.00	91.67
21	70.00	85.71	100.00	100.00	100.00		94.03
22	76.23	93.30	98.94	100.00	100.00		84.92
23	100.00	100.00	100.00	100.00	100.00	100.00	100.00
24	83.87	100.00	100.00	100.00	100.00	100.00	96.71
25	88.57	95.45	98.11	100.00	100.00	100.00	96.26
26	80.39	100.00	96.18	96.97	100.00	100.00	94.01
27	86.67	100.00	95.92	100.00	100.00	100.00	96.08
28	90.12	94.52	97.21	100.00	100.00	100.00	95.82
29	86.84	100.00	100.00	100.00	100.00	100.00	98.36
30	71.79	90.91	80.00		100.00		76.79
31	78.57	85.71	100.00	100.00	100.00	100.00	96.95
32	75.00	100.00	100.00	100.00	100.00	100.00	93.18
33	77.78	100.00	100.00	100.00	100.00	100.00	96.36
34	81.25	100.00	100.00	100.00	100.00	100.00	97.12
35	84.62	87.50	100.00	100.00	100.00	100.00	97.58
36	75.73	94.64	97.52	95.00	95.00	100.00	92.56
37	74.47	90.91	100.00	100.00			84.39
40	72.97	96.30	98.11	100.00	100.00	100.00	89.57
41	84.72	82.86	100.00	100.00	100.00	100.00	92.54
45	80.30	94.37	97.54	100.00	100.00	100.00	92.89
50	82.22	88.03	98.58	100.00	100.00	100.00	91.48
51	67.14	90.63	96.52	100.00	100.00	100.00	84.46
52	75.23	91.90	97.24	100.00	100.00	100.00	82.63
55	82.13	92.74	97.95	100.00	100.00	100.00	89.48
60	79.52	91.60	97.77	100.00	100.00	100.00	89.04
61	100.00	94.12	100.00	100.00	100.00		97.30
62		100.00	100.00	100.00		100.00	100.00
63	78.38	94.44	98.86	100.00	100.00	100.00	94.09
64	81.80	93.01	94.59	100.00	100.00	83.33	85.44
65	86.43	93.41	97.22	91.67	100.00	100.00	89.87
66	100.00	92.31	91.67	85.71	100.00	80.00	90.24
67	81.97	97.80	93.75	100.00			86.80
70	77.06	97.14	98.48	80.00	100.00	100.00	88.49
71	72.73	90.00	100.00				85.19

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

continued

NACE Rev. 1.1 (2 digit)	Size classes						Total
	1-9	10-49	50-249	250-499	500-999	1000 +	
72	75.89	94.00	93.33	100.00	100.00	100.00	85.41
73	60.00	98.28	96.99	90.00	100.00	100.00	95.37
74	75.51	91.98	94.48	95.77	96.97	87.50	87.21
75	70.37	100.00	100.00	100.00	100.00	100.00	98.73
80	78.57	97.56	100.00	100.00	100.00	100.00	94.82
85	84.13	98.97	100.00	100.00	100.00	100.00	94.14
90	73.68	100.00	98.44	100.00	100.00	100.00	95.62
91	75.00	100.00	100.00	100.00	100.00	100.00	94.69
92	79.57	94.44	97.14	100.00	100.00	100.00	89.82
93	81.62	91.18	98.25	100.00		100.00	88.26
Total	78.44	93.55	97.75	98.83	99.68	99.10	90.08

Table 8: Response rates by NACE Rev.1.1 sections and size classes

- % -

NACE. Rev.1.1 (1 digit)	Size classes						Total
	1-9	10-49	50-249	250-499	500-999	1000+	
A	80.68	92.36	97.94	100.00	100.00	100.00	87.74
B	69.61	92.59	100.00	100.00			75.19
C	81.29	92.98	100.00	100.00	100.00	100.00	85.00
D	80.83	93.74	97.99	98.65	99.67	100.00	93.50
E	78.77	88.71	99.22	100.00	100.00	100.00	91.12
F	80.30	94.37	97.54	100.00	100.00	100.00	92.89
G	73.32	90.89	97.10	100.00	100.00	100.00	84.28
H	82.13	92.74	97.95	100.00	100.00	100.00	89.48
I	80.61	92.31	97.81	100.00	100.00	95.46	88.60
J	84.21	95.39	95.31	90.00	100.00	91.67	88.51
K	75.55	93.36	95.25	94.62	97.50	90.00	87.93
L	70.37	100.00	100.00	100.00	100.00	100.00	98.73
M	78.57	97.56	100.00	100.00	100.00	100.00	94.82
N	84.13	98.97	100.00	100.00	100.00	100.00	94.14
O	79.73	94.77	98.07	100.00	100.00	100.00	90.66
Total	78.44	93.55	97.75	98.83	99.68	99.10	90.08

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

The treatment of non-response is regarding to the survey status of enterprises and its response. The non-response type used to the collection data phase is:

Table 9: Type of non-response of survey data collection

<i>Non-response type</i>
Refusal
Unidentified unit
Out of scope units
Units whose the contact was not established
Ceased unit

The estimation method involves multiplying the value for each sampled business (y_i) by a combination of weights, one being outlier weight (w_{ih}), one resulting from the sample design (a_{ih}).

An outlier weight is computed as a Windsor weight. The units having the normal score (z score) out of interval $[-3, 3]$ are outlier units. The normal score, which determines the outlier units, is computed taking into account the stratification used in sample design.

In order to perform the adjustment of non-response is computed a weight resulting from the sample design, as the sample weight adjusted by the inverse of response probability:

$$a_{ih} = \pi_h \cdot v_h \quad \text{Where:} \quad \pi_h = \frac{N_h}{n_h} ; \quad v_h = \frac{n_h}{m_h}$$

N_h = sample frame size of stratum h
 n_h = sample size of stratum h
 m_h = number of responses in stratum h

So, for each response unit the final weight is:

$$weight_{ih} = w_i \cdot a_{ih} = w_{ih} \cdot \pi_h \cdot v_h$$

2.2.4. Model assumption errors

- ✓ In Romania, fiscal year fully corresponds to the calendar year. Thus, no adjustment is necessary.
- ✓ Romanian Labour Cost Survey 2004 covered all enterprises irrespective of their size, including the small enterprises, with less than 10 employees.
According to Eurostat arrangements for implementing the Council Regulation no.530/1999 and the Commission Regulation no. 1737/2005, Romania provided data for:
 1. **Table A** (national data by economic activities) - data refer to enterprises with 10 or more employees;
 2. **Table B** (national data by size class of the enterprise) - data refer to all size class enterprises (including small enterprises with less than 10 employees).
- ✓ No registered or administrative data were used. All data were obtained exclusively from the Labour Cost Survey.

3. PUNCTUALITY AND TIMELINESS

3.1. Punctuality

The **data collection period** for Labour Cost Survey was lasted two months:

- one month for enterprises to fill in the questionnaires and to send them to the territorial statistical offices (month January 2005);
- one month for the territorial statistical offices to perform data entry, data checking and to send data files to central level (month February 2005).

Thus, the deadline for receiving the files from territorial statistical offices was 1st March 2005.

Since not all enterprises respected the deadline requested, a high proportion of questionnaires reached with delay the territorial statistical offices. Furthermore, due to the recalls necessary for additional information and corrections of the variables filled in by the enterprises, delays occurred in sending the data files to INS-headquarter also.

Only the information on the delays encountered in receiving the data files from the territorial statistical offices to INS is available. Below are presented information on the proportion of data files sent from the territorial statistical offices and the dates when INS received them:

- 1 - 10 March: 47.6%
- 11 - 15 March: 14.3%
- 16 - 20 March: 23.8%
- 21 - 25 March: 4.8%
- 26 - 31 March: 4.8%
- 1 - 12 April: 4.8%.

A delay of 42 days was registered between the scheduled and actual data files transmission. Even so, the release dates at national level (01.08.2005 for the number of employees and earnings and 29.09.2005 for labour costs) were the same as the scheduled dates, no delays were registered.

Also, the data transmission (TabelA and TableB) to Eurostat was in accordance with the legal requirements, as Gesmes files, via STADIUM, sent on the 22nd May 2006 (the deadline stipulated by the Council Regulation no. 530/1999 is 30 June 2006).

3.2. Timeliness

All the activities carried out by INS during a year are scheduled through the Activity Plan with several months earlier. Annually, INS issues for the users a catalogue of statistical products and services containing the names, periodicity, short descriptions and release dates for all publications.

The length period of preparing and carrying out the Labour Cost Survey 2004 lasted over 14 months (from mid-August 2004 to the end October 2005), as described in the table below:

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

Table 10: Scheduled activities of the Romanian Labour Cost Survey 2004

No	ACTIVITY	ACTIVITY DESCRIPTION	DEADLINE
1.	Programming of survey activities and documentation study	1.1. Identification of the activities and operations to be carried out in order to successfully run the LCS	23.08.2004
		1.2. Documentation study - national level (changes in legislation, collective agreements, labour code etc.) - European level (Council and Commission regulations, working group documents etc.)	23.08.2004
2.	Redesigning of survey tools	2.1. Redesigning first version of survey tools (questionnaires, explanatory notes, classifications)	30.08.2004
		2.2. Sending the survey tools for comments and observations to main users (Ministry of Labour, Social Solidarity and Family, Ministry of Finance, National Commission for Prognosis) and to some statistical territorial offices	06.09.2004
		2.3. Meetings with the experts from the main users (ministries) for discussing the proposed changes in the survey methodology	20.09.2004
		2.4. Receiving comments and observations from the statistical territorial offices	20.09.2004
		2.5. Operating the changes based on comments and observation received and redesigning the final version of survey tools	27.09.2004
		2.6. Approval of the final version of survey tools	03.10.2004
	Dispatching survey tools in the territory	2.7. Sample selection of enterprises	15.11.2004
		2.8. Printing the survey tools according to the number of selected enterprises	29.11.2004
		2.9. Sending for checking the samples selected to each territorial statistical office	16.11.2004
		2.10. Updating the samples based on the updates received from the territorial statistical offices (organisational changes, identified / not - identified, activity changed etc.)	29.11.2004
		2.11. Dispatching survey tools to the territorial statistical offices according to the renewed list of enterprises	06.12.2004
3.	IT solutions	3.1. Designing the logical tests for data entry	16.12.2004
		3.2. Designing the logical tests for data checking, correction and validation	16.12.2004
		3.3. Testing the IT solution at local level	28.01.2005
		3.4. Testing the IT solution at central level	25.02.2005

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

continued

No	ACTIVITY	ACTIVITY DESCRIPTION	DEADLINE
4.	Fieldwork and data checking	4.1. Planning and organisation the field work activities 4.2. Data collection 4.3. Data entry, checking and validation at local level 4.4. Data files reception and listing of occurred errors 4.5. Data validation and processing at central level 4.6. Data checking and errors correction 4.7. Tabulation of non-weighted data 4.8. Weighting procedures and validation of weighted data 4.9. Tabulation of weighted data 4.10. Analysis of final results	15.12.2004 31.01.2005 01.03.2005 01.03.2005 31.03.2005 29.04.2005 29.04.2005 20.05.2005 06.06.2005 15.07.2005
5.	Dissemination of survey results	5.1. Dissemination of final results on the number of employees and earnings 5.2. Dissemination of final results on the labour cost 5.3. Release of the annual publication on earnings and labour costs	01.08.2005 29.09.2005 29.09.2005

4. ACCESSIBILITY AND CLARITY

4.1. Accessibility

Based on the Labour Cost Survey results **three detailed copybooks (on the number of employees, earnings and labour costs)** are prepared and disseminated to the main users (about 30):

- Romanian Presidential Administration;
- Romanian Parliament (including several Commissions oriented on labour, social protection policies);
- governmental bodies: Ministry of Labour, Social Solidarity and Family, Ministry of Finance, National Commission for Prognosis, National Agency for Employment, Ministry of Industry, Commerce and Tourism, Ministry of Internal Affairs, Ministry of Education, Ministry of Health, Ministry of Foreign Affairs, Ministry of Defence, Ministry of Agriculture etc.;
- employers and employers' associations;
- trade unions;
- professional associations;
- research institutes and universities: Research Institute of National Economy, Research Institute for Labour Force, Research Institute for Education, Romanian Academy, Academy for Economic Studies etc.

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

The three copybooks are available only in Romanian language, in printed form or, on request, in electronic format.

The main publication of Labour Cost Survey results is the “**Annual earnings and labour costs**”, available only in Romanian language and contains the following chapters:

- Survey methodology and organization;
- Data analysis,
- Results tables.

The publication is available for consulting purposes in the INS library and also can be bought by all interested users from the INS bookshop.

Also, the main results of the Labour Cost Survey are published in the Statistical Yearbook, which is available in printed form, on CD-ROM and on-line (www.insse.ro), both in Romanian and English language.

The three copybooks and the publication on Labour Cost Survey results are also available on the INS electronic library and can be provided on users’ request.

Starting with 1st of January 2007 a general database of the Romanian statistics will be available on the INS web-site (www.insse.ro), containing also time series data sets of Labour Cost Survey main indicators (number of employees, earnings and labour costs).

On request, data are provided to a variety number of other users (internal and international).

4.2. Clarity

The Labour Cost Survey data are disseminated together with comprehensive and clear metadata, irrespective of the release form or user category.

The copybooks contain:

- a brief description of the survey (scope, coverage, periodicity, sample size, non-response rate),
- definitions of the main indicators,
- detailed results tables on the main indicators:
 - number of employees,
 - earnings,
 - labour costs,by economic activities (section and division level), ownership forms, legal status of the enterprises, size classes of the enterprises, regions of economic development.

The publication “**Annual earnings and labour costs**” is structured in three chapters:

- I. *Survey methodology and organization*: provides information on the survey objectives, coverage, unit of selection/observation, periodicity and reference period, sampling design, concepts and definitions of the collected and derived indicators, classifications used,
- II. *Data analysis*: contains tables, graphs and analysis of the main indicators obtained – number of employees, hourly and monthly average earnings, working time, hourly and monthly average labour cost, labour cost structure – by economic

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

activities, ownership forms, legal status of the enterprises, size classes of the enterprises, regions of economic development.

- III. *Results tables*: contains detailed tables of the main indicators by economic activities (section level), ownership forms, legal status of the enterprises, size classes of the enterprises, and regions of economic development.

The tables with data in the **Statistical Yearbook** are accompanied by methodological notes describing the data sources, the concepts and definitions of the indicators presented.

The users are informed by the INS on the publications that are to be issued over the year, through the "Catalogue of statistical products and services", which is available on printed form, but also on-line (www.insse.ro). The catalogue contains the INS yearly publications, periodicals, quick information, electronic publications, publication in stock and statistical services.

5. COMPARABILITY

5.1. Geographical comparability

Comparability between national and European concepts on:

- **Definition of statistical units - There is no deviation from European concepts:**
 - The **unit of selection** was the **enterprise** defined according to the communautaire rules for enterprises statistics as: „the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit”.
 - The sampled enterprises provided data for each local unit, thus the **observation unit** of the Labour Cost Survey was the **local unit**, in accordance with the requirements of Council Regulation no. 530/1999 concerning structural statistics on earnings and labour costs.

- **Populations - There is no deviation from European concepts:**
 - The Romanian Business Register was designed and implemented based on the administrative files (REGIS, which is the Fiscal Register, updated annually) and statistical sources in addition (Trade Register, Balance Sheet files, VAT files, feedback from other surveys, used as consultation data sources for improving the quality of the register data).
 - According to the Council Regulations, REGIS contains the following types of statistical units: legal unit, enterprise, and local unit. All the enterprises having the main activity in the section A to Q of NACE rev 1, whatever their size (number of employees or turnover) are covered.
 - The Romanian Business Register contains all enterprises, authorities and organisations as well as their local units in Romania that carry out any economic activity irrespective of their size or if they belong to the private or public sector. There are covered the following institutional sectors:
 - Non-financial corporate and quasi-corporate enterprises
 - Central and local administration

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

- Social security institutions and private non-profit institutions serving households

In respect to the budgetary institutions and public administration REGIS is the most complete register in Romania, based on Official Journal and the collaboration with a lot of administration institutions.

- **Reference times - There is no deviation from European concepts:**
 - The statistics on level and composition of labour cost are produced for the 2004 calendar year, with a four-year periodicity.
- **Classifications - There is no deviation from European concepts:**
 - The national classification of economic activities is covered by CAEN Rev.1 fully harmonized with NACE Rev.1.1.
 - The size classes of enterprises correspond to the size classes described in the Council Regulation no. 530/1999 concerning structural statistics on earnings and labour costs.
- **Definitions of variables - There is no deviations from European concepts:**
 - The definitions of Labour Cost Survey 2004 variables were developed and adopted in accordance with European standards (Commission Regulation (EC) no 1737/2005 amending Regulation (EC) No 1726/1999 as regards the definition and transmission on labour costs), but also taking into account the national features.

5.2. Comparability over time

The Romanian Labour Cost Survey has been carrying out annually since 1994 with 1993 as reference year.

No significant changes in definitions, coverage or classifications used over the years. The improvements made from year to year refer only to the changes in variables collected and not to the content of the variables, as are presented below:

- For the period **1994 - 1998** the same type of questionnaire was used. No data on hours worked or paid hours were collected. Variable regarding the number of employees (converted into equivalent full units) was not broken down on full-time and part-time. Variables composing earnings (bonuses and grants for length in service, for shift work, for night shift, work in underground etc.) were detailed, reason for which and taking into account complaints of the enterprises, this part was afterwards simplified.
- In **1999** the chapter related to earnings composition was redesigned and the number of variables collected was reduced. Experimentally, for the first time variables on paid hours and hours actually worked were collected but only related to all employees (without any distinction by full time and part time or any other category).
- For Labour Cost Survey **2000** the questionnaire was significantly improved. Variables on the number of employees, hours worked and paid hours were broken down by full-time and part-time employees, according to the Council Regulation 530/1999 concerning structural statistics on earnings and on labour costs and Commission Regulation (EC) No 1726/1999 as regards the definition and transmission of information on labour costs. There still were some missing variables. First quality

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

report was carried out according to the Commission Regulation (EC) No 452/2000 as regards quality evaluation on labour cost statistics.

- Labour Cost Surveys for 2001 - 2003 kept same questionnaire as for Labour Cost Survey 2000 and followed same methodology. The only changes operated from one year to another referred to the requirements of the national legislation in force.
- Labour Cost Survey **2004** was designed and carried out as the previous survey, on the Commission Regulation no 1726/1999. The data transmission for 2004 survey was done in accordance with the Commission Regulation (EC) no 1737/2005 amending Regulation (EC) No 1726/1999 as regards the definition and transmission on labour costs. The following *improvements* were made:
 - the breakdowns of average number of employees on full-time, part-time and in full-time equivalents were collected;
 - the breakdowns of the average number of employees, hours worked, hours paid and direct costs *by gender* were collected even if it was not required by the regulation;
 - the missing variables of *section D* were introduced in data collection: D1111 Direct remuneration and bonuses, D11111 Direct remuneration, D11112 Bonuses, D1113 Payments for days not worked, D1114 Wages and salaries in kind, D11144 Other, D1223 Payments to employees leaving the enterprise;
 - all variables related to the apprentices were collected, being covered by the legislation now.

The tables below are an illustrating example on data series continuity over the years. Due to strong inflation registered in Romania the last table shows the trends of power of purchasing expressed as the ratio of nominal earnings index divided by consumer prices index (CPI).

Table 11: Average monthly gross earnings, by economic activities

	<i>ROL / employee</i>				
	<i>Total employees</i>				
	2000	2001	2002	2003	2004
Total	2840449	4220357	5320559	6637868	8183317
<i>Agriculture</i>	1924351	2853812	3660553	4449175	5813593
<i>Sylviculture, forestry and hunting</i>	2514075	3598449	4324243	6335477	7719078
<i>Industry¹⁾</i>	2912797	4316614	5316522	6559567	8032459
<i>Construction</i>	2383968	3550631	4443484	5659688	7006512
<i>Trade</i>	1980792	3069603	3774878	4948992	5924848
<i>Hotels and restaurants</i>	1764833	2871275	3349208	4275387	5375749
<i>Transport and storage</i>	3460467	5118569	6418581	8207366	10019877
<i>Post and telecommunications</i>	5200637	8374699	11378264	13296442	15243430
<i>Financial, banking and insurance activities</i>	8211322	11949723	15926966	19937440	25097516
<i>Real estate and other services</i>	2976181	4288709	5494962	6544102	8138102
<i>Public administration</i>	4174866	5911602	7300538	9902913	12039545
<i>Education</i>	2705154	3966768	5309849	6566394	8940044
<i>Health and social assistance</i>	2287269	3592630	4378503	5550256	6955768
<i>Other activities of national economy</i>	2520016	3582552	4790130	5880895	7334227

1) Including electric and thermal energy, gas and water

NATIONAL INSTITUTE OF STATISTICS - ROMANIA
Quality Report On Labour Cost Survey 2004

Table 12: Average monthly labour cost, by economic activities

	<i>ROL / employee</i>				
	<i>Total employees</i>				
	2000	2001	2002	2003	2004
Total	4346191	6252242	7765143	9145591	11058644
<i>Agriculture</i>	3050377	4350502	5391636	6041334	7777580
<i>Sylviculture, forestry and hunting</i>	3713057	5423428	6321439	9392256	10717842
<i>Industry¹⁾</i>	4485172	6501630	7943087	9232122	11156215
<i>Construction</i>	3680394	5264006	6498998	7374835	9116703
<i>Trade</i>	3142419	4470074	5296106	6477715	7536541
<i>Hotels and restaurants</i>	2871332	4426429	5123038	5954889	7355484
<i>Transport and storage</i>	5359801	7617000	9444052	11478097	13743738
<i>Post and telecommunications</i>	7862349	12461869	16900932	18575139	20573161
<i>Financial, banking and insurance activities</i>	12429311	17598645	22778073	26981208	33618311
<i>Real estate and other services</i>	4755858	6321329	8141375	8787091	10668338
<i>Public administration</i>	4348652	6137418	7291625	9949238	11689703
<i>Education</i>	3861284	5547920	7269500	8898750	11876823
<i>Health and social assistance</i>	3834289	5749657	7082450	8565974	10566331
<i>Other activities of national economy</i>	4467342	6106338	7827690	8696239	10773738

1) Including electric and thermal energy, gas and water

Table 13: Ratio of nominal earnings index and consumer price index

	<i>(%)</i>															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
1990	100,0	81,5	70,8	58,9	59,1	66,5	72,7	56,2	58,4	57,0	59,4	62,4	63,9	70,8	78,3	
1991		100,0	86,9	72,3	72,5	81,6	89,3	68,9	71,7	69,9	72,9	76,6	78,4	86,9	96,0	
1992			100,0	83,2	83,4	93,9	102,7	79,3	82,5	80,5	83,9	88,1	90,2	100,0	110,5	
1993				100,0	100,3	112,9	123,5	95,4	99,1	96,7	100,9	105,9	108,5	120,2	132,9	
1994					100,0	112,5	123,1	95,1	98,8	96,4	100,6	105,6	108,1	119,8	132,5	
1995						100,0	109,4	84,5	87,8	85,7	89,4	93,8	96,1	106,4	117,7	
1996							100,0	77,2	80,3	78,3	81,7	85,8	87,8	97,3	107,6	
1997								100,0	104,0	101,4	105,8	111,0	113,7	126,0	139,3	
1998									100,0	97,5	101,8	106,8	109,4	121,2	134,1	
1999										100,0	104,3	109,5	112,2	124,3	137,4	
2000											100,0	105,0	107,5	119,1	131,7	
2001												100,0	102,4	113,4	125,5	
2002													100,0	110,8	122,5	
2003														100,0	110,5	

6. COHERENCE

Coherence with the statistics from Labour Force Survey

The comparison between the number of hours actually worked in 2004, expressed per employee (from Labour Cost Survey), and the average actual hours worked in the main job per year of the Labour Force Survey (LFS), expressed per employee shows differences between all NACE sections:

Graph1:



Apart from the clear difference in terms of employment definitions between LFS and LCS, the main reason for the discrepancies between the figures provided by the two data sources is the *proportion of informal sector and black market* in Romania, that are covered only by LFS.

The sectors where the number of employees is higher in LFS than in LCS are manufacturing (section D), wholesale and retail trade (section G), other community, social and personal service activities (section O), transport, storage and communication (section I), health and social work (section N), hotels and restaurants (section H). Also, in section L the number of employees is significantly higher in LFS, due to the coverage of the armed forces. By total economy, the number of employees from LFS is higher by about 30% than LCS data.

The number of hours actually worked per employee (from LCS) was less than the average actual hours worked in the main job per year of the LFS, expressed per employee in all NACE Rev.1.1 sections. The highest differences are registered in hotels and restaurants (section H)

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Quality Report On Labour Cost Survey 2004

with 15.1%, transport, storage and communication (section I) with 12.9%, construction (section F) with 12.2%, wholesale and retail trade (section G) with 12.1%.

In section M (education), the number of hours actually worked per employee in 2004 was almost the same in both surveys. Only a small difference was registered (+34 hours/year in LFS).

Coherence with Structural Business Statistics

The comparison between wages and salaries expressed per employee from LCS and the same variable from SBS, as is shown in the graph below:

Graph 2:



Taking into account the differences of the two surveys coverage, the figures on wages and salaries per employee follows the same trends.

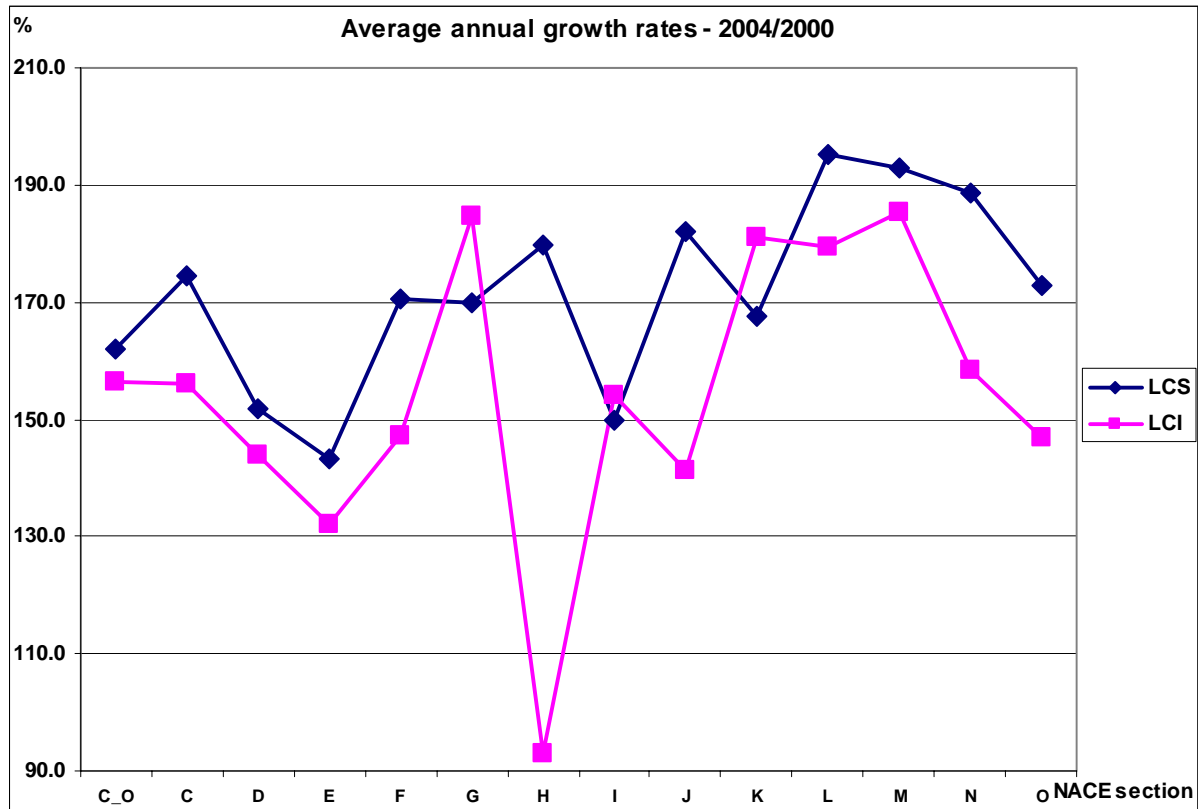
SBS does not cover sections J (financial intermediation), L (public administration) and covers only the private sector for sections M (education), N (health and social work), O (other community, social and personal service activities). Thus, data for sections M, N and O are not comparable between the two surveys.

The wages and salaries per employee are higher in LCS that those resulted from SBS. The highest differences registered are in section H (+18.5%), section E (+11.2%), section F (+9.5%) and section K (+ 9.4%).

Coherence with Labour Cost Index

The comparison between the average annual growth rates of the hourly labour cost (D/B1) and the average annual growth rate of LCI shows the following differences from year 2000:

Graph 3:



Data for LCI corresponding to section H are to be further explored, due to the highest difference registered, in comparison with LCS results.

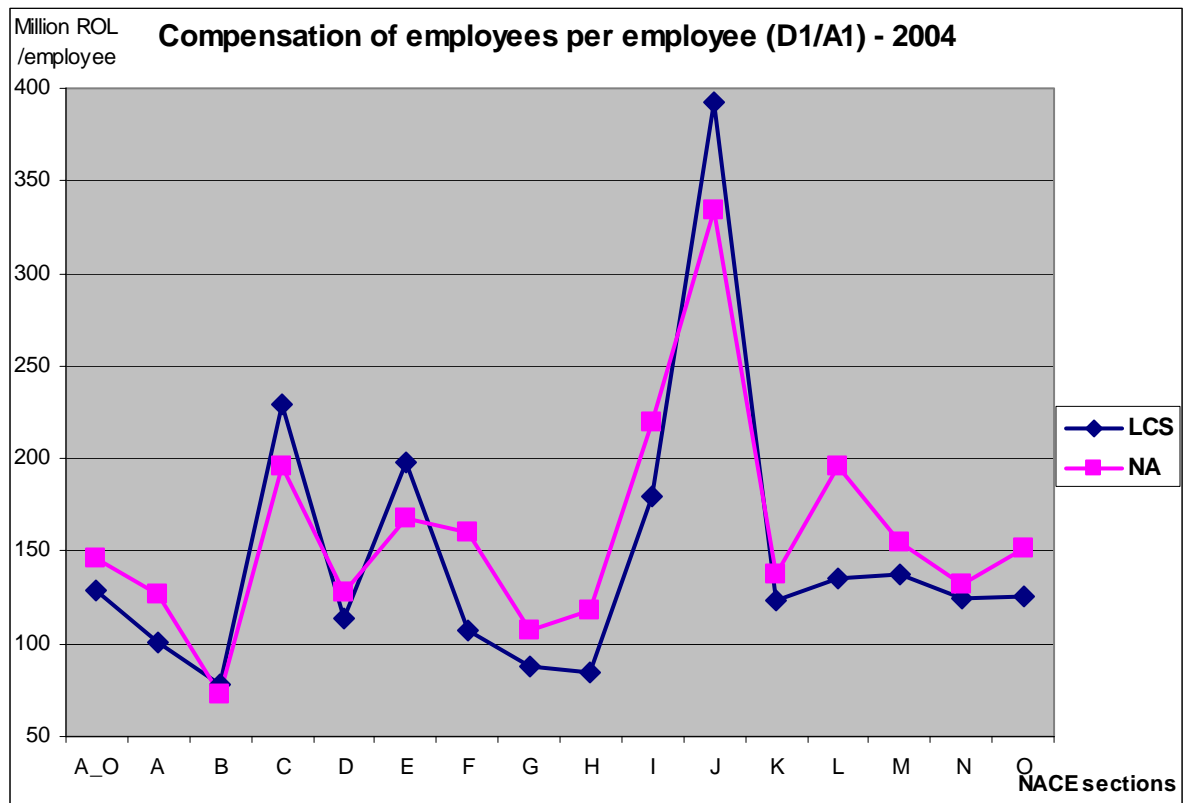
Coherence with National Accounts

The comparison between the compensation of employees, expressed per employee, shows some differences between Labour Cost Survey and National Account, due to the different coverage.

Main data sources for the National Accounts, by NACE sections are:

- Accounting statements of financial and non-financial units,
- Accounting statements of non-profit institutions serving households,
- Execution of state budget,
- Structural Business Survey ,
- Labour Cost Survey,
- Household Budget Survey,
- Labour Force Survey (for employment data only),
- Declaration on global income of self-employed persons and family associations,
- Balance of payments.

Graph 4:



D1 in NA comprise as payments in kind also the meals, uniforms (militaries) and business travel expenses.

Compared with LCS, sections E and J include in NA persons with other kind of contracts (i.e. insurance agents, field agents), that are not paid from the salary budget.

The coverage of section L – public administration is different, in NA armed forces are included.

In comparison with LCS, Section O includes in NA data on trade unions, political parties, non-profit institutions serving households etc.

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Labour Cost Index (LCI) - Annual Quality Report - 2006



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THE ANNUAL QUALITY REPORT ON THE LABOUR COST INDEX 2006

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Labour Cost Index (LCI) - Annual Quality Report - 2006

Introduction

The annual quality report for the labour cost index (LCI) presents the main quality criteria, as described by Annex 1 of the Commission Regulation No 1216/2003 of July 2003, implementing Regulation No 450/2003 of the European Parliament and of the Council concerning the labour cost index.

(a) Evidence of relevance to user needs

The main users of the Romanian LCIs are Eurostat and European Central Bank. Since 2000, the LCIs have been regularly released only to Eurostat.

From year 2002 onwards (with data for year 2001), the LCIs have been published annually in the Romanian Statistical Yearbook. Also, from year 2007 (with data for the 4th quarter 2005 and all quarters of 2006 as provisional data), the LCIs are quarterly published in the Monthly Statistical Bulletin.

Thus, all interested parties have access to the LCIs, either in electronic format (on the INS web-site) or on paper (as publication). Together with the indices methodological notes and a short description of the data sources used are included in the Yearbook and Bulletin.

(b) Evidence of accuracy

Revision history

The LCIs are produced exclusively based on the existing surveys, no specific survey has been organised. The data sources for the labour cost index are:

- **Wages Survey** – carried out monthly in the enterprises and local units (establishments) from all economic activities (A-O according to NACE Rev1.1), irrespective of the ownership sectors and the size class of the enterprise by number of employees. This data source provides for LCIs the wages and salaries, the number of employees and the hours worked¹.
- **Labour Cost Survey** – carried out annually in the enterprises from all economic activities (A-O according to NACE Rev1.1), irrespective of the ownership sectors and the size class of the enterprise by number of employees. This data source provides for LCIs the annual proportion of the other labour costs in wages and salaries.

For the period 1996 – 2004 the Romanian LCIs were calculated and delivered in two ways:

- labour costs per employees (for the whole period) and
- labour costs per hours worked (for 1999-2004, according to the availability of the hours worked).

The old LCIs were calculated with year 2000 as base year.

¹ the hours worked are available monthly since January 2001

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Labour Cost Index (LCI) - Annual Quality Report - 2006

Starting with 2005, the LCIs are calculated as labour costs per hours worked and according to the requirements of the Council Regulation No 450/2003, as Laspeyres indices. Also, the back series, from 2000 onwards are calculated as Laspeyres indices.

The scope of the LCIs was extended, including the activities L, M, N and O (NACE Rev.1.1), also from 2000 onwards.

Data are disseminated as quarterly Total Labour Cost (LCI_TOT), Wages and Salaries (LCI_WAG) and Other Labour Costs (LCI_OTH) Indices.

Annual weights used to calculate the index are provided as well, for all economic activities C to O (NACE Rev.1.1), according to the Council Regulation No 450/2003.

The table 1 shows the year-on-year growth rates for the total labour cost index (LCI_TOT) calculated per hour worked, unadjusted series, for the last 12 quarters (2004 - 2006):

Table 1: Year-on-year growth rates (according to Council Regulation No 450/2003 methodology)

NACE Rev.1	Change compared to corresponding period of the previous year %											
	2004				2005				2006 ^P			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
C	18.6	15.5	15.9	16.1	20.0	27.1	30.6	26.0	39.5	21.4	24.5	32.2
D	17.3	18.8	17.2	14.9	14.8	12.6	15.9	8.3	13.8	15.7	16.6	27.8
E	13.4	11.4	20.2	16.5	22.0	35.7	31.2	26.9	18.2	17.3	17.1	33.9
F	17.2	10.3	6.8	7.0	13.5	15.9	20.2	7.5	15.5	19.0	19.7	34.9
G	29.0	31.2	28.1	26.8	7.0	5.5	11.0	-3.0	15.0	16.5	15.0	28.1
H	-3.9	-5.4	-12.7	-10.4	16.2	14.1	25.0	11.8	11.6	17.5	23.6	31.5
I	21.8	14.7	12.6	9.3	2.0	1.2	7.1	-1.1	9.5	17.8	15.1	29.9
J	14.1	19.4	17.9	16.6	16.7	13.0	12.4	5.6	19.4	13.1	12.2	19.2
K	4.2	11.9	9.4	5.7	6.5	10.3	14.8	3.6	23.2	23.9	23.5	41.7
L	19.9	10.0	20.6	12.2	20.3	22.1	20.2	8.3	19.6	25.1	35.8	82.2
M	21.0	20.7	19.9	31.1	26.0	29.0	24.1	16.1	19.9	22.4	24.6	41.8
N	20.6	20.6	16.4	10.1	0.0	-2.7	1.3	-4.3	18.3	25.2	24.0	43.4
O	29.6	21.6	24.0	20.1	-16.7	-7.5	-7.0	-18.4	18.2	16.0	18.9	35.1
C_E	16.9	17.4	17.4	15.3	16.3	17.3	19.8	12.7	17.6	16.6	17.6	29.1
G_I	23.8	20.8	18.2	16.3	5.2	3.9	9.7	-1.4	12.4	17.1	15.5	29.1
G_K	19.1	19.2	16.7	14.5	6.9	6.3	10.9	0.4	15.2	17.5	16.3	29.5
J_K	8.4	15.5	13.2	10.6	11.1	11.7	13.7	4.5	21.3	18.6	18.0	30.6
C_K	17.8	17.6	16.2	14.3	12.2	12.6	16.2	7.2	16.5	17.2	17.1	29.8
C_O	18.7	17.7	16.9	15.5	12.7	13.1	15.8	6.9	17.4	18.6	19.2	35.0
L_O	21.3	18.3	19.4	19.6	13.9	15.2	14.6	5.8	19.0	23.3	26.1	50.9
M_O	21.7	20.8	19.0	22.0	12.0	13.1	13.1	5.0	18.8	22.8	23.3	41.5

^P - provisional data

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Labour Cost Index (LCI) - Annual Quality Report - 2006

Generally, the revision of the LCIs is made annually (in the 3rd quarter), when the results of year Y from Labour Cost Survey become available (month September). By then, the quarterly LCI_OTH (other labour costs component) and LCI_TOT (total index) are calculated using the proportion of other labour costs in wages and salaries from the previous available year (Y-1). The revisions are made for all provisional quarters. The LCIs for year (Y+1) remains still provisional, using the proportion of other labour costs in wages and salaries from the previous available year Y.

Because the LCI_WAG (wages and salaries component) uses only elements provided by the Monthly Wages Survey, they are not revised and considered as final, from the first calculation.

Coverage

The two data sources used for LCIs calculation cover samples of:

- **Monthly Wages Survey** – about 19.500 establishments (for year 2006). From 2001 onwards a threshold was introduced (i.e. the business units with less than 4 employees are no longer surveyed). Data are available and published at the national level (NUTS0).
- **Annual Labour Cost Survey** – about 26.000 enterprises (for year 2006). Data are available and published at the national and regional level (8 regions NUTS2). Figures for main indicators such as number of employees gross and net wages and earnings are also produced at NUTS3 level.

Table 2: Percentage of employees represented in the samples

NACE sections	Coverage² of the Monthly Wages Survey in year 2006	Coverage³ of the Annual Labour Cost Survey 2006
C	98.23%	99.62%
D	82.68%	78.57%
E	97.98%	99.65%
F	69.72%	62.06%
G	30.36%	28.24%
H	34.81%	39.60%
I	79.95%	74.25%
J	87.99%	87.06%
K	59.03%	51.19%
L	99.19%	99.37%
M	99.02%	99.07%
N	94.04%	94.08%
O	66.50%	66.54%
TOTAL C_O	75.50%	70.90%

² Sample frame REGIS (Business Register) year 2004

³ Sample frame REGIS (Business Register) year 2005

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Labour Cost Index (LCI) - Annual Quality Report - 2006

Frequency

Data for *wages and salaries* and *hours worked* are obtained from the Monthly Wages Survey. In 2006 the results were available in 35 days after the end of the reference month.

Data for *other labour costs* are obtained from the Annual Labour Cost Survey. The results for year Y are available 9 months after the end of the year Y (end of September year Y+1).

The quarterly aggregates needed for LCI calculation, and also the LCIs are calculated in 70 days after the end of the reference quarter.

Table 3: Data collection and release frequency

	Wages Survey		Labour Cost Survey		LCI	
	End of data collection	Release date	End of data collection	Release date	End of data aggregation	Release date
Month (M)	M + 15 days	M + 35 days	-	-	-	-
Quarter (Q)	-	-	-	-	Q + 67 days	Q + 70 days
Year (Y)	-	-	Y + 1 month	Y + 9 months	-	-

Estimation

The stratified sampling technique is used as sampling method for both data source of LCIs (Monthly Wages Survey and Labour Cost Survey). Main economic activity, size class of the enterprise and region (NUTS2 level) define the sample strata.

In order to compensate the non-responses, the results are adjusted using the HORVITZ-THOMPSON estimator, weighted with the response probability.

The estimation method involves multiplying the value for each sampled business (y_i) by a combination of weights, one being outlier weight (w_{ih}), one resulting from the sample design (a_{ih}). An outlier weight is computed as a Windsor weight. The normal score, which determines the outlier units, is computed taking into account the stratification used in sample design.

In order to perform the adjustment of non-response is computed a weight resulting from the sample design, as the sample weight adjusted by the inverse of response probability:

$$a_{ih} = \pi_h \cdot v_h \quad \text{Where:} \quad \pi_h = \frac{N_h}{n_h} ; \quad v_h = \frac{n_h}{m_h}$$

N_h = sample frame size of stratum h
 n_h = sample size of stratum h
 m_h = number of responses in stratum h

So, for each response unit the final weight is: $weight_{ih} = w_i \cdot a_{ih} = w_{ih} \cdot \pi_h \cdot v_h$

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Labour Cost Index (LCI) - Annual Quality Report - 2006

Table 4: Overall response rates

Source	Q1 ^{*)}	Q2 ^{*)}	Q3 ^{*)}	Q4 ^{*)}	Year
	2005				
Monthly Wages Survey	87.5	87.3	86.6	85.6	-
Labour Cost Survey	-	-	-	-	87.8
2006					2005
Monthly Wages Survey	87.9	87.6	86.8	86.1	-
Labour Cost Survey	-	-	-	-	82.2

^{*)} quarterly response rates are calculated as simple averages of the monthly response rates

For the LCIs calculation the quarterly other labour costs are estimated, based on the annual other labour costs and quarterly wages and salaries. Thus, in order to determine OTH_t (at quarterly level) it is necessary to:

- calculate an annual weight of the other labour costs into the wages and salaries (p)

$$p = \frac{OTH_{Y-1}}{WAG_{Y-1}}$$

where: p = annual weight of the labour costs into wages and salaries

OTH_{Y-1} = other labour costs for year Y-1

WAG_{Y-1} = wages and salaries for year Y-1

- estimate the quarterly other labour costs:

$$OTH_t = p * WAG_t = p * \sum_{l=1}^3 WAG_{tl}$$

where: OTH_t = other labour costs for quarter t, year Y

WAG_t = wages and salaries for quarter t, year Y

By the time when final data from the Labour Cost Survey are available (month September), the weights corresponding to the previous available year (Y-1) are use. After, revisions are made, using the weights corresponding to the current year (Y).

Hours worked

The indicator “hours worked” used of the LCIs calculation includes all hours actually worked by full-time and part-time employees, according to the working contract (excluding free days for official holidays, vacation, sick leave, technical stoppage etc.), and the overtime.

The hours worked have been collected monthly, since 2001, through the Wages Survey (same source as for wages and salaries), and are computed for obtaining the quarterly data. The annual hours worked have been collected, since 1999, through Labour Cost Survey.

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Labour Cost Index (LCI) - Annual Quality Report - 2006

For year 2000, it was needed to estimate the number of hours worked by quarters, since the indicator was available only as annual amount from Labour Cost Survey. Thus, the hours worked for each quarter of year 2000 were estimated for each economic activity (NACE Rev.1.1), based on:

- the distribution of the number of employees,
- the number of quarterly working days,
- the time series of hours worked collected monthly since 2001,
- the annual number of hours worked.

Administrative data

No administrative data are used.

(c) Timeliness and punctuality

Since first transmission of the new LCIs according to the regulation in force, no transmission delays were recorded.

Table 5: Deadline and transmission of LCIs

Quarter	Deadline according to the Regulation	Transmission date	Delay
Q1 2006	09.06.2006	07.06.2006	-
Q2 2006	08.09.2006	01.09.2006	-
Q3 2006	09.12.2006	29.11.2006	-
Q4 2006	11.03.2007	05.03.2007	-

For the next data transmissions no changes in data transmission are foreseen, all the deadlines, either for results of LCIs data sources, or LCIs, will be kept as described above.

(d) Accessibility and clarity

The LCIs are quarterly released to Eurostat in electronic format, as Gesmes data files, transmitted via eDAMIS. The metadata in SDDS format were transmitted to Eurostat and updated when necessary.

At national level, the LCIs have been started to be published annually in the Romanian Statistical Yearbook since 2002 (for year 2001) and Monthly Statistical Bulletin since 2007 (starting with 4th quarter 2005).

Concerning the accessibility and clarity of the results coming from the two data sources for LCIs, there are:

- monthly press release for the data on the average gross and net monthly earnings by economic activities;
- “Monthly Statistical Bulletin” publishing data on the number of employees, average gross and net monthly earnings, gross and net average hourly earnings, by economic activities;

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Labour Cost Index (LCI) - Annual Quality Report - 2006

- annual publication on labour costs presenting detailed data on the reference year on the number of employees, average gross and net earnings, labour costs and cost structure, by different breakdowns: economic activities, regions, size classes, ownership types etc.
- “Statistical Yearbook” publishing some annual time series data on the number of employees, average earnings, labour costs, cost structure, labour cost indices.

(e) Comparability

The new LCIs are calculated according to the Council Regulation No 450/2003. The time series, starting with Q1 2000 are in compliance with the regulation:

- Laspeyres indices,
- calculated as labour cost per hour worked,
- for all C to O NACE Rev.1 sections,
- provided in the three labour cost categories:
 - LCI_TOT (total labour costs),
 - LCI_WAG (wages and salaries),
 - LCI_OTH (other labour costs),together with the three categories of annual weights used for the index calculation:
 - WGT_TOT (weights for total labour costs),
 - WGT_WAG (weights for wages),
 - WGT_OTH (weights for other labour costs)
- transmitted in the standard format, as Gesmes files, via eDAMIS.

The data are comparable for the entire period (Q1 2000 – present), using the same concepts.

(f) Coherence

The comparison between the compensation of employees, expressed per hour worked, shows some differences between Labour Cost Survey and National Account, due to the different coverage.

Main data sources for the National Accounts, by NACE sections are:

- Accounting statements of financial and non-financial units,
- Accounting statements of non-profit institutions serving households,
- Execution of state budget,
- Structural Business Survey ,
- Labour Cost Survey,
- Household Budget Survey,
- Labour Force Survey (for employment and hours worked data),
- Declaration on global income of self-employed persons and family associations,
- Balance of payments.

Apart from the clear difference in terms of employment definitions between LFS (data source for NA) and LCS and WS (data sources for LCI), the main reason for the discrepancies between the figures provided by the two data sources is the *proportion of informal sector and black market* in Romania, that are covered only by LFS. Also, the hours worked from LFS,

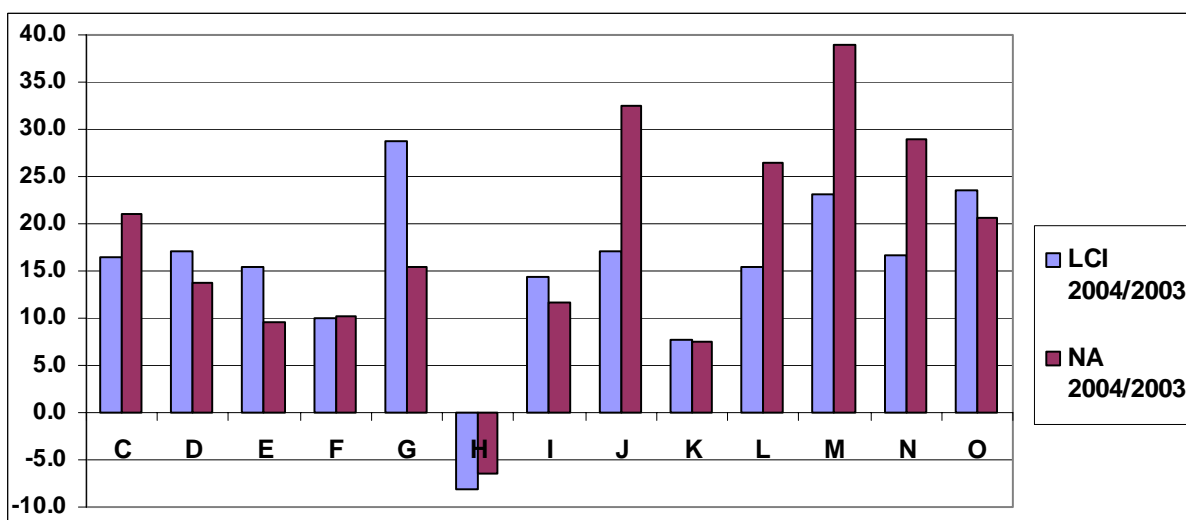
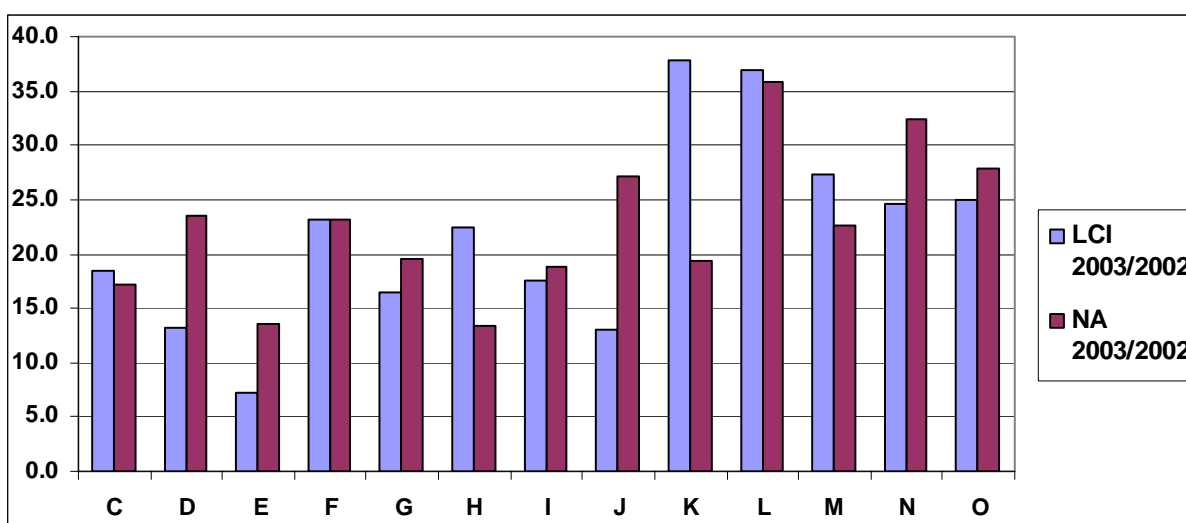
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Labour Cost Index (LCI) - Annual Quality Report - 2006

based on the self declaration of the household members differ from the hours worked, collected through business surveys.

Furthermore, compared with data sources of LCI, sections E and J include in NA persons with other kind of contracts (i.e. insurance agents, field agents), that are not paid from the salary budget. The coverage of section L – public administration is different, in NA armed forces are included. In comparison with data sources of LCI, Section O includes in NA data on trade unions, political parties, non-profit institutions serving households etc.

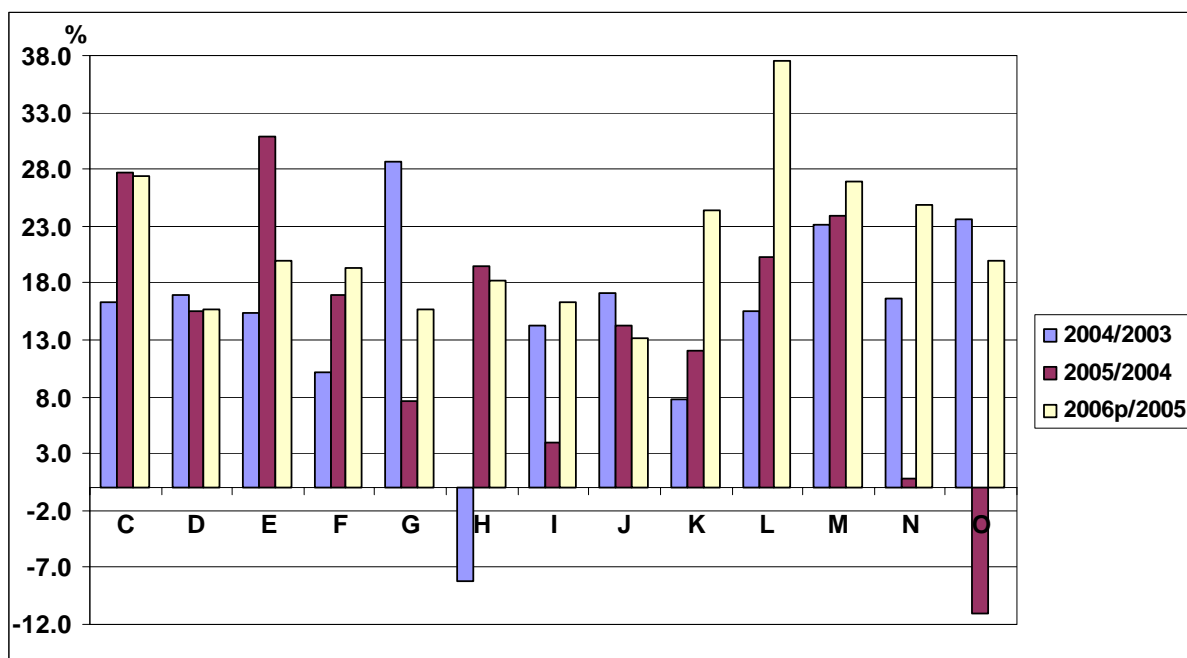
Data from National Accounts are provisional and from 2005 onwards not available.

Graph 1 - 2: Comparison between the growth rates of the average annual hourly labour costs (LCI) and of the compensation of employees per hours worked



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Labour Cost Index (LCI) - Annual Quality Report - 2006

Graph 3: Growth rates of the average annual hourly labour costs



p – provisional data

(g) Completeness

The data series of LCIs, starting with the 1st quarter 2000 onwards, are in compliance with the Council Regulation no 450/2003 for all three components of the index: total labour cost (LCI_TOT), wages and salaries (TOT_WAG) and other labour costs (TOT_OTH).

Under Programme Phare multi-beneficiary 2004 on the “Improvement of quality for labour and earnings statistics”, presently on going, there are foreseen activities for:

- developing the method of estimation for hours worked for period 1996 – 1999,
- calculation of the complete set of quarterly LCIs as Laspeyres indices (including LCIs excluding bonuses).

Phases of these activities have been already accomplished or are currently on going, as follows:

- the estimation of hours worked for period 1996 – 1999 based on:
 - o the distribution of the number of employees,
 - o the number of quarterly working days,
 - o the time series of hours worked collected monthly since 2001,
 - o the annual number of hours worked.
- the LCIs for the period 1st quarter 1996 – 4th quarter 1999 (total labour costs, wages and salaries, other labour costs) were calculated and provided as provisional data. There is a need for more data analysis before the time series for this period become final. This last activity is currently on going under the project.
- the total LCIs excluding bonuses are still under estimation, for the period 1st quarter 2000 – present. From 2005 onwards, the occasional bonuses are covered monthly by Wages Survey. The gross amounts paid from the net profit are also available monthly since 2000. Thus, there is a need for estimation of the entire amount of occasional bonuses for years 2000 – 2004. This activity is currently on going under the project.

Thus, at the end of the project (December 2007) full comparability and compliance with EU Regulation will be accomplished.