

SAVOIR POUR AGIR

**statec**

SERVICE CENTRAL DE LA STATISTIQUE  
ET DES ETUDES ECONOMIQUES

## **Quality Report on the Labour Cost Survey 2012 in Luxembourg**

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

# 1. Relevance

## **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 labour cost along several variables, e.g. economic activity and size of the enterprise. Another focus of interest is the disaggregation of the labour cost in its components, such as direct vs. indirect cost, contractual wages vs. bonuses, wages and salaries vs. social contributions, etc.

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. As of today, there is no information regarding redundancy or lack of completeness.

## 2. Accuracy

### 2.1 Sampling Errors

The following table shows the coefficient of variation (CV) and its components for the requested annual labour costs (D) and the hourly labour costs (D / B1).

Table 1: Coefficients of variation of annual and hourly labour costs

	Annual labour costs (D)			Hourly labour costs (D/B1)		
	Total	SE	CV (%)	Mean	SE	CV (%)
All	16900	601,00	3,57	33,9	0,79	2,34
NACE2 sections						
B	13	7,12	54,68	25,9	1,15	4,43
C	1640	337,00	20,49	30,1	1,87	6,22
D	106	53,80	50,72	48,6	4,06	8,35
E	69	22,50	32,74	29,6	2,43	8,18
F	1520	106,00	6,96	23,7	0,46	1,95
G	1630	179,00	10,94	25,6	1,33	5,20
H	1410	343,00	24,39	30,8	2,81	9,14
I	384	53,20	13,84	19,5	0,58	2,95
J	1110	232,00	20,83	42,1	1,38	3,28
K	4080	533,00	13,07	58,7	1,25	2,13
L	45	12,80	28,53	36,2	2,99	8,28
M	1860	256,00	13,72	44,6	1,62	3,62
N	931	184,00	19,81	19,4	1,03	5,35
P	170	88,90	52,38	41,9	2,93	6,98
Q	1680	312,00	18,60	36,2	2,53	7,00
R	64	19,10	29,87	32,4	2,47	7,61
S	136	32,50	23,97	29,0	3,38	11,65
Size-class						
E10_49	3770	63,40	1,68	28,8	0,45	1,56
E50_249	5170	164,00	3,18	32,8	0,75	2,30
E250_499	2350	163,00	6,93	35,0	2,36	6,75
E500_999	2030	247,00	12,17	38,0	2,95	7,77
E1000	3530	667,00	18,90	40,2	3,41	8,49

CV: Coefficient of variation = (SE / Mean)\*100

Annual Labour Costs are expressed in million of Euro and hourly labour costs in Euro

## 2.2 Non-sampling Errors

### 2.2.1. Coverage errors

No problem of under-coverage is known. However, there has been some over-coverage. 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 legal unit has less than 10 employees in practice.
2. The legal unit does not exist. The reasons for this non-existence can be bankruptcy, merger, liquidation or discontinuance of business.

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

Table 2: Over-coverage rates, by type (%)

	Legal Units	Employees
1. < 10 employees	3,1	0,5
2. Unit does not exist	1,3	1,1
TOTAL	4,4	1,7

Of all sampled legal units, 3.1% were out of the scope that had been defined for the survey because their actual number of employees appeared to be less than 10. 1.3% of the units sampled did not exist anymore at the time of the survey.

As these units consisted mainly of very small enterprises (with one exception), it has to be pointed out that even if they represent 4.4% of the sampled units, they only stand for 1.7 % of the total employees in the sampled units.

### **2.2.2. Measurement and processing errors**

A non-negligible amount of measurement errors was noticed for some working time and labour cost variables. Internal quality and plausibility tests have detected incoherencies between these variables and other linked variables. These incoherencies stemmed from a misunderstanding of the questionnaire and from typos.

Most of the errors could be corrected via direct follow-up with the legal units.

For part-time employees, the indicated totals of worked hours were often out of scope if compared with the number of part-time workers indicated. This led to an adjustment of the annual average of part-time employees (A12), assuming the total number of hours actually worked was correct.

Ambiguity in the questionnaire led to erroneous responses and so values had to be corrected for hours worked per week and annual holiday leave, based on legal norms or minima.

Checks between related variables also showed that in some cases hourly wages were less than the legal minimum wage. These errors have been checked and the corresponding data have been corrected on a case-by-case basis.

Social contributions had also to be checked on a case-by-case basis as their relation to wages and salaries frequently did not match the legal contribution rate.

Data from education-related legal units (division 85 of NACE rev.2) should be considered with caution because variables such as “hours actually worked” and “annual holiday leave” have been interpreted very differently from one respondent to another, which obviously affects hourly wages.

### 2.2.3. Non-response errors

#### Unit Response Rate

Table 3 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.

Table 3: Response rates in the LCS 2012

	Legal Units	Employees
(a) Sampled	2 819	258 980
(b) Ineligible	125	4 307
(c)=(a)-(b) In scope	2 694	254 673
(d) No response / non exploitable	247	12 152
(e)=(c)-(d) Exploitable	2 447	242 521
Unit Response Rate (e)/(c) (%)	90,8%	95,2%

#### Imputation Rates

Unlike the previous data collections, the 2013 data collection was conducted via a web-based questionnaire. 94% of the respondents used this medium. The online questionnaire was designed in a way to oblige respondents to fill in most cells and checking tools were integrated in the questionnaire, so that item non response was largely reduced.

An extensive follow-up allowed reducing item non-response and missing values even further for the most important variables. As explained in section 2.2.2., many corrections were made during the data checking and follow-up process. No imputations were deemed necessary after these corrections had been made.

### 2.2.4 Model assumption errors

Does not apply.

### **3. Punctuality and timeliness**

#### **3.1 Punctuality**

Table 4 shows the dates at which the questionnaire and the recalls were dispatched, as well as the deadlines that have been imposed.

Table 4:

	Dispatch	Deadline
Launch	18/04/2013	31/05/2013
1 <sup>st</sup> Recall	10/06/2013	10/07/2013
2 <sup>nd</sup> Recall	25/07/2013	10/09/2013
Last Recall	18/09/2013	30/10/2013

The fieldwork started on April 18, 2013 with the launch of the online questionnaire. The questionnaire was taken offline on February 3, 2014. Two final questionnaires were received on paper after that date, the last one on March 6, 2014, at which date the fieldwork was ended.

The data processing started on April 18, 2013, the day where the first questionnaires were received online, and ended on June 25, 2014.

#### **3.2 Timeliness**

The reference year for the Labour Cost Survey is 2012.

The final data have been available on June 25, 2014.

The first results have been published on September 16, 2014.

## 4. Accessibility and clarity

### 4.1 Accessibility

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

- Different aspects of the results are analysed in 3 publications in a series called “Regards” (in French).
  - “Regards N° 16/2014 sur le niveau et la structure du coût de la main-d’œuvre” (16.09.2014)  
(<http://www.statistiques.public.lu/catalogue-publications/regards/2014/PDF-16-2014.pdf>)
  - “Regards N° 22/2014 sur le coût de la main-d’œuvre au Luxembourg et en Europe” (18.11.2014)  
(<http://www.statistiques.public.lu/catalogue-publications/regards/2014/PDF-22-2014.pdf>)
  - “Regards N° 23/2014 sur la durée de travail” (25.11.2014)  
(<http://www.statistiques.public.lu/catalogue-publications/regards/2014/PDF-23-2014.pdf>)
- Several tables have been published on the “Portail des Statistiques du Grand-Duché de Luxembourg”, under the following section:  
([http://www.statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF\\_Language=eng&MainTheme=4&FldrName=1&RFPath=9797](http://www.statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF_Language=eng&MainTheme=4&FldrName=1&RFPath=9797))

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

Reporting units are not informed individually on the results of the survey.

## **4.2 Clarity**

### **Description of and references for metadata provided**

Metadata has been published on the website “Portail des statistiques”, together with the tables extracted from the survey :

(<http://www.statistiques.public.lu/fr/enquetes/espace-entreprises/cout-main-oeuvre/index.html>)

### **References for core methodological documents relating to the statistics provided**

A detailed methodological note has been published on the website “Portail des statistiques”:

(<http://www.statistiques.public.lu/fr/methodologie/methodes/entreprises/main-d-oeuvre/ecm/notice.pdf>)

### **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:

- News releases dedicated to the publication of the results of the Labour Cost Survey 2012 in September and November 2014:  
(<http://www.statistiques.public.lu/fr/actualites/index.html>)
- The RSS feeds and electronic newsletters of the “Portail des Statistiques” :  
(<http://www.statistiques.public.lu/fr/functions/newsletter/index.php>)

## 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 Labour Cost Survey of 2012 has been the fourth survey (after 2000, 2004 and 2008) to be conducted under the harmonized rules of Council Regulation (EC) N° 530/1999 and Commission Regulation (EC) N° 1726/1999 (amended by N° 1737/2005).

The 2000 survey covered the sections C to K of the NACE rev.1 classification.

In 2004, sections M to O of the NACE rev.1 classification were added.

The 2008 Survey was based on the NACE rev. 2 classification and covered sections B to N and P to S. However, the results were also available in a separate table based on NACE rev.1.

The 2012 Survey used only NACE rev.2 and covered the same sections than in 2008.

#### Survey Design

For the Labour Cost Survey of 2012, stratified sampling has been applied, as had been done for the previous Surveys.

The population of legal units has been stratified on the basis of the size of enterprise in terms of employees.

For each stratum, sampling has been done according to the following sampling rates:

Table 7: Sampling Rates (%)

Size of enterprise	Sampling rate
10-19 employees	50
20-49 employees	60
50-249 employees	70
250-499 employees	80
500 and + employees	100

## 6. Coherence

In order to evaluate the extent to which the results of the Labour Cost Survey 2012 are coherent, the suggested comparisons have been made.

### 6.1. The number of hours actually worked per employee (B1/A1), compared to the average actual hours worked in the main job according to the Labour Force Survey (LFS)

Table 8: Hours worked per employee according to LCS2012 and LFS2012

NACE 2 Sections	Labour Cost Survey (LCS) 2012 Number of hours actually worked per employee (B1/A1)	Labour Force Survey (LFS) 2012 Average Actual Hours worked in the main job per employee*	Difference LCS to LFS
B	1 913	1 248	53
C	1 731	1 856	-7
D	1 723	1 924	-10
E	1 736	1 856	-6
F	1 732	1 758	-1
G	1 664	1 737	-4
H	1 777	1 799	-1
I	1 612	1 648	-2
J	1 712	1 851	-8
K	1 674	1 851	-10
L	1 689	1 742	-3
M	1 698	1 856	-9
N	1 389	1 503	-8
P	1 513	1 362	11
Q	1 407	1 404	0
R	1 619	1 513	7
S	1 564	1 581	-1
TOTAL	1 632	1 680	-3

\* Average actual hours worked in the main job per employee in the reference week multiplied by 52

Indications of the reasons if the values differ considerably:

- NACE Sections B, D, L & R : number of units sampled in LCS and number of employees sampled in LFS are both very low
- LFS is based on declarations by individuals. These declarations can be inaccurate. There can be problems of rounding and also of recall bias. Moreover, the sector of activity in the LFS is based on individual declarations. This is another source of

inaccuracy, which can explain the fact that for individual activities, the differences are higher than for the total.

- NACE Section P: data on working times in the field of education differ largely because of differences in interpretation of the term “hours actually worked”. Home preparation hours of teachers are neither measured nor clearly defined.

## 6.2. The variable “Wages and salaries” expressed per employee (D11/A1) compared to the same variable, per employee of the Structure of Business Statistics (SBS)

Table 9: Wages and salaries par employee according to LCS2012 and SBS2012

NACE 2 Sections	Labour Cost Survey (LCS) 2012 Wages and salaries per employee (D11/A1)	Structure of Business Statistics (SBS) 2012 Wages and salaries per employee	Difference LCS to SBS
B	43 682	45 900	-4,8%
C	44 540	46 651	-4,5%
D	71 689	72 146	-0,6%
E	44 436	44 204	0,5%
F	34 964	36 819	-5,0%
G	37 189	38 713	-3,9%
H	46 488	48 568	-4,3%
I	27 499	26 201	5,0%
J	62 465	62 675	-0,3%
K	83 718	n.a.	
L	53 737	64 486	-16,7%
M	65 878	69 483	-5,2%
N	23 596	24 722	-4,6%
P	55 461	n.a.	
Q	44 810	n.a.	
R	45 825	n.a.	
S	39 862	n.a.	
TOTAL	47 750	n.a.	

n.a.: not available

Indications of the reasons if the values differ considerably:

- NACE Sections B, D, L & N : number of units sampled in LCS and in SBS are both very low

**6.3. The average annual growth rates (between 2004 and 2008) of the variable “Hourly labour costs” (D/B1) compared to the average annual growth rate of the unadjusted Labour Cost Index (LCI)**

Table 10: Hourly labour costs average growth rates 2008-2012 according to LCS and LCI

NACE 2 Sections	Labour Cost Survey (LCS) 2008-2012	Labour Cost Index (LCI) 2008-2012
	Hourly Labour Costs (D/B1) Average annual growth rates	Unadjusted Labour Cost Index Average annual growth rates
B	2,68	1,95
C	1,69	1,69
D	1,02	2,28
E	1,49	2,93
F	2,99	2,12
G	5,41	3,47
H	2,92	2,88
I	4,65	2,26
J	2,46	3,01
K	2,23	3,44
L	-3,22	3,06
M	2,82	3,16
N	1,05	3,20
P	2,62	2,65
Q	1,87	2,13
R	3,29	3,20
S	5,56	4,14
TOTAL	2,30	2,68

For the economy as a whole, the average annual growth rate for the period 2008 to 2012 according to LCS is 0.38 percentage points below the rate computed from LCI.

There is however a bigger difference for certain sectors.

Indications of the reasons if the values differ considerably:

In some NACE sections, especially in those with few units or some dominating units, overall results are heavily influenced by irregular payments that vary considerably from one year to another (i. e. bonuses, contributions to employees’ saving schemes or subsidies received by the employer or not). This explains in part, why average growth rates are lower (or higher) in LCS than in LCI, as these types of payments are not fully covered by the social security data base used for the estimation of the yearly update of the LCI.

- In NACE section L (Real Estate Activities), the hourly labour cost has been inflated heavily in 2008 due to extraordinary bonuses paid by one large company dominating the section, in which the number of units is very small. Unfortunately, this high figure has been used as a basis for the Labour Cost Index yearly update 2008-2012. As bonuses (D11112) were dramatically lower in 2012, overall remuneration per hour fell in the LCS 2012 under the value reported in the LCS 2008, even though the remuneration paid in each period (D11111) rose.
- According to LCS, in all sections except P, irregular payments and bonuses (D11112/B1) either rose less than the regular remunerations (D11111/B1), or even fell below their value of 2008 (in sections C, F, H, J, K, L, M, N, Q). This has a particularly high impact on hourly labour costs in those sections, where bonuses contribute largely to annual remuneration (i.e. in sections L, K, D, J, M).
- In other cases, high payments to employees' saving schemes inflate the 2012 value (e.g. in section G).

#### 6.4. The variable “Compensation of employees”, expressed per employee (D1/A1), compared to the same variable of the National Accounts (NA)

Table 12 : Compensation of employee per employee according to LCS and NA

NACE 1 Sections	Labour Cost Survey (LCS) 2012	National Accounts (NA) 2012	Difference LCS to NA (in %)
	Compensation of employees per employee (D1/A1)	Compensation of employees per employee (D1/EEM)	
B	49 440	47 667	3,7
C	51 531	53 254	-3,2
D	82 373	90 000	-8,5
E	51 028	56 111	-9,1
F	40 895	39 467	3,6
G	42 252	42 553	-0,7
H	53 414	57 483	-7,1
I	31 329	28 319	10,6
J	71 401	73 152	-2,4
K	97 134	96 175	1,0
L	60 558	49 905	21,3
M	74 412	68 967	7,9
N	26 985	31 396	-14,0
P	63 119	93 353	-32,4
Q	51 432	52 191	-1,5
R	52 203	57 935	-9,9
S	46 176	42 780	7,9
TOTAL	54 897	57 442	-4,4

Indications of the reasons if the values differ considerably:

- NACE Sections B, D, E, L, P, R : number of units sampled in LCS is low
- NACE Section P: LCS does only consider private sector education units (which are very few), whereas NA consider all education units, including public ones (i.e. most). Compensation of employees in public education sector is higher.