NATIONAL INSTITUTE OF STATISTICS
ROMANIA

QUALITY REPORT ON CONTINUING VOCATIONAL TRAINING SURVEY
- CVTS3 -

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Summary

1. RELEVANCE

1.1. Description and classification of users

The main users of the Continuing Vocational Training Survey (CVTS3) data may be grouped as following:

Table 1. Description and classification of users

User	Classification of user	Description of user
1	European level	Eurostat
2		CEDEFOP, European Training Foundation, European research institutes; European employers
3	National or regional level	Ministry of Labour, Family and Equal Opportunities
4		National Agency for Employment
5		Ministry of Education, Research and Youth
6		National Council for Adult Education and Training,
7		National Centre for Technical and Vocational Education and Training Development
8		Ministry of Economy and Finance
9		Ministry of Foreign Affairs
10		Ministry of Culture
11		National Agency for Small and Medium Enterprises
12		National Commission for Prognosis
13		Territorial statistical offices
14		Other statistical departments – Education, National Accounts
15	Multi-national organisations	ILO
16		OECD
17		UNDP
18		World Bank
19	Social actors	Trade unions
20		Employers and employers' associations
21	Media	Various newspapers
22	Researchers, students	Scientific Research Institute of Education
23		National Scientific Research Institute for Labour and Social Protection
24		Research Institute of National Economy
25		Research Institute for Quality of Life
26		Romanian Academy
27		Academy for Economic Studies
28		Students, doctorands
29	Enterprises	enterprises and other private users

1.2. Description of users needs

The Continuing Vocational Training Survey (CVTS3) outcomes, in relation with the information provided by previous survey (CVTS2) and other surveys, are used by policy makers in establishing the actions and measures for economic and social development strategies as well as for implementing the programs on active measures for improving the labour force skills and qualification for increasing the employability.

⍅ Ministry of Labour, Family and Equal Opportunities are interested in the employers programs and strategies for increasing the competitiveness in relation to the education and qualification of persons employed. The information is used to measure the inputs and outputs development among different economic activities.

⍅ National Council for Adult Education and Training has a high interest on the employers' expenses for vocational training as share of labour 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.

Users needs can be described as in the following table.

Table 2. Description of users needs

User (from Table 1.)	Needs In term of theoretical concepts	Source	Reference document
1	Harmonised data on continuing vocational training and initial vocational training – CVTS3 micro data files and aggregated data	CR no. 1552/2005 on statistics relating to vocational training in enterprises and the related Commission Regulation no 198/2006	Statistical Research Programme
3 – 7, 13	Statistical information for elaboration of strategies and policies at national and regional levels on employment and vocational training; Statistics needed to forecast the future need of training, especially of the adult population	working parties (planned or/and ad hoc); exchange of information according to bilateral agreements; participation in inter-institutional working groups; permanent member of National Observatory for Employment and Vocational Training	National Plan for Development 2007-2013, National plan for Employment, Reports of National Observatory for Employment and Vocational Training National and regional plans for education Information loaded on portal dedicated to continuing vocational training;
8-12	Main indicators characterizing vocational training used for studies, analysis and prognosis	ad hoc requests	Bilateral agreements
14	Statistics needed for data reconciliation, comparisons, analysis etc.	INS internal program of activities, internal co-operation	Statistical Research Programme
2, 15-18	Data for international comparisons, publications, studies and analysis	Agreements on international co-operation	Statistical Research Programme
19-21, 29	Information on size and characteristics of vocational training	INS duty to inform the public	Statistical Research Programme
22 - 28	Statistics needed for detailed and complex studies and analysis with regards to the volume, costs and other characteristics of vocational training in enterprises	INS duty to inform the public; special requests received from the users	Statistical Research Programme

1.3. Satisfaction of the users needs

(i)   internal users:

In 2005-2006 within Phare STAT MB 2003 program, a project on vocational training (consisting in several pilot surveys and feasibility tests) was carried out. At that time a working group was established consisting in experts from: Ministry of Education, Research and Youth, National Council for Adult Education and Training, Ministry of Labour, Family and Equal Opportunities, National Centre for Technical and Vocational Education and Training Development (TVET), Scientific Research Institute of Education. Later on, in 2006, a new member joins the working group: National Scientific Research Institute for Labour and Social Protection. The working group continued to work together and co-operated for developing the CVTS3 tools.

The draft survey tools prepared by INS - the questionnaire and explanatory notes – were sent for analysis, comments and observations to the members of the working group. After few weeks, agreed in advance, meetings were held and each item and variable was discussed.

Based on their comments and observations different changes (variables added, breakdowns of variables, updates of the legislation in force etc.) were 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.

2. ACCURACY

2.1. Sampling errors

- **Description of the sample design and the realized sample**

The population of interest for CVTS3 is formed by enterprises having 10 or more persons employed and belonging to the following NACE categories: C, D (15-16, 17-19, 21-22, 23-26, 27-28, 29-33, 34-35, 20+36-37), E, F, G (50,51,52), H, I (60-63,64), J (65-66,67), K+O.
An enterprise is defined, according to the legal text of "The Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community", as: *"the smallest combination of legal units that is an organizational 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 reference period is *the calendar year 2005.*

The sampling unit and **the observational unit** are the same, namely *the enterprise*.

The sample of enterprises has been taken according to stratification sampling design (stratification with simple random sampling within strata). The samples within strata have been taken without replacements. Strata were constructed by dividing the sampling frame by the main economic activity coded by NACE, rev. 1.1 and size class by number of employees. According to Eurostat recommendations (*Eurostat Working Papers, the 3rd Continuing Vocational Training Survey (CVTS3))*, the sample stratification must follow a minimum specification:

- 20 NACE rev 1.1 categories: C, D (15-16, 17-19, 21-22, 23-26, 27-28, 29-33, 34-35, 20+36-37), E, F, G (50,51,52), H, I (60-63, 64), J (65-66, 67), K+O.

- 3 Size classes by number of employees: 10-49, 50-249, 250 and more.

The stratification used by Romania is a deeper stratification based on:

- 3-digit level of NACE rev 1.1;

- 4 Size classes by number of employees: 10-19, 20-49, 50-249, 250 and more.

The top stratum (250 employees and more) has a total enumeration.

The strata are defined by the cross-classification of NACE categories with 4 size classes.

The sample size for each stratum was determined by using the Neyman allocation:

$$n_h = n \frac{N_h \sigma_h}{\sum N_h \sigma_h}$$

where:

h = index of strata
n_h= the number of units in the sample, in the stratum h
n=the number of units in the sample
N_h=the number of units in the sampling frame, in the stratum h
σ_h =the standard deviation (computed by using the number of employees) in the stratum h

The overall sample of enterprises was designed in a way that leads to representative results for the national economy.

The sample size was computed under the premise of the estimated error (computed by using the number of employees) equal to 0.02 and a confidence level of 95%.

It was also necessary to ensure that there are sufficient responses to obtain enough detail for cross-classifications. In order to achieve this goal, a minimum 20 units were selected from each stratum. This condition was fulfilled for the strata where the sampling frame exceeded 20 units. In case of a non-response rate of maximum 30%, the data imputation procedures were performed in good quality conditions.

The selection of the sample was performed by using SAS (Statistical Analysis System) and the whole sample selected comprises 9813 sampling units.

- **Description of the calculation of the final weights**

The computation of the final weights was performed according to the following steps:

1. Calculation of a selection weight (π_{ih}) for each unit. The selection weight is a Horvitz-Thompson weight and is computed as the inverse of the selection probability.

   where:

   $$\pi_{ih} = \frac{1}{p_{ih}} = \frac{N_h}{n_h}$$

   p_{ih} = the selection probability of unit i for stratum h

   N_h=the number of units in the sampling frame, in the stratum h
   n_h= the number of units in the sample, in the stratum h

2. Calculation of a non-response weight – adjustment - (c_{ih}). The non-response weight is computed at each stratum level, as the inverse of the response probability. The purpose of this coefficient is to compensate the non-respondent units, under the assumption that these non-respondent units have the same training patterns compared with the respondent units in the same stratum. Another considered premise is the fact that answering and non-answering is a random variable.

   where:

   $$c_h = \frac{n_h}{m_h}$$

   n_h= the number of units in the sample, in the stratum h
   m_h = the number of respondent units selected in the sample, in the stratum h

3. Calculation of the final weight ($COEF_{ih}^{ext}$)

$$COEF_{ih}^{ext} = \pi_{ih} \cdot c_h$$

- **Estimator used**

The estimator used for computing the estimated data and the estimated variance is Horvitz-Thomson estimator, as the fraction between the number of units in the sampling frame in the stratum *h* and the number of respondent units in the sample in the same stratum (N_h/m_h).

The estimation is based on the next assumptions:

- The response is stochastic and there is a response distribution.

- All units within a stratum respond with the same probability.

- **Description of the use of an auxiliary variable**

The auxiliary variable used is the number of employees. The final weights were adjusted on the basis of the comparison between the estimated number of employees in CVTS3 survey and the estimated number of employees from other administrative and statistical sources (Balance Sheet, Labor Cost Survey etc.). The adjustment was made at cell level, checking then the estimates at NACE category level, at enterprise size class level and at the overall level.

$$a_h = \frac{T_h}{\hat{T}_h} = \frac{T_h}{\sum\limits_{ih} \pi_{ih} \cdot c_h \cdot t_{ih}}$$

where:

a_h =the adjustment coefficient
T_h = the number of employees in other surveys, in the stratum *h*

$\hat{T}_h$ = the estimated number of employees computed by applying the final weight to the number of employees for the units in the sample, in the stratum *h*

- **Variance of the estimates according to the sample strata**

For the below illustrated formulas, stratum *h* represents a combination of NACE category and size class, based on variables in the sampling frame, while stratum *g* is a combination of NACE category and size class, based on variables at the end of reference year.

The formulas used in order to compute the coefficient of variation for the requested indicators are:

➢ **The case when the indicator is a total**, such as: Total number of persons employed

The point estimate of the total of variable y in the true stratum g is calculated by:

$$\hat{t}_{yh} = \sum_{h} \frac{N_h}{m_h} \sum_{i=1}^{m_h} y_{ihg},$$

N_h= the number of units in the sampling frame, in the stratum h

m_h = the number of respondent units selected in the sample, in the stratum h

y=the observed indicator (such as the number of persons employed)

with y_{ihg}= $\begin{cases} y_{ih}, \text{ when enterprise } i \text{ in the former} \\ 0, \text{ otherwise stratum } h \text{ belongs to} \end{cases}$

group g

- Sampling variance for stratum level:

$$\hat{V}\left(\hat{t}_{yhg}\right) = N_h^2 * \frac{s_{yh}^2}{m_h}(1 - f_h),$$

where: $f_h = \dfrac{m_h}{N_h}$ and $s_{yh}^2 = \dfrac{\sum_{h,i=1}^{m_h}(y_{ihg} - \bar{y}_{hg})^2}{m_h - 1}$ and $\bar{y}_{hg} = \dfrac{\sum_{h,i=1}^{m_h} y_{ihg}}{m_h}$.

- Sampling variance for total level:

$$\hat{V}\left(\hat{t}_{y}\right) = \sum_{h} N_h^2 * \frac{s_{yh}^2}{m_h}(1 - f_h)$$

The coefficient of variation is calculated by: $\sqrt{\hat{V}\left(\hat{t}_{yhg}\right)}/\hat{t}_{yhg}$ and $\sqrt{\hat{V}\left(\hat{t}_{y}\right)}/\hat{t}_{y}$

The estimators of the sampling variance used take into account the sampling design and the changes of strata and consider the respondents.

➢ **The case when the indicator is a proportion,** such as: Ratio of the total number of enterprises that provided CVT to the total number of enterprises

- Proportion for stratum level:

where:

N_h= the number of units in the sampling frame, in the stratum h

m_h = the number of respondent units selected in the sample, in the stratum h

a_h = the number of enterprises in stratum h that possess the property a

$$\hat{p}_{hg} = \frac{\dfrac{N_h}{m_h} * a_{hg}}{N_h}$$

$\hat{p}_{hg} = \dfrac{a_h}{n_h} =$ the proportion of the enterprises in stratum h and g that possess the property a

- Proportion for overall level:

$$\hat{p} = \frac{\sum N_h * \hat{p}_{hg}}{N}$$

- Sampling variance for stratum level:

$$\hat{v}\left(\hat{p}_{hg}\right) = \frac{(N_h - m_h)}{(m_h - 1)N_h} \times \hat{p}_{hg} \times (1 - \hat{p}_{hg})$$

- Sampling variance for overall level:

$$\hat{v}\left(\hat{p}\right) = \frac{1}{N^2} \sum_{h=1}^{H} N_h^2 \times \frac{(N_h - m_h)}{N_h(m_h - 1)} \times \hat{p}_{hg} \times (1 - \hat{p}_{hg})$$

The coefficient of variation is calculated by: $\sqrt{\hat{V}\left(\hat{p}_{hg}\right)} / \hat{p}_{hg}$ and $\sqrt{\hat{V}\left(\hat{p}\right)} / \hat{p}$

The estimators of the sampling variance used take into account the sampling design and the changes of strata and consider the respondents.

- **Variance estimation software**

In order to estimate variance by taking into account the changes of strata, Visual Fox Pro programs have been written and used.

Table 3. Number of enterprises in the sampling frame and in the sample 20 X 3 Matrix

NACE category	Data	Size classes			Grand Total
		10-49 employees	50-249 employees	250 employees and more	
C	Frame population	144	44	38	226
	Sample	99	44	38	181
D15-16	Frame population	2448	523	118	3089
	Sample	299	181	118	598
D17-19	Frame population	2601	1266	383	4250
	Sample	374	337	383	1094
D21-22	Frame population	525	138	21	684
	Sample	130	72	21	223
D23-26	Frame population	1271	336	139	1746
	Sample	501	218	139	858
D27-28	Frame population	890	375	85	1350
	Sample	277	181	85	543
D29-33	Frame population	698	297	178	1173
	Sample	481	234	178	893
D34-35	Frame population	149	108	85	342

NACE category	Data	Size classes			Grand Total
		10-49 employees	50-249 employees	250 employees and more	
	Sample	113	74	85	**272**
D20+36-37	Frame population	1701	602	104	**2407**
	Sample	390	212	104	**706**
E	Frame population	255	115	110	**480**
	Sample	69	53	110	**232**
F	Frame population	3988	1548	153	**5689**
	Sample	191	192	153	**536**
G50	Frame population	1307	230	15	**1552**
	Sample	165	80	15	**260**
G51	Frame population	4373	634	59	**5066**
	Sample	280	168	59	**507**
G52	Frame population	7416	444	37	**7897**
	Sample	267	117	37	**421**
H	Frame population	1416	191	22	**1629**
	Sample	197	61	22	**280**
I60-63	Frame population	1468	376	80	**1924**
	Sample	262	130	80	**472**
I64	Frame population	239	37	18	**294**
	Sample	59	27	18	**104**
J65-66	Frame population	120	44	36	**200**
	Sample	54	44	36	**134**
J67	Frame population	239	13		**252**
	Sample	47	13		**60**
K+O	Frame population	2209	1099	151	**3459**
	Sample	891	397	151	**1439**
Total Frame population		**33457**	**8420**	**1832**	**43709**
Total Sample		**5146**	**2835**	**1832**	**9813**

- **Coefficients of variation**

Table 4. Total number of persons employed
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	3.41%	1.05%	9.77%	**9.15%**
D15-16	3.08%	3.48%	2.75%	**1.77%**
D17-19	2.70%	2.46%	1.04%	**1.01%**
D21-22	4.47%	4.60%	3.05%	**2.47%**
D23-26	1.94%	2.17%	2.83%	**1.87%**
D27-28	2.62%	3.01%	3.25%	**2.16%**
D29-33	1.65%	1.62%	1.68%	**1.34%**
D34-35	3.23%	3.51%	3.22%	**2.82%**
D20+36-37	2.49%	3.39%	1.02%	**1.42%**

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
E	6.43%	4.67%	1.94%	**1.77%**
F	3.72%	4.02%	2.64%	**2.16%**
G50	3.55%	4.04%	0.00%	**2.23%**
G51	3.21%	4.23%	6.77%	**2.55%**
G52	3.18%	4.78%	6.59%	**2.50%**
H	3.60%	4.97%	6.50%	**2.70%**
I60-63	3.07%	3.77%	4.48%	**3.12%**
I64	6.55%	6.21%	35.97%	**32.11%**
J65-66	5.63%	2.97%	8.40%	**7.73%**
J67	7.86%	7.85%		**6.20%**
K+O	1.70%	2.38%	3.58%	**1.80%**
Size class level	**1.01%**	**1.03%**	**1.89%**	**1.06%**

Total number of enterprises that provided CVT

Table 5. Ratio of the total number of enterprises that provided CVT to the total number of enterprises
(For these indicators, we have the same values of the coefficients of variation)
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	11.18%	2.42%	2.58%	**5.26%**
D15-16	11.05%	7.82%	1.54%	**7.56%**
D17-19	8.73%	6.79%	1.44%	**5.24%**
D21-22	12.84%	9.79%	4.36%	**9.10%**
D23-26	6.14%	4.38%	1.57%	**3.78%**
D27-28	8.89%	6.72%	0.95%	**5.24%**
D29-33	4.44%	3.51%	0.89%	**2.38%**
D34-35	12.52%	6.43%	1.16%	**3.44%**
D20+36-37	9.49%	9.54%	1.32%	**6.51%**
E	17.08%	11.18%	0.54%	**7.09%**
F	11.87%	10.22%	1.45%	**8.46%**
G50	9.01%	9.48%	0.00%	**7.67%**
G51	8.76%	7.97%	2.65%	**7.40%**
G52	8.93%	10.11%	3.96%	**8.31%**
H	10.78%	16.42%	4.50%	**9.40%**
I60-63	9.91%	7.75%	1.02%	**6.69%**
I64	22.46%	12.55%	8.33%	**15.25%**
J65-66	12.77%	4.64%	1.91%	**6.20%**
J67	22.31%	16.01%		**20.50%**
K+O	4.09%	5.36%	2.57%	**3.04%**
Size class level	**3.11%**	**2.38%**	**0.45%**	**2.26%**

Total number of enterprises that provided CVT courses

Table 6. Ratio of the total number of enterprises that provided CVT courses to the total number of enterprises
(For these indicators, we have the same values of the coefficients of variation)
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	15.23%	2.42%	3.30%	**5.79%**
D15-16	14.53%	10.23%	1.88%	**9.38%**
D17-19	13.39%	8.95%	1.96%	**7.18%**
D21-22	16.56%	10.81%	4.94%	**10.80%**
D23-26	7.67%	5.33%	1.89%	**4.40%**
D27-28	14.19%	9.32%	1.11%	**6.94%**
D29-33	5.95%	4.34%	0.96%	**2.82%**
D34-35	17.30%	7.95%	1.42%	**3.92%**
D20+36-37	14.39%	11.92%	1.73%	**8.68%**
E	22.78%	13.16%	0.74%	**8.06%**
F	16.06%	11.73%	1.69%	**10.51%**
G50	12.78%	10.53%	0.00%	**10.26%**
G51	10.75%	9.43%	2.79%	**8.93%**
G52	11.93%	12.65%	4.33%	**10.96%**
H	18.20%	24.50%	4.50%	**14.98%**
I60-63	11.46%	9.96%	1.28%	**7.87%**
I64	27.15%	17.95%	10.14%	**18.36%**
J65-66	16.03%	4.90%	1.91%	**6.78%**
J67	27.11%	16.01%		**24.25%**
K+O	5.36%	6.30%	2.89%	**3.77%**
Size class level	**4.20%**	**2.89%**	**0.53%**	**2.87%**

Table 7. Total number of persons employed in enterprises that provided CVT
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	12.59%	2.51%	10.21%	**9.89%**
D15-16	12.31%	8.18%	3.21%	**3.26%**
D17-19	9.82%	7.09%	1.90%	**2.37%**
D21-22	14.92%	10.86%	4.40%	**5.45%**
D23-26	6.78%	4.69%	3.25%	**2.63%**
D27-28	9.84%	7.16%	3.63%	**3.10%**
D29-33	4.96%	3.71%	1.92%	**1.69%**
D34-35	13.63%	7.09%	3.70%	**3.41%**
D20+36-37	10.49%	10.48%	1.70%	**3.65%**

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
E	18.85%	11.46%	2.03%	**2.02%**
F	12.87%	10.68%	3.54%	**5.04%**
G50	10.13%	10.08%	0.00%	**5.77%**
G51	9.57%	8.68%	7.56%	**5.01%**
G52	10.05%	10.52%	8.17%	**6.09%**
H	12.02%	18.14%	8.57%	**7.01%**
I60-63	11.24%	8.38%	4.79%	**4.07%**
I64	25.37%	14.36%	36.88%	**35.04%**
J65-66	12.97%	3.92%	8.58%	**8.01%**
J67	24.45%	19.32%		**17.38%**
K+O	4.62%	5.70%	4.81%	**3.22%**
Size class level	**3.33%**	**2.53%**	**2.20%**	**1.62%**

Table 8. Total number of participants in CVT courses
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	22.67%	4.79%	12.20%	**11.81%**
D15-16	20.36%	17.58%	6.21%	**5.98%**
D17-19	23.15%	16.68%	5.14%	**6.84%**
D21-22	26.89%	20.33%	10.93%	**9.95%**
D23-26	12.77%	9.44%	5.65%	**4.91%**
D27-28	20.89%	18.32%	3.73%	**3.74%**
D29-33	8.72%	7.99%	3.60%	**3.31%**
D34-35	30.50%	15.94%	6.30%	**6.03%**
D20+36-37	24.64%	23.37%	4.53%	**11.03%**
E	35.50%	33.37%	2.67%	**2.76%**
F	27.15%	23.44%	4.49%	**10.92%**
G50	19.67%	17.96%	0.00%	**10.17%**
G51	14.75%	17.43%	6.08%	**8.34%**
G52	15.88%	21.36%	9.18%	**9.32%**
H	24.69%	35.31%	9.15%	**10.01%**
I60-63	18.26%	20.59%	7.58%	**6.76%**
I64	38.84%	20.32%	16.34%	**14.73%**
J65-66	22.10%	7.60%	9.93%	**9.53%**
J67	28.75%	21.58%		**24.33%**
K+O	7.57%	10.99%	7.87%	**5.50%**
Size class level	**6.02%**	**5.09%**	**1.90%**	**1.74%**

Table 9. Ratio of the total number of participants in CVT courses to the total number of persons employed
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	34.63%	6.08%	9.47%	**12.34%**
D15-16	24.66%	21.83%	5.74%	**17.41%**
D17-19	24.53%	20.68%	5.57%	**15.88%**
D21-22	29.77%	24.01%	14.30%	**20.78%**
D23-26	14.41%	12.25%	4.90%	**8.48%**
D27-28	26.41%	25.87%	3.56%	**15.33%**
D29-33	10.28%	9.97%	2.67%	**5.54%**
D34-35	32.28%	19.16%	3.40%	**7.12%**
D20+36-37	29.46%	29.90%	6.58%	**21.21%**
E	43.68%	43.49%	2.54%	**18.39%**
F	30.20%	27.17%	5.41%	**22.05%**
G50	25.18%	22.42%	0.00%	**20.23%**
G51	19.10%	21.58%	9.82%	**16.80%**
G52	18.67%	27.38%	12.11%	**17.69%**
H	30.84%	62.89%	14.30%	**27.21%**
I60-63	22.52%	24.73%	3.94%	**16.62%**
I64	48.97%	35.44%	20.79%	**31.49%**
J65-66	27.70%	10.15%	6.27%	**11.26%**
J67	32.91%	48.22%		**31.90%**
K+O	8.82%	13.12%	8.23%	**6.89%**
Size class level	**7.44%**	**6.36%**	**1.49%**	**5.64%**

Table 10. Ratio of the total number of participants in CVT courses to the total number of persons employed in enterprises that provided CVT
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	34.63%	6.08%	9.47%	**12.34%**
D15-16	24.66%	21.83%	5.74%	**17.41%**
D17-19	24.53%	20.68%	5.57%	**15.88%**
D21-22	29.77%	24.01%	14.30%	**20.78%**
D23-26	14.41%	12.25%	4.90%	**8.48%**
D27-28	26.41%	25.87%	3.56%	**15.33%**
D29-33	10.28%	9.97%	2.67%	**5.54%**
D34-35	32.28%	19.16%	3.40%	**7.12%**
D20+36-37	29.46%	29.90%	6.58%	**21.21%**
E	43.68%	43.49%	2.54%	**18.39%**
F	30.20%	27.17%	5.41%	**22.05%**

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
G50	25.18%	22.42%	0.00%	**20.23%**
G51	19.10%	21.58%	9.82%	**16.80%**
G52	18.67%	27.38%	12.11%	**17.69%**
H	30.84%	62.89%	14.30%	**27.21%**
I60-63	22.52%	24.73%	3.94%	**16.62%**
I64	48.97%	35.44%	20.79%	**31.49%**
J65-66	27.70%	10.15%	6.27%	**11.26%**
J67	32.91%	48.22%		**31.90%**
K+O	8.82%	13.12%	8.23%	**6.89%**
Size class level	**7.44%**	**6.36%**	**1.49%**	**5.64%**

Table 11. Total costs of CVT courses
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	52.83%	3.48%	17.75%	**17.57%**
D15-16	23.98%	28.87%	12.07%	**10.23%**
D17-19	24.93%	22.42%	6.25%	**9.67%**
D21-22	33.76%	38.70%	9.08%	**20.37%**
D23-26	24.68%	15.88%	7.35%	**6.66%**
D27-28	48.74%	16.00%	6.29%	**6.32%**
D29-33	41.39%	12.30%	6.94%	**6.97%**
D34-35	28.01%	19.10%	8.69%	**8.04%**
D20+36-37	27.34%	24.67%	4.98%	**11.84%**
E	30.54%	25.16%	4.04%	**4.00%**
F	24.65%	19.32%	6.33%	**10.21%**
G50	41.14%	34.58%	0.00%	**19.30%**
G51	30.56%	24.81%	10.55%	**11.97%**
G52	21.27%	54.00%	11.29%	**26.29%**
H	48.33%	63.50%	16.97%	**18.27%**
I60-63	32.72%	27.61%	6.97%	**8.41%**
I64	54.85%	50.40%	29.89%	**28.10%**
J65-66	34.10%	22.97%	10.90%	**9.83%**
J67	37.04%	33.99%		**25.32%**
K+O	23.01%	20.55%	11.35%	**11.59%**
Size class level	**9.36%**	**10.25%**	**4.10%**	**3.58%**

Total number of enterprises providing IVT

Table 12. Ratio of the total number of enterprises providing IVT to the total number of enterprises
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	65.09%	0.00%	16.10%	**30.49%**
D15-16	70.51%	33.47%	10.98%	**33.51%**
D17-19	72.55%	30.75%	4.14%	**18.69%**
D21-22	87.69%	51.94%	0.00%	**53.15%**
D23-26	0.00%	28.85%	10.96%	**12.66%**
D27-28	48.50%	26.08%	13.12%	**23.02%**
D29-33	28.78%	19.79%	6.80%	**12.88%**
D34-35	0.00%	59.91%	8.18%	**12.70%**
D20+36-37	0.00%	36.21%	7.53%	**26.48%**
E	0.00%	0.00%	8.54%	**8.54%**
F	93.56%	46.83%	9.20%	**43.06%**
G50	68.19%	39.92%	0.00%	**45.29%**
G51	0.00%	0.00%	13.82%	**13.80%**
G52	55.25%	60.42%	28.16%	**50.26%**
H	54.04%	0.00%	20.13%	**48.26%**
I60-63	0.00%	47.13%	0.00%	**42.36%**
I64	90.18%	61.71%	52.65%	**60.36%**
J65-66	78.33%	36.04%	18.48%	**30.48%**
J67	0.00%	0.00%		**0.00%**
K+O	30.16%	23.26%	22.64%	**17.74%**
Size class level	**23.98%**	**11.68%**	**2.65%**	**11.86%**

Table 13. Total number of participants in IVT
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	64.55%	0.00%	16.44%	**22.00%**
D15-16	67.23%	39.97%	17.32%	**20.81%**
D17-19	70.52%	41.77%	7.07%	**11.08%**
D21-22	90.15%	52.78%	0.00%	**59.95%**
D23-26	82.47%	48.69%	15.90%	**16.14%**
D27-28	51.29%	37.33%	13.45%	**25.23%**
D29-33	30.35%	25.38%	7.51%	**7.77%**
D34-35	0.00%	61.55%	12.01%	**11.94%**
D20+36-37	0.00%	43.64%	7.73%	**21.79%**
E	0.00%	0.00%	9.64%	**9.64%**

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F	98.11%	69.51%	15.74%	**47.00%**
G50	70.47%	53.50%	0.00%	**42.62%**
G51	0.00%	0.00%	26.54%	**26.54%**
G52	78.89%	72.81%	35.18%	**50.61%**
H	58.67%	0.00%	22.36%	**42.11%**
I60-63	0.00%	53.51%	15.80%	**19.25%**
I64	90.45%	61.30%	52.52%	**48.20%**
J65-66	78.29%	36.72%	23.71%	**19.95%**
J67	0.00%	0.00%		**0.00%**
K+O	33.90%	34.61%	31.76%	**23.17%**
Size class level	**37.93%**	**17.28%**	**5.63%**	**7.43%**

Table 14. Total costs of IVT
(Taking into account the changing of strata and considering the respondents)

NACE category	Size Class - by number of employees			NACE category level
	10-49 employees	50-249 employees	250 employees and more	
C	64.54%	0.00%	18.21%	**17.96%**
D15-16	68.45%	46.29%	21.67%	**33.72%**
D17-19	72.08%	59.61%	13.44%	**17.32%**
D21-22	90.15%	54.86%	0.00%	**53.23%**
D23-26	82.39%	51.54%	14.34%	**32.35%**
D27-28	70.59%	49.32%	12.06%	**34.82%**
D29-33	33.66%	36.85%	15.96%	**14.87%**
D34-35	0.00%	61.55%	11.64%	**11.49%**
D20+36-37	0.00%	47.25%	16.02%	**15.19%**
E	0.00%	0.00%	9.91%	**9.91%**
F	98.08%	53.48%	19.99%	**41.54%**
G50	66.80%	67.33%	0.00%	**50.51%**
G51	0.00%	0.00%	16.74%	**16.74%**
G52	60.42%	64.77%	29.42%	**57.80%**
H	71.80%	0.00%	24.15%	**35.79%**
I60-63	0.00%	51.26%	15.80%	**15.39%**
I64	90.45%	61.30%	52.52%	**39.78%**
J65-66	78.29%	36.72%	33.12%	**30.64%**
J67	0.00%	0.00%		**0.00%**
K+O	43.67%	58.36%	36.55%	**45.68%**
Size class level	**32.55%**	**27.25%**	**8.11%**	**8.02%**

2.2. Non-sampling errors

2.2.1. Coverage errors

- **Description of the register used for sampling and its overall quality**

The Business Register (REGIS) is used as a sampling frame. The Business Register was designed and implemented having as a main data sources the administrative files and

statistical sources. The main administrative source of data for REGIS is the Fiscal Register. The Trade Register is used as a consultation data source in order to improve the quality of the register. Other files used as source of data for the REGIS in Romania are:

- Balance Sheet files;

- VAT files;

- An exclusively REGIS survey for the new enterprises regarding their main activity and size and so on.

The information received from different data sources (surveys carried out by NIS in Romania) is also complemented.

- **Information included in the register and its updating frequency**

The Register is updated every semester, according with the previous main provider of information.

According to the Council Regulations, REGIS contains the following kind of statistical units: legal unit, enterprise, local unit.

All the enterprises having the main activity in the section A to Q of NACE rev. 1.1., whatever their size (number of employees or turnover) are covered.

So, 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 their belonging to the private or public sector.

The information contained of REGIS is grouped as following:

- identification indicators of an enterprise: statistical identify code (SIRUES), fiscal code, status code, name, region, address, administration link code (local units), telephone number, and so on;

- activity indicators of an enterprise: branch of economy (main activity, secondary activities), legal form, institutional sector, category of ownership, size class, number of employees, turnover

- other: date of entry, date of birth, date of death, source, changes (division, merge, etc.), and so on.

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

The *sampling frame for CVTS3 in Romania* was selected from the REGIS and comprises:

- All the enterprises created before the reference year (2005), which were still active and belonging to the statistical population of interest.

- All the new enterprises created in course of the reference year (2005), which were still active and belonging to the statistical population of interest.

- **Errors due to discrepancies between the sampling frame and the target population and sub-populations (over-coverage, under-coverage, misclassifications).**

- **Over-coverage and under-coverage**

In the observed sample there are 565 over-coverage units. These units are not counted in response set.

The extend of under-coverage, that is enterprises within the scope of the survey but which were not included in the sampling frame cannot be known but given the efforts made to keep the sampling frame up-to-date it is unlikely to have been very large.

To perform the adjustments of the over- and under-coverage by weighting procedure we used a model assumption. These assumptions were made for each stratum and were the following:

- 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. This assumption is supported by the table presenting the ratio between number of units from the sample frame and the same indicator obtained from the update sampling frame at the end of the survey.

- 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.

Table 15. The ratio between the number of units from the sample frame and the number of units from the update sampling frame at the end of the survey

| NACE category | Size Class of enterprise (by number of employees) | | | Total |
	10-49 employees	50-249 employees	250 employees and more	
C	0.91	1.00	1.12	**0.96**
D15-16	0.99	1.02	0.98	**1.00**
D17-19	1.01	1.05	1.13	**1.04**
D21-22	0.95	0.98	0.91	**0.96**
D23-26	0.96	0.95	1.08	**0.97**
D27-28	0.87	0.98	1.08	**0.91**
D29-33	0.97	0.95	1.06	**0.98**
D34-35	0.95	0.85	1.07	**0.94**
D20+36-37	0.96	1.02	1.13	**0.98**
E	0.82	0.39	1.05	**0.71**
F	0.91	1.02	1.14	**0.94**
G50	0.92	0.85	1.13	**0.91**
G51	0.97	0.94	0.89	**0.96**
G52	0.94	0.91	0.83	**0.94**
H	0.88	1.04	1.08	**0.90**
I60-63	0.88	1.00	0.96	**0.91**
I64	0.84	0.90	1.12	**0.87**
J65-66	0.48	0.85	0.95	**0.60**
J67	0.74	0.81		**0.75**
K+O	0.86	0.97	0.91	**0.88**
Total	**0.93**	**0.98**	**1.05**	**0.94**

The overall ratio is situated below 1, indicating an increase in the number of units of the update sampling frame.

- **Misclassifications**

Table 16. Measure of misclassification by NACE category (number of units)

NACE category according to the sampling frame	NACE category according to the observed sample																				Grand Total
	C	D15-16	D17-19	D21-22	D23-26	D27-28	D29-33	D34-35	D20+36-37	E	F	G50	G51	G52	H	I60-63	I64	J65-66	J67	K+O	
C	162				1																163
D15-16		485			3									2						2	492
D17-19			899	1						1	1		1	2	1					5	911
D21-22				175										2				1			178
D23-26	3		1		730		1		1												736
D27-28					1	464	5		1		1									1	473
D29-33			1		1	5	763	1					1	1						3	777
D34-35							3	238												1	242
D20+36-37				1	1		1		561											4	568
E									1	202						2				3	208
F	2				2				1		454				1					3	463
G50									1			220								1	222
G51			2		1	1	2		1				399	3	1	1				1	412
G52			2	1									1	341	1	1	1			2	351
H					1										217					1	219
I60-63	1												1			412					414
I64													1				77			1	79
J65-66													1					115			116
J67																		1	49		50
K+O			4		2		3						1	1		1	1	1		1055	1069
Grand Total	168	485	909	178	743	470	778	239	568	203	459	220	405	351	221	417	79	118	49	1083	8143

Table 17. Measure of misclassification by NACE category (% of units in the observed NACE category comes from the sampling frame NACE category)

NACE category according to the sampling frame	NACE category according to the observed sample																				Grand Total
	C	D15-16	D17-19	D21-22	D23-26	D27-28	D29-33	D34-35	D20+36-37	E	F	G50	G51	G52	H	I60-63	I64	J65-66	J67	K+O	
C	**96.4**	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**2.0**
D15-16	0.0	**100.0**	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.2	**6.0**
D17-19	0.0	0.0	**98.9**	0.6	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.2	0.6	0.5	0.0	0.0	0.0	0.0	0.5	**11.2**
D21-22	0.0	0.0	0.0	**98.3**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.8	0.0	0.0	**2.2**
D23-26	1.8	0.0	0.1	0.0	**98.3**	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**9.0**
D27-28	0.0	0.0	0.0	0.0	0.1	**98.7**	0.6	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	**5.8**
D29-33	0.0	0.0	0.1	0.0	0.1	1.1	**98.1**	0.4	0.0	0.0	0.2	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.3	**9.5**
D34-35	0.0	0.0	0.0	0.0	0.0	0.0	0.4	**99.6**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	**3.0**
D20+36-37	0.0	0.0	0.0	0.6	0.1	0.0	0.1	0.0	**98.8**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	**7.0**
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	**99.5**	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3	**2.6**
F	1.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	**98.9**	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.3	**5.7**
G50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	**100.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	**2.7**
G51	0.0	0.0	0.2	0.0	0.1	0.2	0.3	0.0	0.2	0.0	0.0	0.0	**98.5**	0.9	0.5	0.2	0.0	0.0	0.0	0.1	**5.1**
G52	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	**97.2**	0.5	0.2	1.3	0.0	0.0	0.2	**4.3**
H	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**98.2**	0.0	0.0	0.0	0.0	0.1	**2.7**
I60-63	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	**98.8**	0.0	0.0	0.0	0.0	**5.1**
I64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	**97.5**	0.0	0.0	0.1	**1.0**
J65-66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**97.5**	0.0	0.0	**1.4**
J67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	**100.0**	0.0	**0.6**
K+O	0.0	0.0	0.4	0.0	0.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.2	1.3	0.8	0.0	**97.4**	**13.1**
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	**100.0**

Table 18. Measure of misclassification by size class * (number of units)

Size Class according to the sampling frame	Size Class according to the observed sample			Grand Total
	10-49 employees	50-249 employees	250 employees and more	
10-49 employees	**3568**	345	7	**3920**
50-249 employees	262	**2038**	233	**2533**
250 employees and more	14	116	**1560**	**1690**
Grand Total	**3844**	**2499**	**1800**	**8143**

* The size classes according to the sampling frame refer to the average number of employees, while the size classes according to the observed sample refer to the number of employees at the end of the year.

Table 19. Measure of misclassification by size class *

(% of units in the observed size class comes from the sampling frame size class)

Size Class according to the sampling frame	Size Class according to the observed sample			Grand Total
	10-49 employees	50-249 employees	250 employees and more	
10-49 employees	**92.82**	13.81	0.39	**48.14**
50-249 employees	6.82	**81.55**	12.94	**31.11**
250 employees and more	0.36	4.64	**86.67**	**20.75**
Grand Total	100.00	100.00	100.00	100.00

* The size classes according to the sampling frame refer to the average number of employees, while the size classes according to the observed sample refer to the number of employees at the end of the year.

Table 20. Ratio of the number of enterprises for which the observed strata equals to the sampling strata (considering the respondent units)

NACE category	Size class			Total
	10-49 employees	50-249 employees	250 employees and more	
C	96.43%	86.05%	86.11%	**91.41%**
D15-16	91.48%	76.22%	94.29%	**86.99%**
D17-19	90.94%	77.89%	94.03%	**87.93%**
D21-22	92.86%	85.25%	84.21%	**89.33%**
D23-26	90.44%	80.88%	90.32%	**87.77%**
D27-28	88.70%	81.88%	90.36%	**86.68%**
D29-33	88.86%	81.74%	85.47%	**86.10%**
D34-35	84.04%	88.06%	95.06%	**88.84%**
D20+36-37	90.91%	76.24%	90.10%	**86.09%**
E	82.00%	80.00%	91.67%	**86.54%**
F	87.84%	68.42%	92.36%	**82.07%**
G50	92.31%	88.31%	80.00%	**90.09%**
G51	88.46%	74.17%	86.79%	**83.01%**
G52	92.99%	74.53%	93.55%	**87.46%**
H	95.95%	88.46%	94.74%	**94.06%**
I60-63	92.45%	79.84%	93.59%	**88.89%**
I64	90.70%	86.96%	92.31%	**89.87%**
J65-66	78.26%	71.05%	93.75%	**80.17%**
J67	82.50%	100.00%		**86.00%**
K+O	90.12%	76.33%	88.71%	**85.59%**
Total	**90.28%**	**78.60%**	**91.18%**	**86.84%**

2.2.2. Measurement errors

No special testing of the survey questionnaires was organised since in 2005-2006 two pilot surveys and two feasibility tests were conducted, part of its with the aim of testing

- the existence of the IVT and development of a definition on it;

- the existence of the CVT and finding the most appropriate questionnaire design for capturing all types of training.

Lessons learned, comments and observations resulted after these pilot surveys were taken into account when designing of the CVTS3. The draft survey tools (questionnaire and manual) were analysed by the members of the working group established for this survey (see explanations from 1.3. Satisfaction of the users needs) and by the survey' co-ordinators from the TSOs. Final survey tools were prepared taking into consideration their observations and suggestions.

Main Survey: *FACE – TO - FACE INTERVIEW, as registration method*

For the registration of the data in the questionnaire was used the method of **„face to face" interview** (100%). This method was chosen based on the experience from the previous survey (CVTS2) when same method was applied. This way, more accurate and complete data were obtained from the respondents, especially for quantitative questions, where supplementary calculations were needed (such as CVT and IVT costs, hours spent on CVT courses etc.). The number of face-to-face interviewers (enumerators) was 423 persons. The face-to-face interview method was used in all enterprises irrespective of their size (small, medium, large). In that way, good data concerning the volume and characteristics of vocational training provided by enterprises was captured.

The enumerators went to the offices of the selected units and collected the required data. When it was the case, the enumerators made the calculation using the primary data resources provided by the unit; the management of the unit approved the results obtained during subsequent visits.

Data collection from the sampled units was accomplished during 8 weeks, **from 17 April to 11 June.**

Each enumerator collected the information from about 20 units. In order to ensure a good data collection, <u>originally</u>, it was planned that each enumerator will collect the data from 4 enterprises per week (9813 enterprises selected by 423 enumerators by 6 weeks), i.e. in total about 24 enterprises per enumerator. But, <u>in reality</u>, the respondent enterprises accounted for 8143 units. Taking into account the prolongation with two weeks of the data collection, a share of around 2-3 enterprises per enumerator during one week resulted, meaning around 19 enterprises per enumerator (8143 units per 423 enumerators per 8 weeks).

The week before the data collection started (8-16 April 2006) was allocated for enterprises identification, contact and for establishing the dates of visits for interview. During this week the enumerators identified and located the selected enterprises, had a first visit to the enterprises and hand them the presentation letter. The main role of this letter consisted in informing the units' manager or management board about expectations of the survey, the objectives and the importance of participation to the survey. Main results of CVTS2 (the previous survey) were included. The letter underlined and assured the managing board of the enterprise that the information are strictly confidential. By notifications, the enumerators announced the data and the hour of the interview with the manager of enterprise or a person designated by the manager.

Field survey personnel was composed of 423 interviewers, 47 survey co-ordinators (41 counties + 6 districts of Bucharest Municipality) and 47 data entry operators.

Local survey co-ordinators were recruited among the permanent staff of the territorial statistical offices (TSOs) that had proven good experience in organising and implementing the field operations for the surveys performed on different social statistics topics. 80% of them were the same persons that were involved in CVTS2.

Each survey co-ordinator was responsible for the enumerators' activity in helping them to organise their field work, to guide them when and if problems occurred, to make the necessary calculations when it was the case, to classify in correct way the fields of study etc., to check the calculations and the relation between different questions etc. Another task was to replace any of the enumerators if, for example, same enumerator was scheduled on same date for two respondent units without any possibility from the enterprise side to reprogram it.

The recruitment of the enumerators was performed within each county. Previous experience on other social statistics surveys carried out by INS represented an advantage. Recruitment of the survey enumerators was accomplished by 3-rd of April 2006.

The enumerators were persons with secondary and tertiary education, recruited by the territorial statistical offices (TSOs).

The training has been organised in several steps and levels:

- first one addressed to survey co-ordinators, held in Bucharest (INS headquarters) on 31 March 2006;

- other 42 training periods (held during 4-11 April 2006) in the 42 counties of Romania (41 counties + Bucharest Municipality) were addressed to the enumerators and data entry operators organised by the personnel already trained (survey co-ordinators) under the supervision and with the support of the CVTS3 team from INS – headquarters.

Survey questionnaire and manuals were released in advance in order to offer the possibility to the participants to prepare before training.

First session of each training round was dedicated to the presentation of the:
- international context of the CVTS3;
- general information on the survey;
- scheduling of survey operations;
- organisation of survey field operations (including tasks and responsibilities of each category of field staff);
- presentation of the calendar of activities (instructions on how and when to organise the field work for each category of field staff);
- description of survey tools (questionnaires, survey manual, sample lists, classifications, letter addressed to the enterprises etc.);
- detailed explanations on the survey questionnaire (each chpater, question and variable) and of questionnaire flows;
- practical examples for filling in questionnaires;
- other organisational issues;
- questions, discussions.

A *second session* within the training program was oriented on more practical issues by testing the participants on:
- their level of understanding of the concepts and definitions of the survey;
- logical subsequent of the questionnaire (including the relations and links between different questions);
- on methods of calculations to be applied;
- content and how to use the classifications for this survey.

Two types of tests were given:
(i)   several examples (text format) of different cases possible to meet on the field, asking the participants to fill in the questionnaires according to the instructions (from the manual and presented during the first session of the training).
(ii)   questionnaires already fulfilled containing few errors were given to the participants asking them to check and to offer their opinion about how correct were filled in the questionnaires.

Volunteers from among the participants presented the answers to the given examples, which were followed by detailed discussions that ensured all participants had a complete and correct understanding of the content of each variable and of the connections between them.

A *third session* was focussed on the sampling plan and on the IT application used at local level for this survey.

Data collection was performed by face-to-face interview using paper and pencil (PAPI). 423 enumerators were used to accomplish this task. The sample selected amounted for 9813 enterprises. The total number of interviews accounted for 8143 enterprises (respondent), i.e. about 2- 3 interviewed enterprises per enumerator during one week.

Among the enumerators women were in higher proportion: 54%. Nearly two thirds of all enumerators (60.4%) had graduated upper secondary levels of education (according to ISCED 97) while the rest (39.6%) were highly educated (graduates of at least university level).

Following professions were prevailing among the enumerators: teachers, librarians, ex-employees of territorial statistical offices, employees of the local authorities and accountants.

An overwhelming share of the enumerators (96.6%) had previous experience in other social statistics surveys carried out on population households such as Household Budget Survey, Income and Living Conditions Survey, Labour Force Survey, Health Population Survey, CVTS2 etc. as well as on last Population and Dwellings Census performed in March 2002.

Enumerators were instructed to carry out interviews in several visits if the respondent was requiring. According to the reports of the enumerators, in average, for the enterprises that provided CVT, two visits were necessary while for those not providing CVT one visit was enough to collect the data. Interviews averaged to 8,6 hours per questionnaire. For enterprises that provided CVT the average duration of the interview lasted longer than for those that did not provide CVT (15,4 hours as against 1,2 hours). The average duration of the interview in case of enterprises that provided both CVT and IVT was 16,1 hours.

The national questionnaire was drawn up by using as a guide and respecting the outline of the Master Questionnaire. As a rule, the EUROSTAT recommendations in terms of methodology and organisational principles were followed. First part of the national questionnaire consisted in the presentation of the chapters with the indications of to whom the questions are addressed. The navigation via questionnaire (flow chart) was included immediately after. Main definitions of

interest for the CVTS3 were presented with the necessary details. The definitions part also comprised a table concerning the criteria needed to distinguish the CVT and/from IVT. Although the well prepared training of field staff and all mentioned above, several problems were encountered:

- in 8 cases (enterprises) proved non-understanding of concepts on CVT and IVT: same figures were reported for IVT as for CVT (number of participants, costs); errors were corrected after turning back to these enterprises and re-collecting the data;

- difficulties in clear separation of IVT from CVT although the share of enterprises providing IVT is very low since in Romania the initial vocational training in schools dominates;

- difficulties in splitting the time spent in training courses between during normal working hours and outside normal hours); estimations were made by the respondents with the help of the enumerator and of the INS team;

- difficulties in recognising the field of training: more detailed fields of training were used in such a way that the results could be aggregated to the field categories required for data to be transmitted to Eurostat; for "other field" Romanian questionnaire asked for the clear name (and short description) of the courses; in 214 cases, due to the explanations from this category and after consulting the enterprises, data were moved into the adequate field of training;

- difficulties in providing the CVT courses costs by breakdowns; during data collection with the help of the enumerator and assistance of the INS team, the data for the requested variables were retrieved or/and where necessary were estimated; in 137 cases the estimation of breakdowns was not possible (imputation methods were applied).

In most cases when errors were detected, call-backs were necessary to find out the correct values for an enterprise. Direct methods (additional contacts) were used to reduce the missing information or correct the errors, seeking with respondents to clarify responses and/or obtain additional information.

2.2.3. Processing errors

The IT solution for the Continuing Vocational Training Survey (CVTS3) was developed to find out the measurement and processing errors occurred in different stages of the survey. The application was designed using Visual FoxPro and divided into two components:
- IT solution at local level – territorial statistical offices (TSOs);
- IT solution at central level – INS headquarters (Bucharest).

The IT solution at local level (TSOs) allowed to perform the data entry and validation at county level (42 counties in total – according to 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 logical checks inside the tables (for those with numerical data).

The logical tests have the scope:
- to follow and check the logical flows of the questionnaire;
- to correlate the data from related chapters of the questionnaire;
- to correlate the answers between different questions within same chapter and between chapters of the questionnaire;
- to check the correlation of data from different questions (for the quantitative ones);
- to define and check certain limits to which different indicators must belong;
- to check the level of totals with the sum of the breakdowns (by rows and columns) within same table for quantitative data;
- 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 (INS-head-quarters) 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,
- printing the alternative „another" for answers,
- adjustment and weighting procedures,
- imputation methods,
- 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 (CVTS2) for the main and common variables,
- data comparability with other data sources (i.e. 2005 Labour Cost Survey),
- 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.

The survey manual provided together with the questionnaires contains clear and detailed references for all survey variables. Generally no variable related to CVT posed special problems. Regarding IVT, even if national legislation was already in force, it was too soon for calendar year 2005 to capture the effects.

Since there is a high movement from one activity to another, at the enterprise level, the logic test on NACE activity (comparison between the activity declared at CVTS3 and the one from Business Register) shows a lot of changes. At micro-data level, the data were checked with the LCS2005 results for the common part of the sample (to avoid most part of the recalls to the enterprises since the problems were already solved when LCS2005 data were checked) for key variables: number of persons employed, hours worked, labour cost.

In total, about 400 logical tests were performed for data checking and correlation, focussing on key variables, such as: number of persons employed, hours worked, labour cost, number of participants to CVT courses, number of hours spent in courses, costs of CVT courses, number of participants to IVT, IVT costs etc. **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 provided through the survey manual and the IT solutions developed had as result a complete and of good quality data set. Because the data collection was entirely performed by face to face interview, no missing variable was encountered. The only item of **partial non-response** was recorded for breakdowns of CVT courses.

The information below is an estimation of **errors rates 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. Errors rates were computed as ratio between cases appeared over number of eligible units for the given variable/relation.

Most high errors rates that occurred during data validation period:

- **9.73%** for error coded S10 (error in Romanian Logic tests): checking that if the enterprise provided CVT (courses or/and other forms) then the module E on reasons for non-provision of CVT courses or other forms of CVT during 2005 had to be empty (skipped);

- **6.40%** for error C139 (warning in Romanian Logic tests): checking if the CVT courses per hour of training the limits took values between nationally specific values (min and max);

- **4.79%** for error S9 (error in Romanian Logic tests): checking if enterprises that did not provide CVT courses but did provide other forms of CVT have answered to module D on training policy of the enterprise;

- **2.83%** for errors S5 (warning in Romanian Logic tests): checking the relation between the young number of participants to CVT courses and number of persons employed at the end of the year 2005 of same age;

- **2.08%** for error A10 (warning in Romanian Logic tests): checking if monthly labour cost took values between nationally specific values (min and max);

- **1.63%** error A8 (warning in Romanian Logic tests): checking if number of hours worked took values between nationally specific values (min and max);

- **0.63%** error D194 (warning in Romanian Logic tests): checking the relation between D6 - a written training plan or program and D7 - annual training budget, which included provision for CVT;

- **0.37%** error S2 (error in Romanian Logic tests): checking the correlations for enterprises that did not have employed persons in 2004 and the answer provided in B3a (CVT courses provided in 2004) and in B4a (other forms provided in 2004).

2.2.4. Non-response errors

Description of the measures undertaken regarding 're-contacts'
Unit response rates
A response was obtained from around 83% of enterprises in the original sample.
The sample structure by response type is:

Response type	*Number of units*	
1. Responded to questionnaire	**8143**	**(82.98%)**
2. Refused to answer	327	(3.33%)
3. Contact not established	272	(2.77%)
4. Outside scope of survey	565	(5.76%)
5. Unidentified enterprise	33	(0.34%)
6. Dormant enterprises	410	(4.18%)
7. Ceased enterprises	50	(0.51%)
8. Answer provided by other unit	4	(0.04%)
9. Without data because of the events	9	(0.09%)
Total	**9813**	**(100%)**

At the time of the contact, only 50 enterprises had ceased to exist and 33 were not identified, although 565 were no longer within the scope of the survey and 410 were classified as 'dormant'.

Non-response rates were higher among the smallest enterprises, with an overall non-response rate of around 24% and lower in the largest enterprises with 250 employees and over, reaching the ideal situation of a 100% response rate for G50 NACE category.

Table 21. Unit response rates by NACE and size classes

NACE category	Size Class of enterprise (by number of employees)			Total
	10-49 employees	50-249 employees	250 employees and more	
C	84.85%	97.73%	94.74%	90.06%
D15-16	74.58%	90.61%	88.98%	82.27%
D17-19	70.86%	87.24%	91.91%	83.27%
D21-22	75.38%	84.72%	90.48%	79.82%
D23-26	81.44%	93.58%	89.21%	85.78%
D27-28	83.03%	88.40%	97.65%	87.11%
D29-33	80.25%	93.59%	96.63%	87.01%
D34-35	83.19%	90.54%	95.29%	88.97%
D20+36-37	73.33%	85.38%	97.12%	80.45%
E	72.46%	94.34%	98.18%	89.66%
F	77.49%	89.06%	94.12%	86.38%
G50	78.79%	96.25%	100.00%	85.38%
G51	74.29%	89.88%	89.83%	81.26%
G52	80.15%	90.60%	83.78%	83.37%
H	75.13%	85.25%	86.36%	78.21%
I60-63	80.92%	95.38%	97.50%	87.71%
I64	72.88%	85.19%	72.22%	75.96%
J65-66	85.19%	86.36%	88.89%	86.57%
J67	85.11%	76.92%		83.33%
K+O	68.13%	85.14%	82.12%	74.29%
Total	76.18%	89.35%	92.25%	82.98%

Table 22. Number of respondent units by NACE and size classes

NACE category	Size Class			Total
	10-49 employees	50-249 employees	250 employees and more	
C	84	43	36	**163**
D15-16	223	164	105	**492**
D17-19	265	294	352	**911**
D21-22	98	61	19	**178**
D23-26	408	204	124	**736**
D27-28	230	160	83	**473**
D29-33	386	219	172	**777**
D34-35	94	67	81	**242**
D20+36-37	286	181	101	**568**
E	50	50	108	**208**
F	148	171	144	**463**
G50	130	77	15	**222**
G51	208	151	53	**412**
G52	214	106	31	**351**
H	148	52	19	**219**
I60-63	212	124	78	**414**
I64	43	23	13	**79**
J65-66	46	38	32	**116**
J67	40	10		**50**
K+O	607	338	124	**1069**
Total	**3920**	**2533**	**1690**	**8143**

- **Assessment of unit non-response bias**

The unit non-response bias was estimated as follows:

$$B(X) = \bar{X}_m - \bar{X}_n = \bar{X}_m - \frac{m}{n}\bar{X}_m - \left(\frac{n-m}{n}\right)\bar{X}_{n-m} = \left(1 - \frac{m}{n}\right)\left(\bar{X}_m - \bar{X}_{n-m}\right)$$

Where:

n = the number of units selected in the sample

$\bar{X}_n$ = the average value of the characteristics of the units selected in the sample

m = the number of respondent units selected in the sample

$\bar{X}_m$ = the average value of the characteristics of the respondent units selected in the sample

$n-m$ = the non-respondent units selected in the sample

$\bar{X}_{n-m}$ = the average value of the characteristics of the non-respondent units selected in the sample

Non-response bias is a function of 2 components:
- Fraction of non-respondents (non-response rate): 1-m/n;

- Difference in behavior between respondents and non-respondents. $\bar{X}_m - \bar{X}_{n-m}$

Relative non-response bias can be estimated by using the following formula:

$$B(X) = \frac{\bar{X}_m - \bar{X}_n}{\bar{X}_n},$$

The characteristic considered for the non-response bias is the number of employees taken from the sampling frame.

Table 23. Non-response relative bias by NACE and size class

NACE category	Size Class of enterprise (by number of employees)			Total
	10-49 employees	50-249 employees	250 employees and over	
C	0.044903838	0.013800542	0.049083147	0.101705471
D15-16	0.071677332	0.016388213	-0.006371779	0.07679916
D17-19	0.022458245	0.035778266	0.027972415	0.119636006
D21-22	0.049422081	0.027160183	0.048943544	0.127554757
D23-26	0.028204187	-0.01138501	0.053780691	0.083499665
D27-28	0.036578915	0.009870537	0.015709662	0.110129346
D29-33	0.039003501	0.010959998	0.012989669	0.110460893
D34-35	0.032687979	0.006559563	0.020868149	0.084814994
D20+36-37	0.038147807	0.014652769	0.003719008	0.15443146
E	0.018503061	0.028130484	0.013075555	0.104960506
F	0.050413057	0.019450445	0.021989385	0.097362076
G50	0.055468761	0.005695991	0	0.122622373
G51	0.06258377	0.024330297	0.036927023	0.126695702
G52	0.034659057	0.017082658	0.011473842	0.03965085
H	0.045375788	-0.003424348	0.056116504	0.115042645
I60-63	0.054801643	-0.021144331	0.01830055	0.120496106
I64	0.024819568	-0.04423278	-0.083929309	-0.120346342
J65-66	-0.011446615	0.044224471	0.003785589	0.030497913
J67	-0.014722728	0.001764676		-0.03681036
K+O	0.032593709	0.026804182	-0.028019136	0.085632787
Total	0.039218345	0.015911415	0.018742758	0.117068817

Where the non-response bias and non-response relative bias is positive, then the average number of employees for the respondent units is higher than the average number of employees for all the units in the sample.

As seen above, in most of cases, the units with a number of employees above the average respond to a greater extent than the units with a number of employees below the average.

Imputation procedure was developed only for item non-response - imputation of missing variables. All key variables were collected. The item non-responses were rare cases due to the special efforts engaged in data collection.

The **only item of partial non-response** was recorded for breakdowns of CVT courses. Imputation was performed for 137 enterprises.

Following method was applied:

- the average at cell level (crossing the size class and NACE activity) was computed on the basis of the sample of respondents, i.e. the proportion of cost of components into the sub-total of costs for CVT courses;

- sub-total of costs for CVT courses is a key variable and it was collected for all enterprises that provided CVT courses; thus, the proportions of the cell (averaged at cell level) was applied to the existing sub-total of costs for CVT courses;

- cost of components (cost breakdowns) were derived.

In the following table the number of imputed variables and imputation rates (ratio of number of enterprises for which imputation was applied to the total number of respondent units that provided CVT courses) are presented.

Table 24. Imputation rates

NACE	No of enterprises imputed				No of enterprises with CVT courses				Imputation rates			
	Size classes				Size classes				Size classes			
	1	2	3	Total	1	2	3	Total	1	2	3	Total
C10-14	2	0	1	3	16	24	22	62	12.50		4.55	4.84
D15-16	1	5	1	7	39	53	94	186	2.56	9.43	1.06	3.76
D17-19	4	6	7	17	45	79	137	261	8.89	7.59	5.11	6.51
D20, 36, 37	0	3	5	8	38	49	59	146		6.12	8.47	5.48
D21	0	2	0	2	8	11	9	28		18.18		7.14
D22					16	19	6	41				
D23-24	1	3	5	9	48	54	39	141	2.08	5.56	12.82	6.38
D25-26					51	53	56	160				
D27-28	1	6	4	11	35	59	62	156	2.86	10.17	6.45	7.05
D29	2	9	4	15	38	49	77	164	5.26	18.37	5.19	9.15
D30-33					65	70	49	184				
D34-35	0	1	3	4	11	36	63	110		2.78	4.76	3.64
E40-41	0	1	1	2	12	26	84	122		3.85	1.19	1.64
F45	2	2	5	9	34	53	102	189	5.88	3.77	4.90	4.76
G50	0	0	0	0	40	40	8	88				
G51	3	3	3	9	62	65	48	175	4.84	4.62	6.25	5.14
G52	0	0	2	2	55	43	29	127			6.90	1.57
H55	4	0	2	6	23	14	15	52	17.39		13.33	11.54
I60-63	2	3	1	6	58	52	56	166	3.45	5.77	1.79	3.61
I64	0	2	0	2	9	12	10	31		16.67		6.45
J65	1	0	1	2	13	24	28	65	7.69		3.57	3.08
J66					4	9	11	24				
J67	0	1	0	1	9	7		16		14.29		6.25
K70-71, K73	3	12	4	22	38	35	10	83	7.89	34.29	40.00	26.51
K72					49	28	9	86				
K74.1					7	9	1	17				

NACE	No of enterprises imputed				No of enterprises with CVT courses				Imputation rates			
	Size classes				Size classes				Size classes			
	1	2	3	Total	1	2	3	Total	1	2	3	Total
K74.2-74.4					33	22	19	74				
K74.5-74.8					30	29	43	102				
O92					18	10	11	39				
O90-91, 93					16	15	14	45				
TOTAL	26	59	52	137	920	1049	1171	3140	2.83	5.62	4.44	4.36

Item response rates – all key variables were collected from the respondent units. Only breakdowns for the cost of CVT courses were recorded as item non-response. Consequently, the item response rates for the key variables were of 100% with respect to all respondents for the given variable:

(i) Item response rates with respect to all respondents for the total number of hours work (as a function of all respondents) and the total labour cost (as a function of all respondents) were 100%.

(ii) Item response rates with respect to enterprises offering CVT courses for:
- CVT courses by specific age groups as a function of enterprises offering CVT courses.
- Total number of participants in courses, males, females as a function of enterprises offering CVT courses.
- Total number of hours on CVT courses, males, females as a function of enterprises offering CVT courses.
- Number of hours on CVT courses managed internally and externally as a function of enterprises offering CVT courses.
- Total costs of CVT courses as a function of enterprises offering CVT courses.

were 100%

(iii) Item response rates with respect to enterprises offering IVT for the total costs of IVT as a function of enterprises offering IVT were 100%.

3. TIMELINESS AND PUNCTUALITY

The **data collection period** for Continuing Vocational Training Survey (CVTS3) lasted for 2 months: from 17 April to 11 June 2006. Originally 6 weeks (17 April – 28 May 2006) were foreseen but due to survey complexity and unavailability of respondents data collection period was prolonged with 2 more weeks.
Thus the data entry period planned from 1 May until 9 June was extended till end of June. Validation, logic control and other activities for data checking followed similar pattern.

Since not all enterprises were available for the interviews and asked for re-scheduling it the data collection for a high proportion of questionnaires needed to be extended. Furthermore, due to the recalls necessary for additional information and corrections of the variables filled in, delays occurred in sending the data files to INS-headquarter also.

Below is presented the information on the proportion of data files sent from the territorial statistical offices and the dates when INS received them:

(i) first round, all 42 TSOs:
- 10 - 31 July 2006: 24.0%
- 16 - 24 July 2006: 76.0%

(ii) second round (for 16 TSOs where re-contacting the enterprises was necessary):
- 25 – 31 July 2006: 6.0%
- 1 – 8 August 2006: 88.0%
- 1 – 11 September 2006: 6.0%

All the activities carried out by INS during a year are scheduled through the Activity Plan with several months earlier.

The length period of preparing and carrying out the 2005 Continuing Vocational Training Survey (CVTS3) lasted over 18 months (from March 2006 to the end August 2007). The timetable of activities – planned and delays - is presented below:

TABLE 25. Scheduled activities of the Romanian Continuing Vocational Training Survey (CVTS3)

Activity	Responsible	Deadline	
		Planned	**Actually done**
I SURVEY DESIGNING AND ORGANISATION - MARCH 2006			
1.1 Study the documentation	INS – labour market unit	28.01.06	OK
1.2 Designing survey tools	INS – labour market unit	15.02.06	OK
- questionnaire	INS – labour market unit	15.02.06	OK
- survey manual	INS – labour market unit	15.02.06	OK
- other materials	INS – labour market unit	15.02.06	OK
1.3 Selection of enterprises	INS – sampling unit	16.02.06	OK
1.4 Printing of survey tools	INS- printing unit	10.03.06	OK
1.5 List of enterprises selected sent to the territorial statistical offices (TSOs)	INS – labour market unit	6.03.06	OK
1.6 Dispatching printed survey tools to TSOs	INS – labour market unit	19.03.06	OK
1.7 Training of survey responsibles (from TSOs)	INS – labour market unit	31.03.06	OK
- preparing training support (explanatory notes, questionnaires filled in according to several examples etc.) and printing its	INS – labour market unit	14.03.06	OK
- performing the training of survey responsibles (from TSOs)	INS – labour market unit	31.03.06	OK
II SURVEY IMPLEMENTATION –MARCH 2007			
1.DATA COLLECTION AND DATA ENTRY AT TERRITORIAL LEVEL			
1.1 Recruitment of survey enumerators	TSOs – survey responsible	3.04.2006	OK
1.2 Distribution of enterprises per enumerator for conducting the	TSOs – survey responsible	3 - 6.04.2006	OK

Activity	Responsible	Deadline	
		Planned	*Actually done*
interviews			
1.3 Training of survey enumerators	TSOs – survey responsible	7.04.2006	11.04.06
1.4 Dispatching survey tools to the enumerators	TSOs – survey responsible	7.04.2006	OK
1.5 Enterprises identification, contact and establishing the dates of visits for interview	TSOs – enumerators	8 – 16.04.2006	OK
1.6 Data collection by face to face interview (4 enterprises/ week/ enumerator)	TSOs – enumerators	17.04 – 28.05.2006	17.04. – 11.06.06
1.7 Checking and guiding the enumerators activity	TSOs – survey responsible	permanent	OK
1.8 Receiving and checking filled in survey questionnaires	TSOs – survey responsible	Weekly, starting from 24.04.2006	OK
1.9 Data entry (at TSOs level)	TSOs – data entry operators	1.05 – 9.06.2006	1.05 – 30.06.2006
1.10 Validation, checking, editing and analyzing errors, correcting where necessary	TSOs – survey responsible, data entry operators	23.06.2006	24.07.06
1.11 Validation of final data; confirming the errors still existing (and accepted) and providing the explanations for it	TSOs – survey responsible, data entry operators	3.07.2006	7.09.06
1.12 Sending data files to INS	TSOs – survey responsible, data entry operators	17.07.2006	10.09.06
2. DATA PROCESSING AND ANALYSIS AT INS LEVEL			
2.1 Preparing specifications for IT applications development at local level (data entry, validation, checking)	INS – labour market unit	17.03.06	OK
2.2 Development of IT applications for local level and of manual for data entry and their distpatching to the TSOs	INS – IT unit	17.04.06	OK
2.3 Preparing specifications for IT applications development at central level - INS (data entry, validation, checking, automatic corrections)	INS – labour market unit	5.06.06	19.06.06
2.4 Development of IT applications at central level	INS – IT unit	3.07.06	7.07.06
2.5 Preparing specifications for IT applications development for	INS – labour market unit	11.09.06	15.02.07

Activity	Responsible	Deadline	
		Planned	**Actually done**
imputation			
2.6 Development of IT applications for imputation	INS – IT unit	9.10.06	22.03.07
2.7 Preparing tables design and the corresponding specification for IT solution for non-weighted data	INS – labour market unit	15.08.06	OK
2.8 Development of IT solution for tabulation for non-weighted data	INS – IT unit	15.09.06	5.02.07
2.9 Preparing tables design and the corresponding specification for IT solution for weighted data	INS – labour market unit	9.10.06	OK
2.10 Development of IT solution for tabulation for weighted data	INS – IT unit	13.11.06	5.02.07
2.11 Executing validation and checking procedures; editing and analyzing errors resulted	INS – labour market unit	11.08.06	28.02.07
2.12 Go backs to TSOs and enterprises for checking and solving the errors (if necessary)	INS – labour market unit	16.10.06	8.05.07
2.13 Validation of data processing tools and of non-weighted data	INS – labour market unit	25.10.06	30.03.07
2.14 Solving problems detected; correcting the errors and the outliers	INS – labour market unit	30.10.06	30.03.07
2.15 Applying imputation methods	INS – labour market unit	5.11.06	2.04.07
2.16 Reediting of tables with non-weighted data and analysis	INS – labour market unit	15.11.06	17.04.07
2.17 Weighting and validation of weighted data	INS – sampling unit	13.11.06	27.04.07
2.19 Editing tables with weighted data; data validation and analysis	INS – labour market unit	19.02.07	30.06.07
2.20 Preparing the files according to standard format for sending its to EUROSTAT	INS – IT unit	28.02.07	20.06.07
2.21 Sending micro-data files to EUROSTAT	INS – IT unit		
- before imputation	INS – IT unit	5.11.06	28.06.2007
- after imputation	INS – IT unit	1.03.07	28.06.2007
III EVALUATION OF SURVEY RESULTS AND ORGANISATION – JUNE 2007			
3.1 Report on survey organisation and methodology	INS – labour market unit	27.03.07	OK
3.2 Preparing the publication with survey results	INS – labour market unit	5.06.07	20.08.2007

Activity	Responsible	Deadline	
		Planned	*Actually done*
3.4 Printing of the publication	INS – printing unit	25.06.07	31.08.2007
3.5 Translation of survey tools into English	INS – labour market unit	19.03.07	OK
3.6 FINAL REPORT (Quality Report)	INS – labour market unit and sampling unit	28.06.07	31.08.2007

Micro-data files (before imputation) were sent to Eurostat for the first time on 27.04.2007. Second transmission was done on 01.06.2007 (before imputation, after imputation and control indicators). Unfortunately the database converted into the standard format was not the last one that included all corrections. The mistake was discovered only after receiving the files from Eurostat asking for comments and for re-checking of the data. Meantime the tools prepared by Eurostat was updated several times and each Member State was encouraged to download each version from CIRCA and to run the national database with the updated tool version. Of course these actions took more time than initially it was foreseen. Thus, in order to be sure that good quality of results is ensured, INS Romania asked for **prolongation of the project** duration with two months (final deadline end of August 2007 instead of June).

After running the database with the latest version of the Eurostat tool, the final micro-data files were prepared. The control indicators were obtained and data were checked. The last transmission of the micro-data and of the file with the control indicators was done on 28.06.2007, in accordance with the legal requirements using the eDAMIS system (the deadline stipulated by the Council Regulation no. 1552/2005 was 30 June 2007). After that, several re-transmissions were executed for the micro-data (after imputation) and the control indicators in order to eliminate any difference (caused not by any incorrect data but by the way of trans-coding the national variables into standard format, way of rounding etc.) between the data set from national database and the one from Eurostat.

4. ACCESSIBILITY AND CLARITY

Based on the Continuing Vocational Training Survey (CVTS3) results a **detailed publication (available in both Romanian and English languages)** are prepared and disseminated to the main users (90 copies in Romanian language and 40 copies in English language):
- Romanian Presidential Administration;
- Romanian Parliament (including several Commissions oriented on labour, education, social protection policies);
- governmental bodies: Ministry of Labour, Family and Equal Opportunities, Ministry of Economy and Finance, National Commission for Prognosis, National Agency for Employment, Ministry of Education, Research and Youth, Ministry of Culture, Ministry of Foreign Affairs, National Council for Adult Education and Training, National Centre for Technical and Vocational Education and Training Development, National Agency for Small and Medium Enterprises etc.;
- employers and employers' associations;
- trade unions;
- professional associations;
- research institutes and universities: Research Institute of National Economy, National Scientific Research Institute for Labour and Social Protection, Research Institute for

Education, Research Institute for Quality of Life, Romanian Academy, Academy for Economic Studies etc.

The publication is entitled **"Caracteristici ale formării profesionale furnizate de întreprinderile din România în anul 2005/Characteristics of vocational training provided by enterprises in Romania in 2005"** and is structured as following:

- *Survey methodology and organization*: presents 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;

- *Data analysis*: contains tables, graphs and analysis of the main indicators obtained – number of employees at the end of year 2005, labour cost, share of enterprises providing CVT (courses, other forms, both), number of participants in CVT, participation rates, time spent in CVT courses, costs of CVT courses, share of enterprises providing IVT, costs of IVT, share of non-training enterprises etc. – by different breakdowns;

- *Tables with survey results*: contains detailed tables of the main indicators broken-down by several variables (depending on the indicator): gender, age groups, economic activities, ownership forms, legal status of the enterprises, size classes of the enterprises.

The publication is available in printed form or, on request, in electronic format (on CD-ROM). It is available for consulting purposes in the INS library and also can be bought by all interested users from the INS bookshop. Two copies of the publication will be sent to Eurostat after printing (end of August – beginning of September).

Also, the main results of the Continuing Vocational Training Survey (CVTS3) will be available by December 2007 on INS website (www.insse.ro), through the statistical database (TEMPO, on-line), in both Romanian and English languages. Detailed metadata for each indicator will be included and available through this database. The TEMPO database also contains the results of previous survey (CVTS2).

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

5. 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 communitaire rules for enterprises statististics 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 survey provided data for each enterprise, thus the **observation unit**, in accordance with the requirements of Council Regulation no. 1552/2005 on statistics relating to vocational training in enterprises.

- *Populations* **- There is no deviation from European concepts:**

  - **The Romanian Business Register (REGIS)** is used as a sampling frame. The Business Register was designed and implemented having as a main data sources the administrative files and statistical sources. The main administrative source of data for REGIS is the Fiscal Register. The Trade Register is used as a consultation data source in order to improve the quality of the register. Other files used as source of data for the REGIS in Romania are: Balance Sheet files, VAT files, REGIS survey for the new enterprises regarding their main activity and size and so on, 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 1.1., 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.

  - The *sampling frame for CVTS3 in Romania* was selected from the REGIS and comprises: all enterprises created before the reference year (2005), which were still active and belonging to the statistical population of interest, all new enterprises created in course of the reference year (2005), which were still active and belonging to the statistical population of interest.

- *Reference times* **- There is no deviation from European concepts:**

  - The statistics on vocational training are produced for the 2005 calendar year.

- *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.; survey covered all economic activties defined in sections C-K and O;

  - The size classes of enterprises correspond to the size classes described in the EUROSTAT recommendations (MASTER - EU Manual CVTS): 10-49 employees, 50-249 employees, 250 employees and more.

- *Definitions of variables* - **There is no deviations from European concepts:**

  - The definitions of Continuing Vocational Training Survey (CVTS3) variables were developed and adopted in accordance with European standards (Council Regulation no. 1552/2005 on statistics relating to vocational training in enterprises and the implementing Regulation (EC) no 198/2006), but also taking into account the national features.

- **European questionnaire – no missing only few supplementary in the national questionnaire:**

  - Beside A2tot04, number of employees at end of 2004 for male and female was collected (for comparing 2005 with 2004);

  - Beside B2a-B2e, an additional was collected ("other" for other forms); the variables allowed to capture the description as well; based on the description provided and after

re-contacting the respondents, the answers from this variable were re-classified adequately into the variables B2a-B2e;

- Beside the hours spent in CVT courses during the normal hours of work, the total number of hours spent in training (including outside normal hours of work) were recorded because in Romanian enterprises it is common that training will be organised this way (extra-hours as after the normal working time or part of it during the normal hours of work and part after); users are interested in total duration of CVT courses and it structure as well (during and outside the normal working hours); the total number of hour spent in CVT courses were provided to Eurostat as variables Extra1 (total number of hours for CVT courses), Extra2 (total number of hours for CVT courses for male) and Extra3 (total number of hours for CVT courses for internal ones);

- Number of hours for CVT courses by Fields of training were collected in more detailed way; when providing the micro-data to EUROSTAT, information were merged accordingly;

- Information on **public measures that** have effect on the enterprise's planning, policy and practices with respect to CVT were collected according to the specific national actions identified as following:

  - Subsidies regarding the provision from the unemployment insurance budget of 50% of the expenditures related to continuing vocational training of the employees.

  - Subsidies for vocational training of the graduates engaged by the employers

  - Subsidies for vocational training for the employees

  - Reductions on levies of those entreprises that offered vocational training for their employees.

  - Other measure (please specify)_____.

The Continuing Vocational Training Survey (CVTS3) was organised and conducted as a separate survey exclusively dedicated to capture the volume and characteristics of training provided by enterprises in Romania in the reference year 2005. Data were compared at individual level for common variables (number of employees, number of hours worked, labour coat) with the Labour Cost Survey in 2005 for the common part of the sample. Comparisons were performed also for aggregated results.

Registers are very poor (almost do not exist). Thus, it was not possible to link the survey with any register.

After performing for the second time this survey (CVTS3) three major conclusions and recommendations arise:

- average number of persons employed should be collected instead of the number at the end of the year; in case of small and medium enterprises especially from certain activities (manufacturing, whole sale and retail, transport, construction etc.) unfortunately there are not rare cases when enterprises are reducing their activity at the end of the year and, consequently the employment contracts are closed; this practice is reflected in statistics as significant differences and non-correlations between the number of persons employed (at the end of the year) and other key indicators: number of hours worked over the year as well as the labour cost;

- number of participants in other forms of training are considerably time-consuming, respondents needing in most cases to estimate the data;

- in order to have consistency between time spent in CVT courses and CVT courses cots, total number of hours for training should be collected as well and not only those during the normal hours of work.

6. COHERENCE

After their computation, the final weights were adjusted on the basis of the comparison between the estimated number of employees in CVTS3 survey and the estimated number of employees from other administrative and statistical sources (Balance Sheet, Labour Cost Survey etc.).

No other data source is available for comparisons of CVTS3 results for number of persons employed by age groups as well as for number of CVT participants. Thus, below are presented the results of the comparison of CVTS3 results with SBS.

Coherence with the statistics from Structural Business Survey (SBS)

Comparing *„the number of persons employed"*, broken down by NACE and size classes according to the national sampling plan between Continuing Vocational Training Survey (CVTS) and Structural Business Survey (SBS), it can be seen that the highest differences appear for the small size class of enterprises (10-49)**.**

Only for comparison reasons:

- section J of NACE Rev1. was excluded from CVTS3;

- enterprises with less than 10 employees were excluded from SBS.

SBS does not cover sections J (financial intermediation) and covers only the private sector for section O (other community, social and personal service activities).

One reason for the differences between CVTS and SBS number of persons employed is the fact that for SBS, the breakdowns by size classes is done according the number of persons employed while for CVTS the size classes were established upon the number of employees.

Another reason of differences is caused by the coverage. The coverage of the enterprises, by size classes is different in the two surveys:
- in CVTS3, enterprises with 250 employees and more were exhaustively surveyed;
- in SBS enterprises with 20 employees and more were exhaustively surveyed.

The differences occurred due to the representativeness at 4 digit level (for SBS) of the sections D, G, which cover the largest part of the small enterprises.

But **main reason** for the differences between the two surveys is caused by the definition and reference period for the number of persons employed:
- in CVTS3 the indicator refers to the end of the year (31 December 2005)
- in SBS the indicator refers to the average of the number of persons employed in each month of the 2005 calendar year.

Table 26. Number of persons employed from SBS and CVTS3 (excluding J) and the percentage differences

Division/ group	SBS persons employed -16110					CVTS3 persons employed					Differences (SBS-CVTS)/SBS, percentage			
	Total	of which:				Total	of which:				Total	of which:		
		10-49 empl	50-249 empl	250+ empl			10-49 empl	50-249 empl	250+ empl			10-49 empl	50-249 empl	250+ empl
TOTAL	3287438	762334	922784	1602320		3102307	648423	891758	1562126		5.6	14.9	3.4	2.5
C (10-14)	133021	3123	5428	124470		122068	3018	5833	113217		8.2	3.4	-7.4	9.0
D (15-16)	184934	54209	57441	73284		173590	46339	56195	71056		6.1	14.5	2.2	3.0
D (17-19)	444838	70289	172853	201696		430523	50365	152981	227177		3.2	28.3	11.5	-12.6
D (20, 36-37)	182693	47112	72724	62857		166558	35445	71124	59989		8.8	24.8	2.2	4.6
D (21)	15028	3112	5628	6288		13002	1260	5855	5887		13.5	59.5	-4.0	6.4
D (22)	27727	11479	11188	5060		22311	7898	9967	4446		19.5	31.2	10.9	12.1
D (23-24)	57625	5904	10376	41345		57670	7483	8978	41209		-0.1	-26.8	13.5	0.3
D (25-26)	101117	19570	29614	51933		95380	18381	28952	48047		5.7	6.1	2.2	7.5
D (27-28)	153803	26788	39831	87184		143383	22152	36235	84998		6.8	17.3	9.0	2.5
D (29)	110553	7261	21681	81611		113461	5883	20496	87080		-2.6	18.9	5.5	-6.7
D (30-33)	103764	7459	15874	80431		111010	7889	18380	84741		-7.0	-5.8	-15.8	-5.4
D (34-35)	119581	4636	16561	98384		115312	2900	14383	98029		3.6	37.4	13.1	0.4
E (40-41)	148519	2960	15560	129999		160701	3780	15473	141448		-8.2	-27.7	0.6	-8.8
F (45)	321300	89173	122705	109422		316678	97957	119889	98832		1.4	-9.9	2.3	9.7
G (50)	67357	32812	24348	10197		61412	28336	22779	10297		8.8	13.6	6.4	-1.0
G (51)	228726	106611	75142	46973		207556	84642	74639	48275		9.3	20.6	0.7	-2.8
G (52)	205189	126131	45678	33380		193197	117310	42031	33856		5.8	7.0	8.0	-1.4
H (55)	70911	35228	19933	15750		57839	25270	20709	11860		18.4	28.3	-3.9	24.7
I (60-63)	226723	42299	43659	140765		217085	30220	49274	137591		4.3	28.6	-12.9	2.3
I (64)	75359	5054	5401	64904		60426	4777	4576	51073		19.8	5.5	15.3	21.3
K (70, 71, 73)	44123	11309	21436	11378		46610	8804	26060	11746		-5.6	22.2	-21.6	-3.2
K (72)	23068	10547	7668	4853		18260	6119	6349	5792		20.9	42.0	17.2	-19.3
K (74)	171555	39954	60854	70747		130816	19359	54181	57276		23.8	51.5	11.0	19.0
O (90-91,93)	37159	7693	14405	15061		34964	6811	15844	12309		5.9	11.5	-10.0	18.3
O (92)	27345	5306	6918	15121		32495	6025	10575	15895		-18.8	-13.5	-52.8	-5.1

Comparison for the number of employed persons by NACE for total and by size classes of enterprises between SBS and CVTS3 are also presented in the following graphs.

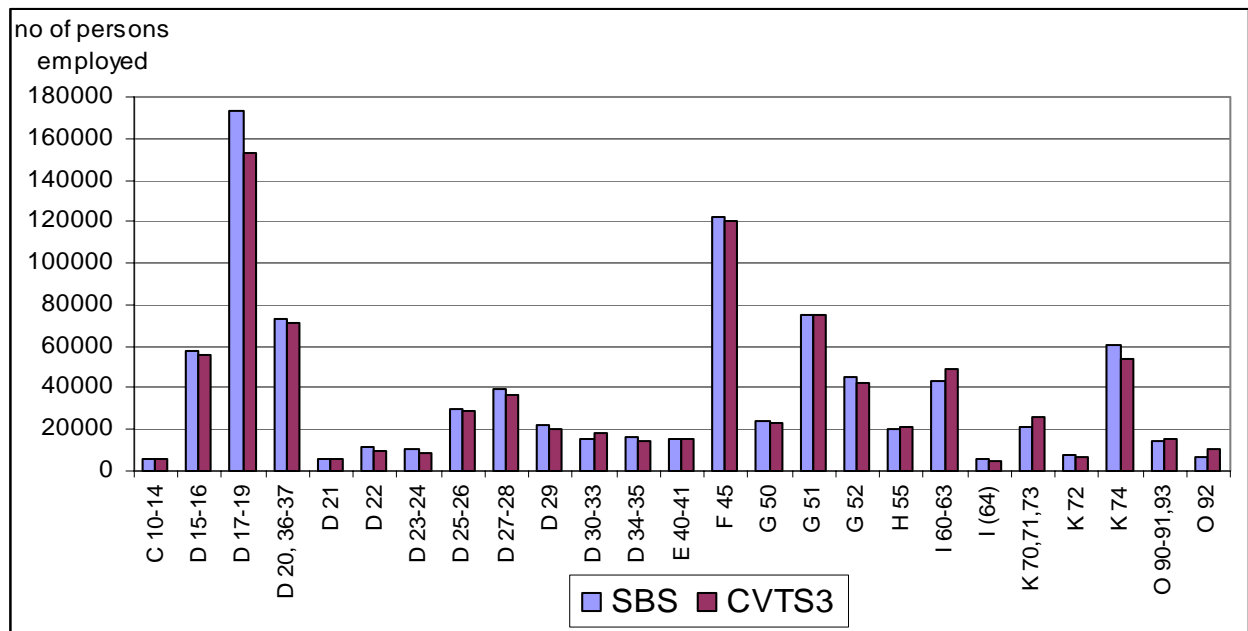**Graph 1. Total number of employed persons in SBS and CVTS3 by NACE (excluding J)**
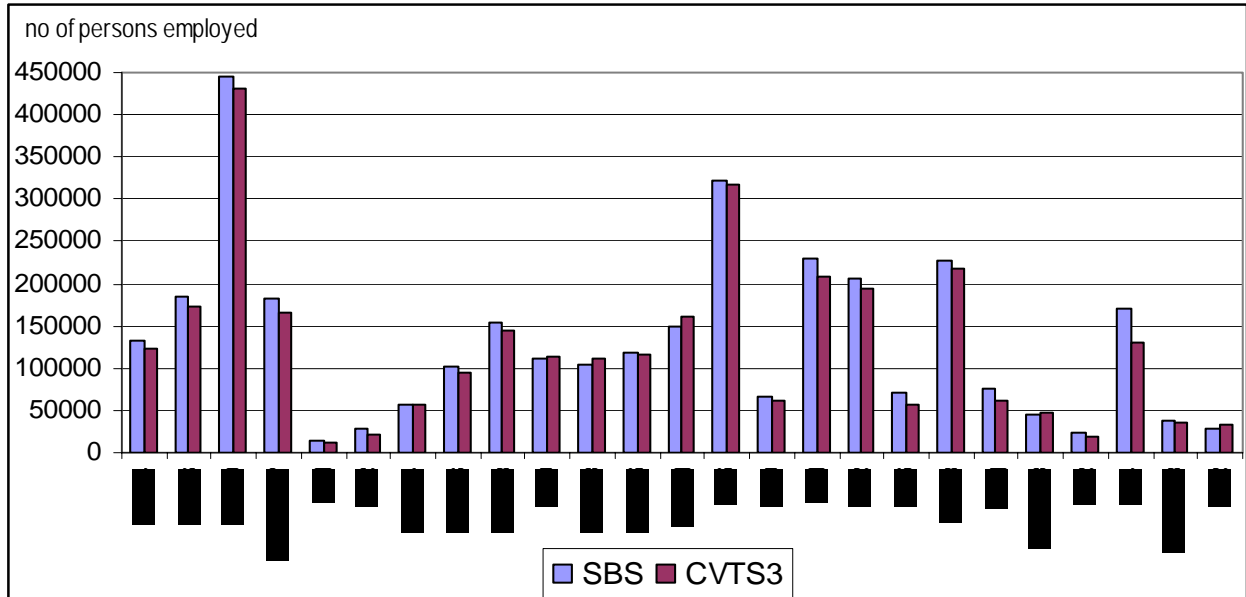
Graph 2. Number of employed persons in small enterprises (size 10-49), in SBS and CVTS3 by NACE (excluding J)
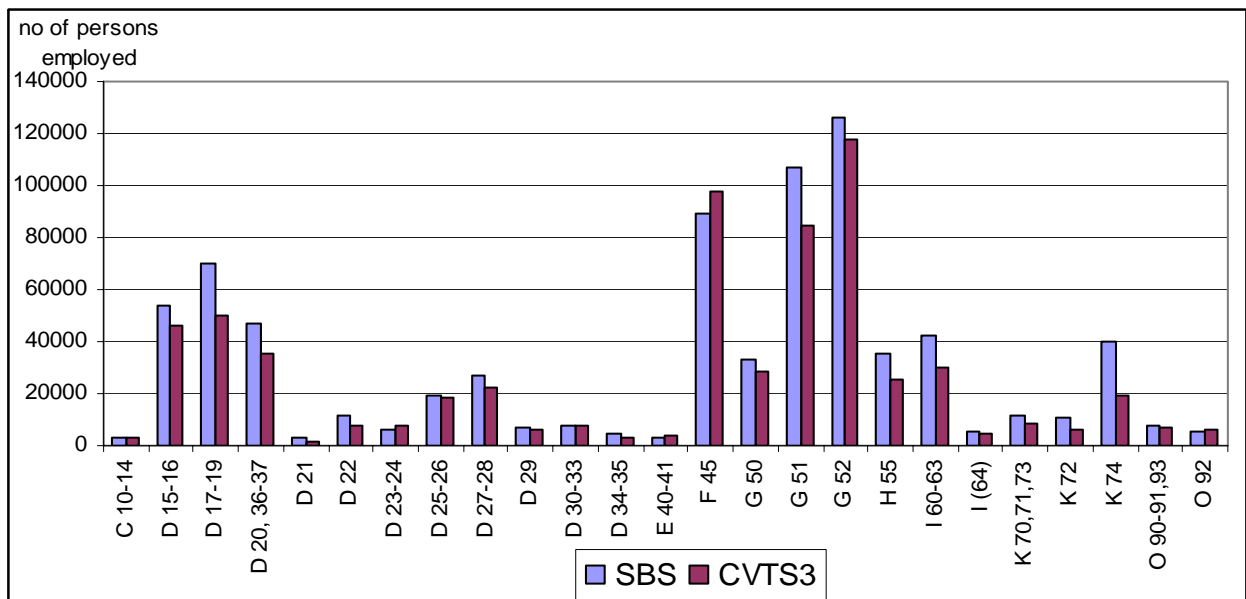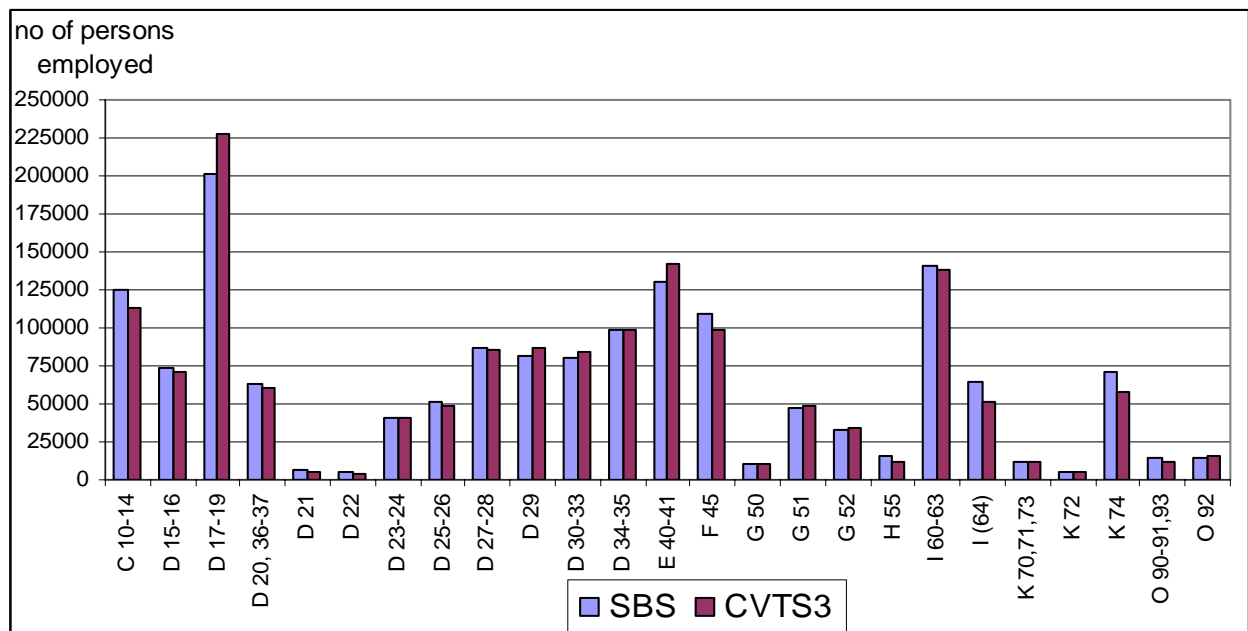
Graph 3. Number of employed persons in medium size enterprises (size 50-249), in SBS and CVTS3 by NACE (excluding J)

Graph 4. Number of employed persons in large size enterprises (size 250+), in SBS and CVTS3 by NACE (excluding J

7. BURDEN AND BENEFIT

Enumerators were instructed to carry out interviews in several visits if the respondent was requiring. According to the reports of the enumerators,

Average number of visits for completing the interview and collecting all requested variables:

- for the enterprises that provided CVT, two visits were necessary

- while for those not providing CVT one visit was sufficient.

Depending on type of enterprise, the average time for fulfilling a questionnaire was:

All enterprises	Enterprises that provided **CVT**	Enterprises that provided both **CVT and IVT**	Enterprises that did not provide **CVT**
8,6 hours/quest.	15,4 hours/quest.	16,1 hours/quest.	1,2 hours/quest.

No enterprise provided only IVT.

Most problematic variables collected:

- variables on IVT: before communism regime, IVT provided through enterprises was widely spread, with high proportion of young persons trained by enterprises; after the fall of communism, the system shortly continued to function same way but before mid of '90s, IVT via enterprises ceased to exist; only in the later years, policy makers agreed on the necessity of re-creating the premises for IVT via enterprises; new legislation came into force; but until 2005, IVT was still provided exclusively through national education system; the process is slow and not all enterprises are familiar with the new meaning of IVT; 2005 is a too recent year to measure the effects of the new legislation;

- cost on CVT courses: never easy to collect; usually only information on total costs is available; for breakdowns estimations had to be done (by the enumerator together with the respondent); it was not possible to split the information on CVT cost by during normal working hours and training hours performed outside normal working hours;

- number of hours spent for training:

  - difficult to classify by field of training; in the absence of a national classification of this kind, lots of examples had to be provided; the help-desk from INS headquarters was constantly involved in guiding the enumerators and respondents for achieving a correct classification;

  - since in Romania it is very common to organise the training course partly during the normal working hours and partly outside the working time or entirely outside the working time, supplementary work had to be carry out in order to estimate the requested data; enumerators had a major role in this respect;

- distribution by age groups for the number of employed persons asked for additional work and it was considered as time consuming

A positive aspect of CVTS3 in Romania was the introduction in data collection of the total number of hours spent in CVT courses. If we had restricted it only to the training time during the normal working hours, a significant part of the information would have been lost:
- related to the number of enterprises that were CVT providers in 2005;
- actual duration of CVT courses for all breakdowns:
    - male/female
    - internal/external courses;
    - fields of training.

Doing so, a better picture on CVT characteristics was obtained.

Fact that data on field of training were collected at a more detailed level was an advantage; richer information was obtained satisfying the users need.

A survey organised for 100% face to face interview is more costly as compared with a postal data collection method or a mixture of methods for data collection. A direct result for a survey of this kind was a good response rate. Most part of the enumerators involved (80%) had experience from the previous CVT survey (CVTS2). The way of keeping the information in the primary evidence of the enterprises does not easily allow retrieving the needed data. When ever it was the case, the enumerators – in co-operation with the respondents - made the calculation using the primary data resources provided by the unit. The results were checked and presented for approval of the management of the enterprise.