SAVOIR POUR AGIR

statec

SERVICE CENTRAL DE LA STATISTIQUE
ET DES ETUDES ECONOMIQUES

Quality Report on the Structure of Earnings Survey 2006 in Luxembourg

This report has been prepared according to the provisions of the Commission Regulation (EC) No 698/2006 of May 5 2006 implementing Council Regulation (EC) No 530/1999 as regards quality evaluation on labour costs and earnings.

1. Relevance

The structure of earnings survey provides a rather complete picture of wages, hours worked and the personal characteristics of workers. As such, it is a unique source in Luxembourg. Alternative sources are less complete and/or less reliable. The social security records provide information on wages and hours worked. These records also provide some information on the workers' characteristics, but two crucial items are missing: the level of education and the occupation. There is also information on wages in the Labour Force Surveys and in EU-SILC. These surveys provide a wealth of information on the workers' personal backgrounds. Unfortunately, the information on wages is less reliable. Indeed, the wages are self-declared by the workers, and are missing in several cases. Furthermore, there is no precise and reliable information on the amount of hours worked. Another drawback of the two latter sources is that they exclude the workers that work in Luxembourg, but live outside the country. These cross-border workers make up more or less 40% of Luxembourg's total employment.

Summary of national core users

The most important national core user is STATEC. The other national core users include ministries, administrations, foreign embassies, researchers, media, employers' federations, trade unions, companies from the private sector, as well as students from high-schools and universities.

Description of their main needs including an assessment of their level of satisfaction with the data offered

The users are mainly interested in breakdowns of wages along several variables. The most popular variables are sector, occupation, and educational level. Whereas most of the users are fine with tabular analyses, the researchers are also interested in a direct access to the microdata.

There is no systematic and formal assessment of the users' satisfaction. Nevertheless, the small size of the national user community enables STATEC to have a direct contact with the users. As a result, STATEC can be very responsive to the users' needs. The informal feedback suggests that the users' needs are generally satisfied.

2. Accuracy

2.1 Sampling Errors

The following table shows the coefficient of variation and its components of the requested variables and breakdowns. The coefficient of variation has been calculated according to the following formula:

$$CV = \frac{SE}{MEAN} * 100$$

Where MEAN is the mean of the salary and SE is the standard error of the mean of the salary.

The estimation of the standard error takes the sampling design into account.

The calculations have been done in Stata 10.1 using the following commands.

```
// Survey Design
generate fpc = 1 / A51
svyset [pw=B52], psu(KEY_L) strata(A12) fpc(fpc) || KEY_E, singleunit(centered)

// Estimation of the means and standard errors
svy: mean B42 B43
```

The last command has been executed on the appropriate sub-samples.

		Gross earnings in the reference month (B42)			Average gross hourly earnings in the reference month (B43)		
		MEAN	SE	CV (%)	MEAN	SE	CV (%)
	ALL	3112.37	25.69	0.83	19.19	0.17	0.89
	Full-Time: Men	3454.52	28.55	0.83	19.87	0.16	0.82
	Full-Time: Women	2966.22	31.23	1.05	17.45	0.18	1.04
	Part-Time	1906.44	35.19	1.85	19.06	0.60	3.17
NACE	C	2927.18	147.22	5.03	16.27	0.86	5.28
	D	3087.36	54.61	1.77	17.87	0.32	1.81
	E	4594.47	166.78	3.63	27.04	0.94	3.48
	F	2458.00	19.73	0.80	14.18	0.11	0.75
	G	2351.53	53.34	2.27	14.43	0.30	2.08
	H	1819.05	33.02	1.81	11.66	0.14	1.22
	I	3461.13	69.28	2.00	20.26	0.38	1.86
	J	4464.06	45.06	1.01	26.95	0.26	0.96
	K	2786.21	73.85	2.65	17.77	0.37	2.06
	M	3930.30	218.65	5.56	43.54	9.27	21.30
	N	3200.08	64.44	2.01	22.30	0.45	2.01
	O	2959.11	133.72	4.52	18.38	0.75	4.08
ISCO	1	7306.52	110.77	1.52	43.04	0.67	1.56
	2	4609.89	49.10	1.07	28.67	0.52	1.81
	3	3869.98	31.02	0.80	24.42	0.26	1.08
	4	2719.95	23.35	0.86	17.12	0.14	0.82
	5	1937.44	24.88	1.28	12.70	0.14	1.07
	7	2451.22	26.22	1.07	14.26	0.14	0.98
	8	2623.27	31.55	1.20	14.90	0.15	1.04
	9	1654.99	32.19	1.94	11.54	0.12	1.08
AGE	< 20	1025.60	35.09	3.42	7.51	0.22	2.94
	20-29	2309.58	18.00	0.78	14.31	0.14	1.00
	30-39	3110.02	26.05	0.84	19.18	0.19	0.99
	40-49	3439.92	34.95	1.02	21.14	0.21	1.00
	50-59	3768.57	49.08	1.30	23.11	0.29	1.24
	>= 60	4479.44	343.76	7.67	29.00	1.99	6.85
ISCED	1	2257.46	38.40	1.70	13.85	0.19	1.38
	2	2139.78	35.24	1.65	13.54	0.20	1.45
	3	2835.90	24.79	0.87	17.55	0.16	0.89
	4	4003.96	39.13	0.98	24.54	0.24	0.99
	5	5230.13	71.57	1.37	31.85	0.53	1.66
	6	6900.11	352.50	5.11	41.53	2.08	5.02
SIZE	10-49	2744.41	31.39	1.14	16.84	0.18	1.07
	50-249	3049.68	40.59	1.33	18.93	0.37	1.97
	250-499	3272.55	64.80	1.98	19.72	0.38	1.91
	500-999	3159.29	113.10	3.58	19.81	0.65	3.27
	> 1000	3633.65	78.16	2.15	22.46	0.44	1.96

MEAN: Mean of the salary
SE: Standard deviation of the mean of the salary
CV: Coefficient of Variation = (SE / Mean)*100

2.2 Non-sampling Errors

2.2.1. Coverage errors

No problem of under-coverage is known. However, there has been some over-coverage, i.e. the sample included units that were out of scope or did not exist in practice. The reasons for this over-coverage stem from a discrepancy between the administrative files used for the sampling and the real world, and can be put into 2 categories:

1. The local unit has less than 10 employees in practice.
2. The local unit does not exist. The reasons for this non-existence can be bankruptcy, merger, liquidation or discontinuance of business.

The table below gives an estimate of the over-coverage rate expressed in terms of local units and in terms of employees. Furthermore, the table distinguishes the 2 above mentioned causes for over-coverage.

	Local Units	Employees
(1) < 10 employees	1.91%	0.41%
(2) Unit does not exist	1.09%	0.93%
TOTAL	3.00%	1.35%

2.2.2. Measurement and processing errors

A non-negligible amount of measurement errors was noticed for the earnings variables and the working time variables, as shown in the table below:

B32	Number of hours paid during the reference month
B31	Number of weeks to which the gross annual earnings relate
B321	Number of overtime hours paid in the reference month
B42	Gross earnings in reference month
B421	Earnings related to overtime
B423	Compulsory social security contributions paid by the employer

Internal quality and plausibility tests have detected incoherencies between these variables, which are in fact inter-linked. These incoherencies stem from a misunderstanding of the questionnaire and from typos. The errors were corrected via direct follow-up with the local units or automatically. The automatic corrections are based on provisions from the Labour and Social Security acts.

The variable on Annual Holiday Leave (B33) had to be recalculated. Ambiguity in the questionnaire has led to erroneous responses. Values have been imputed, based on legal

minima and minima set by (known) collective agreements. As a result, the values of the variable B33 are likely to be underestimated.

2.2.3. Non-response errors

Unit Response Rate

The table below shows the unit response rate. This rate is defined as follows:

$$\frac{\text{Exploitable Units}}{\text{Sampled Units} - \text{Ineligible Units}}$$

The "Ineligible Units" are those mentioned in section 2.2.1. The "Exploitable Units" are those for which there was a response and who have passed the quality and plausibility checks.

	Local Units	Employees
(a) Sampled	2301	38874
(b) Ineligible	69	523
(c) Exploitable	1856	31329
Unit Response Rate: c / (a - b)	83%	82%

Imputation Rates

There has been no imputation of missing values. An extensive follow-up allowed reducing the problems of item non-response and missing values.

2.2.4 Model assumption errors

Does not apply.

3. Punctuality and timeliness

3.1 Punctuality

The table below shows the dates at which the questionnaire and the recalls were dispatched, as well as the deadlines that have been imposed.

	Dispatch	Deadline
Launch	20/06/2007	31/08/2007
1st Recall	11/09/2007	15/10/2007
2nd Recall	18/10/2007	15/11/2007
3rd Recall	22/11/2007	17/12/2007
Last Recall	01/02/2007	22/02/2008

The fieldwork started on the 20th of June 2007. The fieldwork stopped on the 2nd of September 2008, the day where the last questionnaire was received and validated.

The data processing started on the 27th of June 2007, the day where the first questionnaires were received. The data processing ended on the 12th of September 2008, by transmitting the final database to Eurostat.

The first results will be published by the end of 2008.

3.2 Timeliness

The reference month for the Structure of Earnings Survey is October 2006. The final data have been available since the 12th of September 2008. The first results are expected to be published by the end of 2008.

4. Accessibility and clarity

4.1 Accessibility

References for core results publications, including those with commentary in the form of text, graphs, maps, etc.

- First results have been released in December 2008, in a new series called "Regards".

- A more compete set of results will be released during January 2009 as a "Bulletin du Statec".
  http://www.statistiques.public.lu/fr/publications/conjoncture/bulletinStatec/

- At the same time, a news release ("Statnews") will be dispatched.
  http://www.statistiques.public.lu/fr/communiques/

- Several tables will be published on the "Portail des Statistiques du Grand-Duché de Luxembourg", under the following section:
  http://www.statistiques.public.lu/fr/economie/index.html

- These tables will also be included in Luxembourg's statistical yearbook (Annuaire statistique du Luxembourg).
  http://www.statistiques.public.lu/fr/publications/horizontales/annuaireStatLux/

Information on what results, if any, are sent to reporting units included in the sample.

The "Regards" publication will be sent by mail to all the reporting units. Moreover, the reporting units can request results for their respective sector of activity, that are more detailed than those available to the general public.

4.2 Clarity

Description of and references for metadata provided

Metadata will be published on the “Portail des statistiques”, together with the tables extracted from the survey.

References for core methodological documents relating to the statistics provided

The “Bulletin du STATEC” to be published on this survey (see above) will contain a methodological section.

Description of main actions carried out by the national statistical services to inform users about links to the data

The public will be informed through different channels:

- A news release (“Statnews”) dedicated to the Structure of Earnings Survey 2006.
- The RSS feeds and electronic newsletters of the “Portail des Statistiques”. http://www.statistiques.public.lu/fr/functions/newsletter/index.php
- Eventually, the subscribers of the “Bulletin du STATEC” will receive the above mentioned publication on the Structure of Earnings Survey 2006

5. Comparability

5.1 Geographical comparability

In Luxembourg, the European concepts on the definition of statistical units, populations, reference times, classifications and definitions of variables have been used.

5.2 Comparability over Time

Coverage

The Structure of Earnings Surveys of 1995, 2002, and 2006 cover the sections C to K of the NACE rev.1 classification. However, in 2006, the sections M, N and O have been added.

Survey Design

The Structure of Earnings Surveys of 1995, 2002, and 2006 rely on a two-stage sample design. In a first stage a sample of local units is drawn, and in a second stage, the salaried workers are sampled within these local units. In 1995 and 2002, the local units were asked in the second stage to draw themselves a representative sample of their workers, the size of this sample being fixed by STATEC. In 2006, the second-stage sample was directly drawn from social security records, using simple random sampling.

6. Coherence

The following table compares the variable “gross annual earnings in the reference year” from the Structure of Earning Survey to the variable “wages and salaries” from the national accounts.

As far as the national accounts are concerned, the line labeled “TOTAL” corresponds to the total of the sectors mentioned in the table, rather than the total economy.

	National Accounts	Structure of Earnings Survey 2006
	Wages and Salaries (D11)	Gross Annual Earnings in the Reference Year (B42)
C	39243	34521
D	44104	41236
E	64659	62630
F	30602	26665
G	30748	29404
H	23839	20812
I	48601	49274
J	73412	69425
K	35895	35635
M	58202	46849
N	38637	38196
O	38453	39434
TOTAL	42723	41911