

Annual Wage Structure Survey 2005 (AWSS)

Methodology

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Introduction

The Annual Wage Structure Survey (AWSS) is an annual statistical operation that arises out of the need to have information available on annual wages, classified by sex.

The predecessors of this survey can be found in the previous Wage Survey in Industry and Services, in which information was requested, broken down by sex, for the four quarters of each year from 1989 to 2000.

The need to include in the questionnaire the rest of the labour costs other than wages (to fulfil the requirements of the European Regulations on the Labour Cost Index), and the elevated informational load on companies that is implied by requesting this breakdown of information, gave rise to the suppression of the breakdown by sex in the Quarterly Labour Cost Survey beginning in the year 2000.

On the other hand, by virtue of Regulation No. 530/1999 regarding the structural statistics of Labour Costs and Wage Income of the EU, which is mandatory for all Member States, every four years the Wage Structure Survey (WSS) is carried out. This survey collects the wages of individual workers, and together with them, a large number of variables, such as age, education, years of service in the company, type of contract... and of course, sex. Given the large volume of information requested, it has been carried out every four years since 2002.

Thus, an information gap remained for the years in which the WSS was not performed. The Annual Wage Structure Survey arose for the purpose of filling said gap. In addition, the AWSS uses the information from the administrative registers of Social Security and income taxes, together with a simple survey carried out by the INE, in order to obtain this information in the least costly way possible for the companies.

Methodological Description

1 Objectives

The main objective of the Annual Wage Structure Survey is to ascertain gross annual earnings, classified by different characteristics of the worker, such as sex, occupation, economic activity, age, etc.

2 Scope, coverage and reference period

The **population scope** is made up of all those workers who work for others, who provide their services in contribution centres, and who have been affiliated to Social Security for more than two months of the year. It excludes all presidents, members of administrative boards and, in general, all personnel whose remuneration is not mainly in the form of wages, but rather commissions or benefits.

The **geographical scope** encompasses the entire country, with a breakdown of results by Autonomous Community. The information corresponding to Ceuta and Melilla is provided jointly with that corresponding to Andalucía.

Regarding **sectorial coverage**, it studies the contribution centres whose economic activity is classified within three large sectors: Industry, Construction and Services, and in particular, those workplaces with economic activities considered in sections C to K and M to O of the NACE-93.

The survey excludes agricultural, livestock and fishing activities, Public Administration, Defence and mandatory Social Security, domestic personnel and extraterritorial bodies.

For the **temporal scope**, the reference period is the calendar year.

3 Concepts and definitions

Wage concepts

In general, throughout this publication, we refer to wage earnings or simply earnings, which include the total wage payments in cash and remunerations in kind. We compute the gross accrued income, that is, the remunerations before Social Security contributions on behalf of the worker have been deducted, or income tax payments made.

As a whole, two types of wage earnings are published:

Earnings per hour. This is necessary for studying, under equal conditions, workers with different working days, especially part-time workers.

Annual earnings. This includes gross total earnings. This is used for the wage comparison according to worker characteristics.

The survey is aimed at all workers affiliated to Social Security for at least 60 days during the year.

For an adequate interpretation of the earnings, we must bear in mind that it does not collect the earnings of second and third jobs of the same worker, but instead collects those earnings in the company through which the worker has been selected. In addition, in order to make comparisons between workers, we have adjusted the wages of those workers who did not spend the entire year in the workplace. For this purpose, they are assigned an equivalent annual salary that they would have been paid had they worked for the entire year under the same conditions.

Finally, earnings per hour are estimated as the annual earnings divided among the agreed hours of the reference year.

Occupation

The classification of occupations used is a Spanish adaptation of community classification ISCO-88 COM, called National Classification of Occupations, NCO-94.

NCO-94 (and ISCO-88 COM) is a hierarchical classification whose large occupational groups, that is, the maximum grouping level, are:

A Management of public administrations and of companies with 10 or more employees

D Professions associated with 2nd and 3rd cycle university degrees and the like

E Professions associated with a 1st cycle university degree and the like

F Technicians and support professionals

G Administrative type employees

H Catering services workers and personal services workers

J Protection and security services workers

K Retail workers and the like

L Workers skilled in agriculture and fishing

M Skilled construction workers, except machinery operators

N Skilled workers in the fields of extractive industries, metallurgy and construction of machinery and the like

P Skilled workers from the graphic arts, textile and preparation, elaboration of food, cabinetmakers, craftspersons and other similar industries

Q Fixed machinery and industrial installation operators; fitters and assemblers

R Mobile machinery drivers and operators

S Unskilled workers in services (except transport)

T Unskilled agricultural, fishing, construction, manufacturing and transport industry labourers

Type of working day

Two types of working day are considered: full-time and part-time. In accordance with the current labour legislation, a part-time worker is defined as any worker whose habitual working day is shorter than the working day of a comparable full-time worker. A comparable full-time worker is defined as a full-time worker in the same company and workplace, with the same type of work contract, and who carries out identical or similar work. If there were no comparable full-time workers in the company, the full-time working day foreseen in the applicable collective agreement would be considered, or failing that, the maximum legal working day.

In practice, the type of working day appears in the work contract, and has been obtained from the contract included in the Social Security Affiliation File.

Type of work contract

The information available is from two general types of work contract: permanent contracts, temporary and determined duration contracts, and they have been obtained from the contract that appears in the Social Security Affiliation File.

4 Survey design

Survey framework

The starting point is the General Register of Social Security Contribution Accounts, provided by the Social Security General Treasury, updated to 30 September each year; this framework, which has the advantage of its constant updating, in addition to the fact that its unit is the survey unit itself.

In January of each year, we update the sample of the Quarterly Labour Cost Survey (QLCS) from the Social Security Contribution Accounts File, dated 30 September of the previous year. Once the contribution accounts (CA) sample is obtained, we ask the Social Security General Treasury for the list of workers affiliated to said contribution accounts during the reference year of the previous file.

From these lists, and after performing a series of controls and filtering criteria, we obtain the framework from which we will select a sample of workers who will be a part of this investigation.

Sampling plan

The random unit selection procedure corresponds to a stratified two-stage sampling, in which the first stage units are the Social Security contribution accounts, and the second stage units are the workers. From the contribution account sample, we have randomly selected a nominal and representative list of workers, which will be submitted together with the questionnaires, and of whom

the informers must supply the required data: occupation and tasks performed during the reference year and, in the case of País Vasco, three more variables related to annual gross wages.

The sample to be studied during the first stage is the same as in the QLCS, and therefore information will be requested from almost 19,000 contribution centres that comprise the quarterly sample of said survey, and thus the sample design of the survey is the same as that of the QLCS (for further information, see the methodology of the QLCS).

The list of units selected in the first stage is sent again to the Social Security General Treasury, as mentioned previously, which obtains the list of workers who were affiliated during the reference year. We selected the workers from this list, in which the workers to be selected in each centre depend on the total number of workers in said centre who were affiliated to Social Security at least 60 days during the year 2005. The following strata are distinguished:

Stratum	Number of employees	Workers selected
1.	1 to 4 workers	All
2.	5 to 9 workers	4
3.	10 to 19 workers	6
4.	20 to 49 workers	8
5.	50 to 99 workers	9
6.	100 to 199 workers	12
7.	200 to 499 workers	15
8.	More than 500 workers	25

This last stratum was studied exhaustively, and in some very large contribution centres, 50 workers were selected.

The final sample size was 18,585 Social Security contribution accounts, and 166,206 workers. In the first stage, the selection was made with the optimum allocation, according to the size strata to which the contribution account belongs. In the second stage, the selection was made via a systematic sampling, within each contribution account, with the lists of workers previously organised, first by Social Security contribution group, and by sex within each contribution group, so as to ensure that the sample is representative.

Table 1. Sample sizes by section and activity subsections of the NCEA-93

	Units	Employees
ALL ACTIVITIES	18,585	166,206
C. Extractive industries	374	2,570
CA. Extraction of energy products	104	861
CB. Extraction of other ores except energy products	270	1,709
D. Manufacturing industry	5,728	49,400
DA. Food, beverage and tobacco industry	561	5,641
DB. Textile and clothing industry	484	3,725
DC. Leather and footwear industry	223	1,544
DD. Wood and cork industry	293	2,031
DE. Paper industry; publishing, graphic arts and reproduction	537	4,149
DF. Refinement of petroleum and treatment of nuclear fuels	66	639
DG. Chemical industry	336	3,460
DH. Rubber and plastic material transformation industry	266	2,469
DI. Other non-metallic ore product industries	317	2,939
DJ. Metallurgy and manufacture of metallic products	635	5,776
DK. Construction of machinery and mechanical equipment industry	300	2,725
DL. Electrical, electronic and optical material and equipment industry	698	5,459
DM. Manufacture of transport material	498	5,385
DN. Various manufacturing industries	514	3,458
E. Production and distribution of electrical energy, gas and water supply	459	3,930
F. Construction	1,967	15,369
G. Trade and repairs	1,865	17,001
H. Accommodation	642	5,620
I. Transport, storage and communications	1,293	11,981
J. Financial intermediation	1,068	10,023
K. Real estate and rental activities; business services	2,372	22,621
M. Education	476	5,479
N. Health and veterinary activities, social services	727	11,168
O. Other social activities and services provided to the community; persc	1,614	11,044

Table 2. Sample sizes by Autonomous Community

	Units	Employees
NATIONAL TOTAL	18,585	166,206
Andalucía	1,524	14,414
Aragón	945	7,907
Asturias (Principado de)	854	6,647
Balears (Illes)	775	6,098
Canarias	984	8,418
Cantabria	695	4,915
Castilla y León	1,052	8,937
Castilla-La Mancha	917	7,426
Cataluña	2,098	22,457
Comunitat Valenciana	1,454	13,487
Extremadura	762	5,264
Galicia	1,131	9,509
Madrid (Comunidad de)	1,994	23,578
Murcia (Región de)	876	6,817
Navarra (Comunidad Foral de)	735	5,824
País Vasco	1,188	10,618
Rioja (La)	601	3,890

Information request, collection method and field work

Together with the issue of the QLCS questionnaires corresponding to the months of October, September and November, we include an annex questionnaire with the sample of workers selected in each CA, identified by their Social Security number. The questionnaire will contain only two questions regarding occupation, except in País Vasco, where we will also request the information provided in Model 190 of the income tax documents.

Due to the conditions that the workers must verify to be included in the sample (days of affiliation to Social Security, and number of contracts), the sample does not coincide exactly with the quarterly survey.

The collection of questionnaires was carried out during the months of October 2006 to January 2007. The unit in charge of performing the field work carried out the collection and first filtering of all of the information required, via post, telephone and fax.

For each worker, the following information from the General Affiliation File is included: Tax Identification Number (NIF), Date of birth, Nationality, Date of affiliation, Date removed from affiliation, Social Security contract key.

Once the occupation variable has been coded from the descriptions given in the questionnaires, said information is sent to the State Tax Administration Agency and to the Statistics Institute of Navarra, to be crossed with the Annual Summary of Withholdings and Advance Payments on Personal Income Taxes (Model 190).

The crossing is carried out in the following manner: for each "declaring NIF" (NIF from the CA), the data are obtained from the statements of said "declaring NIF" regarding the payments corresponding to key A of the "NIF of the recipients" included in their list of workers.

This is, for each recipient (worker on the list), we will only include the payments stated by the "declaring NIF" to whom he/she is associated, according to the information from Social Security.

Because the samples are from random contribution accounts and workers, through an elevation process, we will obtain the average values of the annual earnings, by activity, Autonomous Community, etc., we will also be able to obtain wage distributions-

Table 3. Sample collection and response rates by Section and activity subsections of the NCEA-93

	Units	Rate	Employees	Rate
ALL ACTIVITIES	16,543	89.01	141,158	84.93
C. Extractive industries	340	90.91	2,259	87.90
CA. Extraction of energy products	94	90.38	734	85.25
CB. Extraction of other ores except energy products	246	91.11	1,525	89.23
D. Manufacturing industry	5,222	91.17	43,744	88.55
DA. Food, beverage and tobacco industry	518	92.34	5,031	89.19
DB. Textile and clothing industry	438	90.50	3,294	88.43
DC. Leather and footwear industry	199	89.24	1,318	85.36
DD. Wood and cork industry	272	92.83	1,799	88.58
DE. Paper industry; publishing, graphic arts and reproduction	493	91.81	3,711	89.44
DF. Refinement of petroleum and treatment of nuclear fuels	64	96.97	626	97.97
DG. Chemical industry	311	92.56	3,109	89.86
DH. Rubber and plastic material transformation industry	237	89.10	2,162	87.57
DI. Other non-metallic ore product industries	292	92.11	2,637	89.72
DJ. Metallurgy and manufacture of metallic products	583	91.81	5,209	90.18
DK. Construction of machinery and mechanical equipment industry	273	91.00	2,423	88.92
DL. Electrical, electronic and optical material and equipment industry	626	89.68	4,762	87.23
DM. Manufacture of transport material	445	89.36	4,647	86.30
DN. Various manufacturing industries	471	91.63	3,016	87.22
E. Production and distribution of electrical energy, gas and water supply	405	88.24	3,332	84.78
F. Construction	1,724	87.65	12,572	81.80
G. Trade and repairs	1,714	91.90	15,152	89.12
H. Accommodation	566	88.16	4,527	80.55
I. Transport, storage and communications	1,106	85.54	9,650	80.54
J. Financial intermediation	985	92.23	9,125	91.04
K. Real estate and rental activities; business services	2,032	85.67	17,814	78.75
M. Education	443	93.07	4,853	88.57
N. Health and veterinary activities, social services	624	85.83	9,239	82.73
O. Other social activities and services provided to the community; personal services	1,382	85.63	8,891	80.51

Table 4. Sample collection and response rates by Autonomous Community

	Units	Rate	Employees	Rate
NATIONAL TOTAL	16,543	89.01	141,158	84.93
Andalucía	1,343	88.12	12,332	85.56
Aragón	858	90.79	6,889	87.13
Asturias (Principado de)	813	95.20	6,203	93.32
Balears (Illes)	661	85.29	4,868	79.83
Canarias	755	76.73	6,038	71.73
Cantabria	605	87.05	4,024	81.87
Castilla y León	967	91.92	7,945	88.90
Castilla-La Mancha	865	94.33	6,698	90.20
Cataluña	1,865	88.89	18,869	84.02
Comunitat Valenciana	1,298	89.27	11,538	85.55
Extremadura	696	91.34	4,698	89.25
Galicia	1,039	91.87	8,368	88.00
Madrid (Comunidad de)	1,746	87.56	19,153	81.23
Murcia (Región de)	704	80.37	5,134	75.31
Navarra (Comunidad Foral de)	695	94.56	5,236	89.90
País Vasco	1,068	89.90	9,704	91.39
Rioja (La)	565	94.01	3,461	88.97

Estimators

Separated ratio estimators are used, with the auxiliary variable being the number of workers in each establishment, according to the directory of Social Security Contribution Accounts.

The estimators for the economic data of worker j of establishment i , in activity r , of size h and Autonomous Community t are formed as follows:

The elevation factors of the first and second stage are, respectively

$$F_{1j} = \frac{\sum_{i=1}^{N_{rth}} D_i}{\sum_{i=1}^{n_{rth}} D_i} \quad \text{and} \quad F_{2j} = \frac{B_i}{b_i}$$

where, D_i is the number of workers in the directory in establishment i , B_i is the number of workers of establishment i who were affiliated to Social Security for at least 60 days during the year and b_i is the number of workers according to the sample collected.

Then:

$$\hat{GH}_C = \frac{\hat{X}_C}{\hat{Y}_C} \quad \text{and} \quad \hat{GT}_C = \frac{\hat{X}_C}{\hat{Z}_C}$$

are the earnings per hour and the earnings per worker for any cell C of the table to be created (by activity, occupation, sex, Autonomous Community, etc.).

Where:

$$\hat{X}_C = \sum_{j \in C} F_{1j} * F_{2j} * X_j \quad (\text{Annual earnings})$$

$$\hat{Y}_C = \sum_{j \in C} F_{1j} * F_{2j} * Y_j \quad (\text{Hours})$$

$$\hat{Z}_C = \sum_{j \in C} F_{1j} * F_{2j} \quad (\text{Workers})$$

j refers to the workers who comply with the conditions of cell C.