

# Eurostat/OECD 2018 questionnaire on the methodology underlying labour input data in national accounts

Country: France

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## *Part I: Methods*

### 1. Employment in persons

**Question 1.1:** Please describe the architecture of your estimation method for employment in persons. Please include details of differences in methods and data sources that may exist at different points in the time series (e.g. a break in the series) or due to the timing of the estimate (e.g. flash estimate, regular estimate or annual data). Please also provide links to articles that may be relevant.

The estimation of annual employment in persons.

The estimate of the number of workers (in persons) is mainly based on exhaustive sources, in particular social data. Some corrections are made to take into account national accounts' concepts. Secondly, a rather more complex method is used to calculate an estimate of employment in "full-time-equivalent". As this calculation is actually more connected to the calculation of hours worked, it will be specified in part 2. Nevertheless, this calculation is also used to allocate workers between homogeneous branches. Here is thus the very broad outline.

- Estimation of the total of workers in persons, distribution by industries (activity sectors = set of the same kind of activity units) at an establishment level, setting apart employees from self-employed workers.  
The data are mainly provided by an INSEE sub-department, the Summary and Conjuncture of the Labor Market Sub-department, using several sources of administrative origin (social statements made by employers). The data provided, called the "Estel" source, are at level A88 (Naf rev2), end of the quarter. Before 2007, Estel was based on the population census, which are yearly data.
- Conversion into level A129 (NAF rev2, legal unit level), annual average, using a DADS-vector
- Estimate of workers in each institutional sector:
  - financial corporation (S12): data from Estel, French Central Bank, Insurance Authority...
  - public administration (S13), using a register from the Public Finance General Directorate (Direction générale des finances publiques)
  - household employees (S14B): data from Acooss
  - NPISH (S15), using legal categories from DADS and wages from ACOSS

The non-financial corporations and unincorporated enterprises (S11) employment is equal to the difference between the domestic employment target and the sum of the other institutional sectors. Then employees are split between S11 and S14AA using wages from each sector.

- Estimation of employment in full-time-equivalent in each homogeneous branch. Part-time coefficients and multiactivity coefficients are applied to the employment in physical persons.

The part-time coefficients are yearly estimated from the LFS (Labor Force Survey) for the non-agricultural market sector, from the DADS for the institutional sector of households and NPISHs, and from the annual report of the Directorate Generale for administration and the civil service, for public administrations.

The last estimate of the multiactivity coefficients were made for the base 2010 using the DADS.

For the agricultural market sector, NA use directly the “Farm Work Units” estimated by the statistical service of the Ministry of Agriculture.

5) Addition of illegal activities and fraud, NA use rates from Claudie Louvot study on the hidden job market, and data from the French Monitoring Centre for Drugs and Drug Addiction (OFDT) for the Drugs.

6) The non-financial corporations and unincorporated enterprises (S11) employment in full time equivalent, which was split between industries until then, is converted into branches using the structure of the industry-branch production matrix.

7) Conversion of the non-financial corporations and unincorporated enterprises employment in full-time-equivalent to an employment in persons.

Nota Bene: the total of the final estimation of employment in persons is the same as the total after step one.

Some improvements were implemented during the 2017’s and 2018’s campaigns. Old series have been carefully re-estimated using the new method in order to avoid breaks in the series.

#### The estimation of quarterly employment in persons.

Quarterly national employment figure are synthesized on the basis of quarterly national data and annual domestic data. Employment deals with persons and full-time equivalence, employed and self-employed. Based on the quarterly national figures by homogeneous branches, a quarterly domestic aggregate by homogeneous branches is computed by reproducing an econometric relation between annualized national data by homogeneous branches and annual domestic data by industries (activity’s sectors), at the quarterly level. This econometric relation is supposed to correct for the domestic concept and the conversion between concepts of industries and homogeneous branches. Such benchmarking is done by homogeneous branches, for market branches. As regards non market branches, extrapolation and smoothing techniques are used to build quarterly aggregates. Smoothing techniques aim at minimizing quarterly evolutions, with constraint on annual values.

***Question 1.2: What is the main original source for employment in the national accounts (e.g. administrative source, labour force survey, business survey, other)? Briefly describe this source, its coverage (including over time, range of businesses/households covered, etc.), its availability and whether it is in terms of jobs and/or persons.***

**Please specify the sources used for different parts of employment (in particular if sources differ between employees and self-employed, and/or between industries, firms of different size, etc.). If sources differ, please provide a clear distinction when answering the questions that follow.**

According to the present method (called “base 2014”), sources are different, depending on if the estimation is for employment in “General government” (S13) or not.

Out of General government : as mentioned before, the main source is called “ESTEL”, based on social data, computed by an other section of INSEE. Employees are directly recorded according their main job in this source.

a) Concerning employees

Estel data are provided annually at a very detailed level (129 sectors), but some quaterly data are also transmitted at a more aggregated level (38 sectors). Quaterly data are used to estimate annual averages, in consistency with the national accounts concepts.

Concerning specifically the agricultural sector, specific data (provided by agricultural social mutual) are used, in order to consider the seasonal activity.

Concerning Mayotte, number of employees is based on LFS data.

b) concerning self-employees, Estel data provide aggregated informations, which are split by NA into 138 sectors.

Employment in S13 (general government).

Methodology and sources can be different for each sub-sector: central government (S1311), local government (S1313) and Social security funds (S1314). There is no sub-sector S1312 in France, as this is not a federal country. For all of these sub-sectors, sources provide annual data. In particular, we match two kinds of data:

- Data in which every S13 unit and its sub-sector are recorded. An important work has been recently led on these data to clearly identify the exact field of the S13 institutional sector.
- Annual declaration on social data (SIASP and DADS), providing informations by unit on wages, and jobs. A specific treatment is applied to identify the main activity of each employee working in this institutional sector.

Additional sources specific to the quaterly accounts: Budget data are used as forecast for state (central government) employment. The ACEMO survey delivers data on part time activity. This survey, conducted on a quaterly basis by the labour ministry, consists in questionnaires to firms, with 10 employees at least.

**Question 1.3: Please describe how estimates of annual figures based on higher frequency data (e.g. weekly, monthly, quaterly) are derived. Please also specify, if relevant, how annual figures are derived if survey information is less periodic (e.g. every 5 years)?**

When quaterly data are used, the following formula is applied:

$$\frac{1}{8} Q_{N-1,4} + \frac{1}{4} Q_{N,1} + \frac{1}{4} Q_{N,2} + \frac{1}{4} Q_{N,3} + \frac{1}{8} Q_{N,4}$$

**Question 1.4: Please describe the adjustments made to pass from jobs to the concept of persons (if the original source is in terms of jobs).**

Estel data are already based on the concept of persons; there are adjustments made to pass from persons to jobs. They are explained in the 1.1.

**Question 1.5: Please describe the adjustments made to correct for coverage of the economic territory (see ESA§11.17-11.19)? This refers specifically to residents working for non-resident units abroad non-residents working in resident units. If relevant, please also describe adjustments for military (including conscripts, where applicable) and other collective households not covered by your main source.**

Estel data provide directly informations on people working in France regardless of the place they live. As a result no adjustment need to be made.

Additionnal note specific to the quaterly accounts :

Econometric models and annual adjustment are supposed to correct differences of concept or coverage between indicators and accounts, particularly for domestic concept.

**Question 1.6: Which adjustments are made for the unobserved economy (e.g. producers that deliberately do not register, individuals providing their labour that are not required to register, illegal workers, etc.)?**

The adjustments for concealed labour are made for the estimation of full-time equivalent employment : see part 1.1.

Additionnal note specific to the quaterly accounts :

Annual back data is incorporated at the quarterly level. Extrapolation are provided for the future.

**Question 1.7: Which, if any, other adjustments are made (e.g. inclusion of resident workers below the age threshold, prisoners, adjustments made to account for statistical deficiencies in the source data, etc.)?**

None ; Sources used in National Accounts are based on social data and take into accounts prisoners and disabled workers.

**Question 1.8: In cases where Labour Force Survey data have not been used as the main source (even if only for some activities or groups of workers), please explain why. Are LFS data used for adjustments or cross-checking? Are differences monitored?**

Labour Force Survey is not used neither as main source, neither for major adjustments, and even neither for cross-checking. However, it is used as a complement to estimate parameters necessary to allocate workers between institutional sectors and to calculate the real hours worked (but, recent modifications in the hours worked estimate led to results closer to LFS results). LFS is also used in a secondary way for fine adjustments. Insofar exhaustive sources are available, they are favoured.

## 2. Hours worked

**Question 2.1: Please describe the architecture of your estimation method for hours worked. Please include details of differences in methods and datasources that may exist at different points in the time series (e.g. a break in the series). Please also provide links to articles that may be relevant.**

For employees:

0) Hours estimates are based on employment estimate in full-time equivalents computed by the NA, broken down by homogeneous branches. (FTE)

1. Computation of the number of weeks for the year (NW)
2. Estimates of employees' "normal" weekly duration of work by branches (two situations are taken in account: the workers whose working time is counted in hours and whose working time is counted in days) (WD)
3. Estimates of the global number of weeks not worked because of sick, maternity and weather leaves, public holidays, annual leaves and strike (by employees by branches). (Corr1)
4. Estimates of employees' exceptional overtime. (Corr2)
5. Sum up:

$$RHWE = FTE \times WD \times NW - Corr1 \times WD + Corr2 .$$

where RHWE means real hours worked by the employees .

One thus obtains the volume of hour worked by the employees, in 38 homogeneous branches.

For self-employees, the step is similar, but NA introduce some correction in order to take account of the fact that self-employees have a higher weekly working time, take fewer vacations and sick days than employees.

1. Hours estimates are based on estimates of the number of self-employees in Full-time equivalents computed by the NA, broken down by homogeneous branches. (FTE)
2. Estimates of an overactivity coefficient (OAC)
3. Estimates of an annual leave coefficient
4. Estimates of an sick leave coefficient

$$RHWSE = FTE \times WD \times OAC \times NW - Corr1' \times OAC \times WD + Corr2$$

where RHWSE means real hours worked by the employees, Corr1' and Corr2': corrections taking account the coefficients from 8) and 9).

10) A conventional treatment is made for concealed labour (constant increase of the estimation of full-time equivalent, coefficients by homogeneous branches).

Some improvements were implemented during the 2017's and 2018's campaigns. Series have been re-estimated in order to avoid breaks in the series.

Additional notes specific to the quarterly accounts : Hours worked are computed only for market branches except agriculture. The ACEMO survey provides a measure of hours that is corrected for overtime, sickness leaves and industrial accidents, temporary lay-offs, and strike. No data is available on a quarterly

basis concerning self-employed. Interpolation and adjustment techniques are then used to compile hours worked in general. Only for total and employees are hours worked calculated; the remainder consists in hours worked by self-employed persons and fraud.

**Question 2.2: What is the main original source for hours worked in the national accounts (e.g. administrative source, Labour Force Survey, Business survey)? Briefly describe this source, its coverage and its ability to reflect the definition of hours worked (see ESA §11.27-11.31). In particular, does it capture a ‘usual’ hours, ‘actual’ hours, or some other concept?**

**Please specify the sources used for different parts of the employed population (in particular if sources differ between employees and self-employed, and/or between industries, firms of different size, etc.). If sources differ, please provide a clear distinction when answering the questions that follow.**

The main sources are ACEMO and NA employment data. The ACEMO survey has two sides. The first one is conducted on a quarterly basis by the labour ministry, consists in questionnaires to firms, with 10 employees at least. The second one is conducted yearly and questions firms with less than 10 employees.

LFS is also an important secondary source, as well as many others administrative sources, providing information for corrections. The other sources are described in 2.3.

For quarterly accounts, the source only covers the employees field and market branches except agriculture : the ACEMO survey provides the official working hours in a week. Monthly information about sickness leaves, industrial accidents and temporary lay-offs come from administrative sources. Data on strikes reduce to transport services. An other inquiry of lth labour ministry provides information on very small enterprises (less than 10 employees).

**Question 2.3: Please describe the adjustments made to transform the original source to adapt it to the concept of working hours as defined in national accounts? Please, describe each adjustment separately. These adjustments might include:**

- Accounting for holidays and annual leave

(A) One cuts off the annual leaves, public holidays. This duration is estimated starting from investigations using LFS, according to the branches (level 38).

(Q) Extrapolation of past annual figures are smoothed, since no quarterly indicator is available.

- Accounting for sickness leave

A. One cuts off the days lost for sickness, maternity and industrial accidents. The distribution of these days between branches has been recently modified, in consistency with relevant sources. Maternity leaves for public servants, which were not taken into account, have been added.

Concerning the agricultural sector, estimates of sick leaves, maternity leaves, and industrial accidents are based of data from the agricultural social

Concerning the non-agricultural market sectors, sick leaves and maternity leaves are based on data from the French National Health Insurance Fund for Employees (CNAMTS) and on some companies social data reports. A correction is introduced in order to remove sick leaves of unemployed persons who receive sickness allowances (source: Acoess).

Days lost because of industrial accidents are provided by the statistical service of the French Ministry of Labour (Dares).

Public employees are supposed to have the same behaviour than other employees working in the same branch, except employees of the S1313. Sick leaves of the S1313 are estimated granted to data provided by the General Direction of Local Government (Ministry of Interior) According to social surveys (LFS, Enquête condition de travail), sick leaves of self-employed are supposed to be twice less important than sick leaves of employees. Maternity leaves of self-employed are provided by the self-employed worker's social security (RSI).

(Q) Interpolation and adjustments on quarterly indicators are used.

- Accounting for strikes and temporary lay-offs

(A) One cuts off the days lost for layoff (bad weather (source: CIBTP), "technical unemployment" (source: DARES), ...) and the days lost for strikes (source: DARES).

(Q) Indicators for strikes deals only with transport services. For other industry, smoothing is performed. and temporary lay-off but we smooth strikes in other branches. There are no quarterly indicators or data.

- Accounting for paid but unreported overtime
- Accounting for unpaid overtime

(A) : NA don't take into their accounts paid but unreported overtime, nor unpaid overtime. However, an important improvement of the method implemented in the framework of the "base 2000" is the integration of paid and reported overtime (occasional as well as regular) in the actually hours worked. Moreover, in the framework of the "base 2014", some paid overtime have been added for civil servants, especially in the health branch: in the past, no overtime was counted for these employees.

(Q) Extrapolation of past annual figures are smoothed, since no quarterly indicator is available.

**Question 2.4: Is a specific adjustment made to account for under- or over-reporting in the source data? Please specify if these adjustments are made for employees and/or self-employed workers.**

Indeed, the LFS enables us to estimate coefficients of overactivities, of the non wage-earning persons by branch, used for the estimate of the effective duration.

**Question 2.5: If an adjustment is made for the number of persons employed in relation to the unobserved economy, what assumption is made regarding the hours worked by these persons?**

NA assume that a full-time equivalent from the unobserved economy works as much as a declared full time equivalent (except NA assume that they don't strike and have no weather leave).

Concerning drugs trafficking, hours worked by persons implied in the trafficking are based on informations given in a recent document “Money of drugs in France” (MILDECA 2016).

With our methodology NA take account of the work of inactive in the sector of the agriculture.

**Question 2.6: Which other adjustments, if any, are made?**

**Question 2.7: If necessary, please describe any additional calculations needed to derive total hours worked and average hours worked from the sources and adjustments specified above. This includes, but is not limited to, adjustments made to align the coverage of hours worked with that of employment in persons (i.e. the coverage produced by the process followed in section 1).**

## ***Part II: Other work in this area***

### **3. Differences between national accounts and Labour Force Survey estimates**

**Question 3.1: To what extent do you consider your Labour Force Survey an accurate tool for the measurement of employment and hours worked? Please describe any issues or shortcomings of which you may be aware.**

The LFS is a very interesting tool to measure employment and hours worked. However, it is only marginally used in national accounts for several reasons:

- LFS is a households survey, and one prefers referring to firms sources like ACEMO to estimate employment and hours worked in National Accounts, since one of the aims of NA is to compare employment data to value added data, by branches.

Moreover, the duration in the LFS can be overestimated because it can be difficult not to forget recovery days or reducing working days due to hours superior to the conventional hours per week. There could also be methodological issues: hours would be overestimated in LFS with proxy answers.

- National accounts are based on many sources, relevant to estimate each component in the component method. Great improvements have recently been made to measure hours worked in national accounts (hours worked by employees working for a falt rate, hours worked by teachers during school holidays, civil servants overtime, civil servants maternity leaves, distribution between branches of sickness leaves...). Nevertheless, some improvements could still be made concerning holidays: in national accounts, one supposes that all employees take all their allowed holidays. In reality, French employees have the possibility to save leave days on a time saving accounts, which is not taken into accounts in National Accounts.

**Question 3.2: If the Labour Force Survey is not the primary source of data used to derive your estimates of employment in persons hours worked: Are you able to quantify, even approximately, what the difference would be between your current national accounts estimates and those you would obtain if you did use the Labour Force Survey data as your primary source?**

It is very difficult to propose an estimate. Granted to all recent improvements, hours worked in National accounts and in LFS are closer. Thus, annual hours worked per employee in 2014 are estimated to:



1 532 hours in LFS

1412 hours in National Accounts, against 1384 before recent methodological changes.

***Question 3.2.1: Where differences between these estimates exist, can you provide a brief assessment of the source of these differences?***

NA assess that memory bias and a uncorrected selection bias in the LFS (underestimation of people on leave or vacation) and the NA methodology leads to under estimate unpaid overtime.

#### **4. Flash estimates of employment in persons**

***Question 4.1: Are you currently producing flash estimates of employment (t+30 or t+45)? If so, please describe briefly the methodology, coverage and sources. If you are not producing a flash estimate, do you have plans to start doing so in the future?***

We are currently producing flash estimates of employment at t+45. We use two methods : the estimate of private market sector is constructed with the simplified nominative declarations, namely “déclarations sociales nominatives” (DSN) ; the estimate of the public sector and the self-employed is constructed by smoothing the annual forecast.

***Question 4.2: Please provide information on the quality of the estimates (e.g. revision analysis).***

This estimate is usually slightly revised each quarter.

#### **5. Other data produced (Optional)**

***Question 5.1: Do you have plans in the near future to improve or expand the content of national accounts labour input data (e.g. improved alignment with national accounts concepts, extension of the time series, increased industry detail, etc.)?***

***Question 5.2: Do you produce labour input data other than that already discussed, for example quality adjusted labour input or labour input in terms of full-time equivalents? If so, please provide details and/or links to these data.***

***Question 5.3: Do you produce productivity statistics (e.g. labour productivity for the total economy, further breakdowns of labour productivity, capital productivity, multi-factor productivity, etc.)? If so, please provide details and/or links with regards to these data.***

***Question 5.4: If there is any other work that you produce currently, or are looking to produce in the future, in the areas of labour input or productivity, please use the space below to inform us about this work.***