

## **National Accounts and Economic Statistics**

**USING NATIONAL ACCOUNTS EMPLOYMENT DATA FOR PRODUCTIVITY ANALYSIS**  
**FRANÇOIS LEQUILLER, OECD (CONTINUED)**

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## USING NATIONAL ACCOUNTS EMPLOYMENT DATA FOR PRODUCTIVITY ANALYSIS FRANÇOIS LEQUILLER, OECD (CONTINUED)

This paper is submitted to the OECD Working Party on National Accounts (WPNA) for decision. It comes one year after the paper “Using national accounts data for productivity analysis” presented at the 2004 WPNA. Its objective is to continue promoting the use of national accounts adjusted employment data in order to improve the comparability of the statistical measure of the *level* of labour productivity between OECD countries. The paper recalls the recommendations made last year and describes the progress made since 2004 on each of the recommendations.

The recent OECD Committee on Statistics (June 2005), which gathers heads on national statistical offices, has strongly supported the view that the OECD should analyse the international comparability of labour input data used for productivity analysis. The background is the OECD database on productivity levels which shows for a given year the decomposition of GDP per capita into various components, including labour productivity (GDP per hour worked), expressed as a percentage of US levels (<http://www.oecd.org/dataoecd/30/40/29867116.xls>). Table 1 illustrates the latest update of this database using data for 2004.

### I. Recommendations of the 2004 paper

The paper “Using national accounts data for productivity analysis” presented at the 2004 WPNA contained 5 main recommendations:

- Use national accounts sources for the denominator of measure of labour productivity, expressed as GDP per hour worked, in order to ensure consistency with the numerator. This needs transmission by OECD member countries of **total hours worked** in the framework of national accounts.
- Compile and transmit to OECD data allowing the calculation of productivity of the “**business sector**”.
- Compile and transmit to OECD data on employment in terms of **persons**.
- Amend **SNA chapter 17** to give room to indicators in terms of persons.
- Quantify and explain **differences** between labour force statistics and national accounts data on employment and hours worked.

The present paper discusses progress made on each of these issues.

**TABLE 1**  
**EXTRACT OF OECD DATABASE ON PRODUCTIVITY LEVELS**  
**Year 2004, September 2005 update**

	GDP per hour worked, USA=100
	(8)
Australia <sup>4</sup>	75
Austria	83
Belgium	110
Canada	76
Czech Republic	45
Denmark	88
Finland	85
France	103
Germany	91
Greece	62
Hungary	46
Iceland	73
Ireland	102
Italy	78
Japan	70
Korea	40
Luxembourg	121
Mexico	29
Netherlands	95
New Zealand <sup>4</sup>	57
Norway	122
Poland	38
Portugal	52
Slovak Republic	47
Spain	79
Sweden	86
Switzerland	79
Turkey	28
United Kingdom	86
United States	100
OECD	75
G7	89
North America	83
OECD-Europe <sup>5</sup>	80
EU-19 <sup>6</sup>	80
Euro-zone <sup>7</sup>	87

(4) GDP estimates for Australia and New Zealand refer to fiscal years.

(5) Excluding Turkey

(6) All EU members that are also OECD member countries.

(7) Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain.

Source: OECD estimates, September 2005.

## II. Total hours worked

The objective of the OECD is to use entirely national accounts sources to obtain productivity figures. This needs the transmission by countries of total hours worked. Table 2 shows the progress made between 2004 and 2005 in the transmission of total hours worked in the framework of the OECD/Eurostat questionnaire on national accounts (Table 0303). In particular, we thank the following countries: Austria, Czech Republic, France, Italy, Netherlands, Slovak Republic, Spain, Switzerland, USA (all in bold below) who have transmitted new data for total hours worked. These data will be progressively used by the compilers of the OECD productivity database. However, the table shows that many other countries (Australia, Belgium, Iceland, Ireland, Japan, Luxembourg, Mexico, New Zealand, Poland, Portugal, Turkey, UK) still do not transmit data on total hours worked. This situation compels the OECD to continue to use an estimation based on the multiplication of employment from national accounts with a figure for average hours worked extracted from annual labour force statistics. This may lead to non optimal data.

Table 2: Data for total hours worked in OECD national accounts database

Year 2002	Availability in September 2004	Availability in September 2005
Australia		
<b>Austria</b>		<b>6759</b>
Belgium	*	*
Canada	27882	27230
<b>Czech Republic</b>		<b>9462</b>
Denmark	3597	4326
Finland	4075	4076
<b>France</b>		<b>38262</b>
Germany	55791	56322
Greece	8192	8192
Hungary	7287	7212
Iceland		
Ireland		
<b>Italy</b>		<b>43877</b>
Japan	*	*
Korea	54605	54605
Luxembourg		
Mexico		
<b>Netherlands</b>		<b>11723</b>
New Zealand	*	*
Norway	3145 (2001)	3111
Poland	*	*
Portugal		
<b>Slovak Republic</b>		<b>3501</b>
<b>Spain</b>		<b>28696</b>
Sweden	6964 (2001)	6875
<b>Switzerland</b>		<b>6800</b>
Turkey		
United Kingdom		
<b>USA (BLS)</b>	*	<b>250865</b>

\* total hours for employees only

**Recommendation 1:** Australia, Belgium, Iceland, Ireland, Japan, Luxembourg, Mexico, New Zealand, Poland, Portugal, Turkey, UK should compile and transmit to OECD total hours worked (employees *and* self-employed) in the framework of national accounts.

### III. Business sector

The 2004 paper stressed that, pending better international comparability of the measurement of the non market sector, it would be more prudent to focus on the labour productivity of the “business sector”. The OECD has therefore requested from member countries a set of data on volume value added, employment and GFCF of the **business sector**. Table 3 below shows an extract of the result of this request. Sixteen countries have transmitted data, but among them only thirteen transmitted volume data (current price data is less useful in the context of productivity analysis). Fourteen countries have not transmitted any data.

Table 3: Data for the business sector transmitted to OECD as of September 2005

	Value added at constant prices	Employment	Data sent on	Periods and comments
Australia				
Austria	✓	✓ (jobs)	09.05.05	80-03 (GVA, ETO)
Belgium	✓	✓ (persons + hours)	22.04.05	95-03 (95-02 for HRS) EEM only (ESE is only available by number of persons)
Canada	✓ (index number + current prices)	✓ (jobs + hours worked)	28.07.05 (empl.)	97-04 (ETO, EEM and ESE) GVA (81-01) file sent 16.02.05
Czech Republic	✓	✓ (persons+ jobs)	25.04.05	95-03 (GVA), 95-02 (ETO)
Denmark				
Finland	✓	✓ (persons + hours)	07.04.05	75-03 (GVA, ETO)
France				
Germany			27.05.05	91-04 (B1G.S13 at current prices only)
Greece			15.04.05	95-03 (current prices only)
Hungary				
Iceland				
Ireland				
Italy				
Japan	✓ (producers prices)	✓ (jobs)	25.04.05	80-02 (GVA, ETO)
Korea				
Luxembourg				
Mexico				
Netherlands	✓	✓ (hours worked)	22.04.05	95-03 (EEM in number of hours, ESE in full-time equivalent)
New Zealand				
Norway	✓	✓ (persons + hours)	04.05.05	80-02 (GVA, ETO)
Poland	✓	✓ (persons)	21.04.05	95-03 (GVA, EEM only)
Portugal	✓	✓ (persons + jobs)	26.04.05	95-03 (GVA, ETO.PER) (95-99 for ETO.JOB). Data on FTE can be given. Historical data (80-95) based on other definitions have been sent too.
Slovak Republic		✓ (PER, JOB, HRS)	22.04.05	95-03 (current prices, ETO)
Spain				
Sweden	✓	✓ (persons, hours)	21.04.05	80-04 (GVA, ETO)
Switzerland	✓	✓ (jobs)	06.04.05	90-02 (GVA), 92-02 (ETO.JOB)
Turkey				
United Kingdom				
United States	✓ (at market price)	✓ (jobs + hours worked)	23.06.05	80-03 (GVA, ETO)

Notes:

ETO: Total employment, EEM: Employees, ESE: self-employed  
 PER: persons, JOB: jobs, HRS: hours worked, FTE: Full-time equivalent.  
 GVA: Gross value added

The Economics Department of the OECD remains very committed to analyse international differences in the productivity of the **business sector**. In this context, the OECD wishes to continue to collect this data and urges countries that have not yet responded to do it. Several countries responded that they could not respond in 2005 because of heavy work load but that they could envisage responding in 2006. We will therefore launch a second round of data collection of business sector data in the spring of 2006, with the aim of obtaining better coverage.

**Recommendation 2:** Australia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Korea, Luxembourg, Mexico, New Zealand, Slovak Republic, Spain, Turkey, UK are requested to envisage estimating volume value added, employment and GFCF of the **business sector**.

#### IV. Persons

Recommendations 3 and 4 of previous year's paper proposed to promote the use of data on persons by, first, amending SNA's Chapter 17 to introduce the concept of persons in the framework of the national accounts, and, second, request OECD countries that transmit data on jobs to also transmit data on persons.

The ISWGNA has accepted a clarification of the SNA regarding the concept of persons in Chapter 17. It has nominated the OECD to draft this clarification. The intention of the OECD is simply to use the existing paragraphs of the ESA. This simple clarification will be presented to the ISWGNA/AEG during its February 2006 meeting.

Regarding the availability of data in terms of persons, most countries already transmit data in terms of persons. Only 5 countries only transmit data in terms of jobs, as illustrated by Table 4. We are grateful to the USA (in bold) who is now transmitting data on persons in addition to data on jobs.

Table 4: Nature of data on employment

Year 2002, except when signalled	Availability in September 2004	Availability in September 2005
Australia	Persons	Persons
Austria	Jobs	Jobs
Belgium	Persons	Persons
Canada	Jobs	Jobs
Czech Republic	Persons	Persons
Denmark	Persons	Persons
Finland	Persons	Persons
France	Persons	Persons
Germany	Persons	Persons
Greece	Jobs	Jobs
Hungary	Persons	Persons
Iceland	Persons	Persons
Ireland	Persons	Persons
Italy	Persons	Persons
Japan	Jobs	Jobs
Korea	Persons	Persons
Luxembourg	Persons	Persons
Mexico	Persons	Persons
Netherlands	Persons	Persons
New Zealand	Persons	Persons
Norway	Persons	Persons
Poland	Persons	Persons
Portugal	Persons	Persons
Slovak Republic	Persons	Persons
Spain	Persons	Persons
Sweden	Persons	Persons
Switzerland	Persons	Persons
Turkey	Persons	Persons
United Kingdom	Jobs	Jobs
<b>United States</b>	<b>Jobs only</b>	<b>Jobs and Persons</b>

\* total hours for employees only

**Recommendation 3:** Countries (Austria, Canada, Greece, Japan, UK) that only transmit data on jobs should also transmit data in terms of persons.

#### V. Comparisons between national accounts estimates and labour force estimates

Last year's paper stressed that the increasing use of national accounts employment data for the sake of international comparisons of labour productivity will inevitably draw the attention to the difference between this set of data and the official labour force statistics. These differences should be explained to make the national accounts sources fully convincing. As a result the OECD disseminated a questionnaire quantifying and explaining differences between the main labour force statistics and the national accounts statistics. Following and agreement with Eurostat, the OECD fielded this questionnaire to non-European countries, while Eurostat had committed to cover European countries. Unfortunately Eurostat had not had the opportunity to organise this survey during 2005. Thus the present paper will be limited to responses by

the following OECD member countries: Australia, Canada, France<sup>1</sup>, Japan, Mexico (no quantification), New Zealand, USA (no quantification). Eurostat will organise the survey among European countries during 2005-2006.

The objective of the survey is to explain the difference between the main labour force data on employment and hours worked and the corresponding national accounts data. The survey includes two types of metadata: (1) textual information on the origin of the differences, (2) a bridge table for a recent year illustrating the differences quantitatively.

Due to the absence of coverage of European countries, the number of quantified responses are very limited in number. It is therefore difficult to derive solid conclusions. However, as shown in Table 6, some first elements of conclusion appear. Adjustments on employment numbers for the coverage of the population (military, territorial adjustments) are quantitatively quite limited (maximum 1%). Only few countries explicitly adjust their employment data for unobserved economy.

Table 6. Elements on differences between labour force statistics and national accounts.

	Australia	Canada	France	Japan	Mexico*	New Zealand	USA*
1. Main source	<i>LFS</i>	<i>LFS</i>	<i>Census + administrative</i>	<i>Census + LFS</i>	<i>Establishment survey</i>	<i>LFS</i>	<i>Establishment survey</i>
<b>2. Adjustments on employment</b>							
<i>Of which military and territorial</i>	+0.5%	+1%	-1%	+0.9%		+0.4%	
<i>Of which unobserved economy</i>	0	0	+1.5%	0		0	
<i>Of which persons to jobs</i>		+5%		+5%		+4%	
<i>Of which other adjustments</i>		-3.8%					
3. Adjustment on average annual hours worked	0	+1% ( <i>employees</i> )	-1%			0%	

\* Mexico and the USA did not fill the quantified bridge table.

Further conclusions will be reached when more responses will be obtained. The paper contains in annex the responses of the respondent countries.

**Recommendation 4:** European countries will receive the questionnaire during 2005-2006 from Eurostat. They are requested to respond as best as possible so that users have full clarity on the origin of the differences between national accounts data and labour force statistics.

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<sup>1</sup> France had accepted to participate in the pilot test.

**Australia: sources of employment and hours worked data in national accounts.**

Generalities: Australia does not currently transmit to OECD data on total hours. Australia focuses on *indexes* of hours worked rather than on annual level of hours worked or employment. Also, the current compilation system does not provide the split between employees and self employed. Australia does not use the concept of full-time equivalent.

Main source for employment: Labour Force Survey (LFS). The survey includes all persons aged 15 years and over except members of the permanent defence forces, certain diplomatic personnel of overseas governments customarily excluded from census and estimated population counts, overseas residents in Australia, and members of non-Australian defence forces (and their dependants) stationed in Australia. LFS is conducted in terms of numbers of persons employed.

Adjustments conducted to main source for employment:

- From stocks to flows: The monthly LFS stock figures is used to derive the quarterly flow of employment by adding 3 months to get the total quarter and then dividing by 3 to get an average flow of persons employed during the quarter. Annual employment numbers are derived by summing the quarterly estimates.
- Economic territory: Members of the permanent defense forces are excluded from LFS so an adjustment is made to include them. Numbers of defense force personnel are obtained from the Department of Defense.
- Underground economy: No adjustment is made for the number of persons working solely within the unobserved economy. It is not expected to be particularly significant in Australia (especially in terms of hours worked).
- Other adjustments: No other adjustments are currently conducted.

Main source for hours worked: LFS. It includes: hours actually worked during normal periods of work; time spent in addition to hours worked during normal periods of work (including overtime); time spent at the place of work on activities such as the preparation of the workplace, repairs and maintenance, preparation and cleaning of tools, and the preparation of receipts, time sheets and reports; time spent at the place of work waiting or standing by; time corresponding to short rest periods. Excluded are: hours paid for but not worked such as paid annual leave, public holidays or paid sick leave; meal breaks. This is consistent with the definition of hours worked given in paragraph 17.11 of the SNA

Adjustments conducted to main source for hours worked: as LFS average hours worked is only available for the mid-month of each quarter the LFS reference period may not be representative of hours worked during the rest of the quarter. An adjustment is made to take account of public holidays and annual leave that may occur in the rest of the quarter. These adjustments take the form of factors applied to the original labour force series. The factors are derived by looking at the date of the LFS reference period and comparing with the dates of holidays. For the purposes of the bridge table, the factor derived for the September Quarter 2004 is 1.0 and has no effect on the original labour force data. Adjustments are made for the March and June quarters.

**Bridge table between labour force statistics and national accounts**

Country: AUSTRALIA

**September  
quarter 2004****A. Employment numbers**

(thousands)

(1) Number of persons from the official Labour Force Statistics  
 of which employees  
 of which self-employed

9,682.47

**Possible adjustments made to adapt to NA concepts**

From stock to annual flows (averages)

yes

From jobs/persons concept to jobs/persons concept

Adjustment for economic territory

*Military*

52.13

*Other collective households not included in (1)**Territories not covered by (1)**Residents working outside the economic territory (-)**Non residents working inside the economic territory (+)*

Adjustment for unobserved economy

Other adjustments

(2) Number of persons in the national accounts framework

9,734.60

**B. Average Annual Hours worked per worker**

(3) Main original number from Labour Force Statistics (LFS weekly hours/7\*365.25) 1,812.16

Possible adjustments made on original source

To take into account annual leaves and holidays

yes (but not effective for this quarter)

For sickness leaves

For strikes and temporary lay-offs

For paid but unreported overtime

For unpaid overtime

Other adjustments

(4) National Accounts annual average hours per worker

1,812.16

**C. Total hours worked**

(2) \* (4) =

17,640,670

### **Canada: sources of employment and hours worked data in national accounts.**

Generalities: the main source used is the Labour Force Survey, both for employment and hours worked. Dissemination of data on employment and hours worked is strongly coordinated in Canada, leading to exactly consistent measures in the Labour Force Statistics and Canadian System of National Accounts (CSNA). Measures of employment are conducted at a very detailed level (286 industries \* 13 regions).

Main source for employment: Labour Force Survey (LFS). The survey is in terms of persons but as Canadian national accounts are compiled in terms of number of jobs, an adjustment is conducted for multiple job holders. As the LFS is not reliable for estimates at detailed industry level, Canada uses extrapolated Census data, benchmarked on aggregate LFS results, to derive the detailed estimates.

Adjustments conducted to main source for employment:

- From stocks to flows:
- From persons to jobs: Addition of +708 jobs for multiple job holders
- Economic territory: Addition of jobs to take into account territories not covered by the LFS (jobs in aboriginal reserves, military personnel, northern territories and civil servants working outside Canada). Exclusion of population (unpaid absentee paid workers, self-employed with zero hours worked) considered as employed in LFS but not in national accounts. They represent persons absent from work who were not paid during the week of the survey. They are excluded in view to make the job concept as consistent as possible with establishment surveys that capture only employment on payroll.
- Underground economy: No adjustment is made. The LFS is considered to include “grey” employment. No estimate is made of any employment corresponding to owner-occupied housing.
- Other adjustments: None

Main source for hours worked: LFS. The definition of hours worked in the survey matches closely the SNA/ILO definition of hours worked, so no coverage adjustments are necessary.

Adjustments conducted to main source for hours worked: There are only two technical adjustments: (1) Compilation of average hours per job, from LFS average hours per person, by cumulating hours of main job and other jobs and dividing it by total number of jobs. (2) Annualisation of LFS data: extrapolation of hours worked as reported in specific weeks of the month of the survey to other weeks of the month, taking into account civic and other holidays. This process is five steps: - first step: hours actually worked in the reference week are first adjusted for civic holidays and other non-random events, leading to “standardized LFS weeks”; - second step: these standardized weeks are then extrapolated linearly between the reference weeks to obtain hours worked for all weeks of the year; - third step: civic and other holidays are now excluded, on an annual basis, taking into account specific holidays by industries and regions; - fourth step: adjust the monthly data to take into account the fact that each month does not start with a Monday nor ends with a Sunday. Use of specialized survey on average number of hours worked per day of the week, by industry, to calculate daily weights that will be used to estimate the number of hours worked from the first day of each month to the last day of each month; - fifth step: monthly total hours worked is obtained by multiplying each month’s average hours worked by the number of jobs during the reference week of that month; annual total hours is obtained by adding the twelve months; annual average hours worked is the obtained by dividing total annual hours by the annual average number of jobs in the LFS survey.

Canada, year 1999**I. Employment:**

Number of employees and self-employed (official source: Labor Force Survey): 14531

*Adjustment to SNA concept of jobs:*

Addition of multiple job holders: +708 (+4.9%)

Inclusion of jobs in aboriginal reserves and military personnel: +122 (+0.8%)

Inclusion of jobs in Northern Territories and civil servants working outside Canada: +47 (+0.3%)

Exclusion of unpaid absentee paid workers: - 415 (-2.8%)

Exclusion of self employed with zero hours worked - 142 (-1.0%)

Total NA employment in terms of jobs 14851

(a) *Of which employees* 13169

(b) *Of which self-employed* 1682

**II. Annual hours worked per job***Employees*

LFS x 52 hours worked (persons) 1735.5

Adjustments to the SNA class of workers definition (persons)<sup>2</sup> 1827.5

Adjustments to the number of jobs 1774.6

Adjustments for LFS reference weeks (civic and other holidays)

(c) CSNA annual hours worked 1756

*Self-employed*

LFS x 52 hours worked (persons) 1989.1

Adjustments to the number of jobs and to the SNA concept 1974.4

Adjustments for LFS reference weeks (civic and other holidays) 1804.0

(d) CSNA annual hours worked 1784

**III. Unobserved economy**

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**IV. Total hours worked**

Employees = (a) \* (c) 23 125 384

Self employed = (b) \* (d) 3 000 537

Total 26 125 921

Implicit annual hours worked per job 1759

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<sup>2</sup> The hours worked per employee is revised up when Canada moves from the official LFS data to the number of persons as measured by the SNA because the former includes proprietors of incorporated business in its self-employed category while this population is moved to the employee category in the SNA classification.

### **France: sources of employment and hours worked data in national accounts<sup>3</sup>.**

Generalities: the method used in France to estimate labour input in national accounts distinguishes three domains: employees, self-employed, unobserved economy. It does not use the Labour Force Survey as an essential source, but rather administrative sources. The concept of full-time equivalent is used in the compilation process, but is not a headline figure for dissemination.

Main source for employment: (1) Employees: Census extrapolated with administrative sources (UNEDIC: unemployment agency) benchmarked on the Census. The Labour Force Survey is used only as a secondary source. The source is in terms of persons. It includes professional military. (2) Self-employed: obtained from various sources and benchmarked on population census. LFS is used to estimate partial time of self-employed.

Adjustments conducted to main source for employment:

- From stocks to flows: average of end quarters.
- Economic territory: Inclusion of employees of “department d’outre-mer” (+434 in 2001); exclusion of residents working outside the economic territory (Luxembourg, Germany Switzerland) (-260); inclusion of an estimate of non residents working in the economic territory (+20) and the non professional military (+10, general conscription –which was suppressed in following years).
- Underground economy: An estimate of full time equivalent number of “unobserved persons” is made (+376 in 2001): constant coefficients (consistent with those applied for production) are used to increase the number of employees of some specific industry (construction, cleaning, personal services and education).
- Other adjustments: No other adjustments are currently conducted.

Main source for hours worked: Employees: The method is not directly based on the Labour Force Survey, which is considered as too volatile. The method is in four steps: (1) using surveys on employers (quarterly for enterprises above 10 employees, annual for others, specific data for non market sector), compile data on proportion of employees at partial time, (2) using LFS, derive average ratio between a part-time job and a full-time job, (3) obtain a figure for full-time equivalent number of employees<sup>4</sup>; (4) calculate a theoretical number of weeks worked, taking into account holidays and annual leaves, (5) compile a theoretical number of hours worked per week, based on surveys on employers (known to be biased towards legal hours) and on adjusted LFS data for the non market sector; (6) derive a theoretical number of hours worked from the two prior steps; (7) introduce adjustments to take into account sickness leaves, temporary lay-offs and strikes. For self-employed, the method is based on the average hours for employees multiplied by a special quite significant adjustment for “overwork”, obtained from the LFS. For unobserved economy, the average hours is obtained as equal to the average hours of employees (excluding the adjustment for strikes).

Adjustments conducted to main source for hours worked: see previous paragraph.

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<sup>3</sup> This document does not take into account changes in methods introduced in the new “Base 2000” French national accounts in June 2005.

<sup>4</sup> This method understated the number of full-time equivalent because omitted to include ancillary activities. A change was subsequently introduced in the “Base 2000” accounts (see previous footnote).

**Table 6: France: Year 2001<sup>5</sup>****I. Employees:**

Number of persons (Census extrapolated by administrative sources):	22 306
+ employees of “Départements d’Outre Mer (DOM)” :	+434
<i>From national concept to domestic concept:</i>	
Exclusion of residents working outside the economic territory:	-260
Inclusion of non residents working inside the economic territory:	+20
Inclusion of general conscription:	+10
Number of declared employees, domestic concept:	22 510
<i>Calculation of theoretical total hours worked</i>	
Number of employees in full-time equivalent	20 857
x Theoretical number of weeks worked during the year	44.31
x Theoretical number of hours per week	36.61
=	
Total number of theoretical hours worked <sup>6</sup>	33 866 000
<i>Adjustments to theoretical number of hours worked</i>	
Adjustment for temporary lay-offs	-14 000
Adjustments for strikes	-14 000
Adjustments for sickness leaves	-2 140 000
Total number of hours worked for employees	31 698 0000

**II. Self employed**

Number of self-employed (including DOM)	2220
In terms of full-time equivalent	2168
Average annual hours worked (full time, adjusted for « overwork »)	2193
Total number of hours worked for self employed	4 755 000

**III. Unobserved economy**

Number of unobserved persons (full time equivalent)	376
Average annual hours	1531
Total hours unobserved economy	576 000

**IV. Total economy**

Total number of workers (at full time equivalent)	23400
Total number of hours	37 029 000
Implicit annual hours worked by worker at full time	1582
Implicit annual hours worked by worker (excluding unobserved economy)	1474

<sup>5</sup> This table does not include the significant changes made to the estimates in the latest version of the French national accounts (Base 2000), which was published in 2005.

<sup>6</sup> The multiplication of the three above figures does not give the exact result, as this multiplication is done at a detailed level of industries.

### **Japan: sources of employment and hours worked data in national accounts.**

Generalities: Japan does not currently transmit to OECD data on total hours, except for employees. Japan is currently considering compiling hours worked for self-employed. Main sources are in terms of persons, but national accounts are compiled in terms of jobs. Japan does not use the concept of full-time equivalent.

Main source for employment: Data for both employees and self-employed are based on the Population Census (Ministry of Internal Affairs and Communications) for the September of census years, and extrapolated by the Labour Force Survey (Ministry of Internal Affairs and Communications) for other months. The Population Census covers the whole territory of Japan excluding the islands in the northern territories and Takeshima Island in Shimane Prefecture, and all persons living in Japan. Employment data in the Census are in terms of persons. The universe of the Labour Force Survey is composed of all persons 15 years old or more living in Japan. Actual enumeration takes place on a sample basis. About 100 thousand persons in about 40 thousand households are selected and enumerated. Employment data in the Survey are in terms of persons.

Adjustments conducted to main source for employment:

- From stocks to flows: Averages of monthly data for the 12 months are regarded as annual flow data.
- From persons to jobs: In the Population Census and the Labour Force Survey, if a person is engaged in two or more jobs, only a major job is counted. So, the number of employed persons who have two or more jobs is estimated from the ratio that is determined as the percentage of such employed persons in the whole employed persons based on the Employment Status Survey, and it is added to the number of employed persons. The number of multiple job holders for 2000 was estimated at about 3 million.
- Economic territory: In the Population Census, workers at the US military facilities located in Japan are included in employed persons as residents in Japan. In the SNA, however, they are excluded from employed persons, since the US military facilities in Japan are treated as establishments overseas. The number of such workers for 2000 was estimated at about 25 thousand.
- Underground economy: No adjustment is made
- Other adjustments: No other adjustments are currently conducted.

Main source for hours worked: Japan currently compiles total hours worked only for employees. The principal source of data is the Monthly Labour Survey (Ministry of Health, Labour and Welfare). Since this Survey doesn't cover workers engaged in agriculture, forestry and fisheries, and in public administration, data are based on the Labour Force Survey for these sectors. These sources follow the ILO definition of hours worked.

Adjustments conducted to main source for hours worked: no adjustments are made.

### **Bridge table between labour force statistics and national accounts**

Country: Japan

#### **A. Employment numbers**

(1) Number of persons (official source: Population Census as of Oct. 1, 2000)

Extrapolation with the Labour Force Survey  
and adjustment to annual averages

Adjusted number of persons

of which employees (including paid family workers)

of which self-employed (including unpaid family workers)

Year 2000  
Thousands

62,978

+612

63,590

54,710

8,880

+3,044

1,153

- 25

66,610

55,839

#### **Adjustments made to adapt to NA concepts**

Addition of multiple job holders

of which employees

Exclusion of jobs at the US military facilities located in Japan

(2) Number of jobs in the national accounts framework

of which employees

#### **B. Average Annual Hours worked per worker**

(3) Main original number from Labour Force Statistics

Possible adjustments made on original source

To take into account annual leaves and holidays

For sickness leaves

For strikes and temporary lay-offs

For paid but unreported overtime

For unpaid overtime

Other adjustments

(4) National Accounts annual average hours per worker

#### **C. Total hours worked**

(2) \* (4) =

**Mexico: sources of employment and hours worked data in national accounts.**

Generalities: Mexico does not transmit data on total hours worked, only data on employment in terms of jobs.

Main source for employment: Census on producing establishments updated with surveys of representative establishments of each activity and data from administrative registries, complemented with data of number of remunerated jobs. Self-employment is not accounted for.

Adjustments conducted to main source for employment: no adjustments are made to original sources

- From stocks to flows:
- Economic territory:
- Underground economy:
- Other adjustments: no adjustments are made to pass from jobs to persons, thus there is duplications in the number of persons reported.

Main source for hours worked: Sources on hours worked exist for manufacturing and other activities. But these data have not been processed for national accounts.

Adjustments conducted to main source for hours worked: not applicable.

## Bridge table between labour force statistics and national accounts

Country: Mexico

A. Employment numbers	Units ????
(1) Number of persons/jobs from the official Labour Force Statistics	
of which employees	
of which self-employed	
<b>Possible adjustments made to adapt to NA concepts</b>	
From stock to annual flows (averages)	
From jobs/persons concept to jobs/persons concept	
Adjustment for economic territory	
<i>Military</i>	
<i>Other collective households not included in (1)</i>	
<i>Territories not covered by (1)</i>	
<i>Residents working outside the economic territory (-)</i>	
<i>Non residents working inside the economic territory (+)</i>	
Adjustment for unobserved economy	
Other adjustments	
(2) Number of persons/jobs in the national accounts framework	
<b>B. Average Annual Hours worked per worker</b>	
(3) Main original number from Labour Force Statistics	
Possible adjustments made on original source	
To take into account annual leaves and holidays	
For sickness leaves	
For strikes and temporary lay-offs	
For paid but unreported overtime	
For unpaid overtime	
Other adjustments	
(4) National Accounts annual average hours per worker	
<b>C. Total hours worked</b>	
(2) * (4) =	

## A. Employment numbers

- (1) Number of persons/jobs from the official Labour Force Statistics  
of which employees  
of which self-employed

### Possible adjustments made to adapt to NA concepts

### From stock to annual flows (averages)

## From jobs/persons concept to jobs/persons concept

## Adjustment for economic territory

## *Military*

### *Other collective households not included in (1)*

### *Territories not covered by (1)*

### *Residents working outside the economic territory (-)*

*Non residents working inside the economic territory (+)*

## Adjustment for unobserved economy

### Other adjustments

- (2) Number of persons/jobs in the national accounts framework

#### **B. Average Annual Hours worked per worker**

- (3) Main original number from Labour Force Statistics

Possible adjustments made on original source

To take into account annual leaves and holidays

For sickness leaves

For strikes and temporary lay-offs

For paid but unreported overtime

For unpaid overtime

### Other adjustments

- #### (4) National Accounts annual average hours per worker

#### C. Total hours worked

- $$(2) * (4) =$$

**New Zealand: sources of employment and hours worked data in national accounts.**

Generalities: New Zealand transmits two types of data on employment. For total employment (Table 110) the source is the Household Labour Survey. For employment by industry (Table 0303) the source is the Quarterly Employment Survey which gives an accurate breakdown by industry, but, by large, does not cover the whole economy. New Zealand could compile total hours worked data using the Household Labour Force Survey but does not currently transmit this data to OECD because the breakdown by industry is not possible using this survey.

Main source for employment: For total employment (table 110) the main source is the Household Labour Force Survey which is in terms of persons. Excluded are persons under the age of 15 and it is a ‘national’ concept as opposed to domestic labour. Either of these issues is not considered being significant so it is reasonable estimate for total employment. The Quarterly Employment Survey is used for data by industry (table 0303). The QES measures jobs rather than persons. There are gaps in the survey due to incomplete coverage of all industries, and at this stage no attempt is made to fill these gaps.

Adjustments conducted to main source for employment:

- From stocks to flows: the four quarters are averaged to get the annual.
- From persons to jobs: an estimate of multiple job holders is added when using the HLFS.
- Economic territory: an estimate for military is added
- Underground economy: No adjustment is made.
- Other adjustments: No other adjustments are currently conducted.

Main source for hours worked: Household Labour Force Survey could be used, but is not currently processed for national accounts purpose of hours worked. The Household Labour Force survey produces actual hours worked that meet the definition of hours worked.

Adjustments conducted to main source for hours worked: no adjustments are made

**Bridge table between labour force statistics and national accounts**

Country: New Zealand

Year:  
**March 2004**  
 Units (000)

**A. Employment numbers**

(1) Number of persons/jobs from the official Labour Force Statistics (HLFS)  
 of which employees  
 of which self-employed

1966.0
1586.9
378.7

**Possible adjustments made to adapt to NA concepts**

From stock to annual flows (averages)

From persons to jobs

Adjustment for economic territory

*Military**Other collective households not included in (1)**Territories not covered by (1)**Residents working outside the economic territory (-)**Non residents working inside the economic territory (+)*

Adjustment for unobserved economy

Other adjustments

(2) Number of persons/jobs in the national accounts framework

**B. Average Weekly Hours worked per worker**

(3) Main original number from Labour Force Statistics

Possible adjustments made on original source

To take into account annual leaves and holidays

For sickness leaves

For strikes and temporary lay-offs

For paid but unreported overtime

For unpaid overtime

Other adjustments

(4) National Accounts annual average hours per worker

**C. Total weekly hours worked**

(2) \* (4) =

71617.865
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### **USA: sources of employment and hours worked data in national accounts<sup>7</sup>.**

Generalities: The primary source of most official labor data in the USA is the BLS, which collects data on employment and hours worked in two monthly surveys, one on businesses (400 000 establishments) –the Current Employment Statistics (CES) --, and one on households --the Current Population Survey (CPS). There are often divergences in the trend of employment resulting from the two surveys. The CES is benchmarked annually on administrative data (state unemployment insurance tax records). This extensive coverage makes of the CES the preferred source for the national accounts, and thus it forms the basis of the national account data transmitted to OECD. The CES is based on jobs rather than persons. The main employment data in the national accounts for the US are thus in terms of jobs. The CPS (the US Labour Force Survey) is based on a sample of 60 000 households. It gives employment numbers in terms of persons, and is used to construct the official measure of unemployment. The CPS is benchmarked only every ten years to the Census. The CPS data is used by the BLS only for the OECD national account table on population and employment, as it is the only source consistent between employment and unemployment. The rest of this page describes the bridge table between the CES data and the national accounts estimates and does not refer to the divergence between the CES based data and the CPS based data. The US national accounts continue to widely use the concept of full-time equivalent.

Main source for employment: The principal source of nonfarm industry employment data is the CPS and the tabulations of employees covered by state unemployment insurance from BLS. BEA also includes estimates of employees not covered by state unemployment insurance. The noncovered employment is comprised of two elements: (1) presumed noncovered employment from BLS; and (2) an estimate of employment associated with the underreporting of wages and salaries by some nonfarm sole proprietorships, partnerships, and small corporations and the nonfiling of tax returns by some sole proprietorships and partnerships (with employees). Employment estimates for private households are derived from the CPS. Farm employment estimates are derived from tabulations from the U.S. Department of Agriculture.

Adjustments conducted to main source for employment:

- From stocks to flows:
- Economic territory: BEA counts military reserve and National Guard as part-time jobs within military employment.
- Underground economy: BEA includes a (small) misreporting adjustment for employment to be consistent with similar adjustments that are applied to wages, output, and other estimates that are based on administrative data
- Other adjustments: Different source data are used for the estimates of hours worked by employees of state and local governments. Different source data are used for the estimates of farm employment and hours.

Main source for hours worked: Warning: The BEA has only recently transmitted data to the OECD on total hours worked, including self-employed. Prior to this recent transmission only data on hours worked of employees were compiled by BEA. Thus this text concerns for the moment only employees. The CES collects data on average weekly hours paid for production employees. However, for measuring productivity, estimates of hours worked are preferable. Thus the BLS converts the data on hours paid to hours worked. Estimates from the BLS hour-at-work survey are used to convert the hours paid of nonagricultural workers to an hours-at-work basis for 2000 and before. This survey was discontinued after

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<sup>7</sup> This section on US is not the response from BEA to the OECD survey. It is an OECD summary of a more general paper prepared by the BEA in 2004. This explains why there is no quantified bridge table at this stage.

the collection of data for 2000. For 2001 forward, BEA has used the BLS ratios of hours worked to hours paid derived from the BLS Employment Cost Index to convert the hours estimates to hours worked. For nonproduction and supervisory workers, data from the CPS are used to construct a ratio of the average hours worked by nonproduction and supervisory workers relative to the average hours worked by production and nonsupervisory workers. This ratio is then used with the CES information to arrive at a measure of total hours worked. Data on employees of farms, proprietors, and unpaid family workers are taken directly from the CPS. Government enterprise hours are developed from BEA estimates of government enterprise employment and CPS data on average weekly hours.

Adjustments conducted to main source for hours worked:

**Bridge table between labour force statistics and national accounts**

Country: USA

Year ????

Units ???

**A. Employment numbers**

- (1) Number of persons/jobs from the official Labour Force Statistics  
 of which employees  
 of which self-employed

**Possible adjustments made to adapt to NA concepts**

- From stock to annual flows (averages)  
 From jobs/persons concept to jobs/persons concept  
 Adjustment for economic territory

*Military*

- Other collective households not included in (1)*  
*Territories not covered by (1)*  
*Residents working outside the economic territory (-)*  
*Non residents working inside the economic territory (+)*

Adjustment for unobserved economy

Other adjustments

- (2) Number of persons/jobs in the national accounts framework

**B. Average Annual Hours worked per worker**

- (3) Main original number from Labour Force Statistics

Possible adjustments made on original source

- To take into account annual leaves and holidays  
 For sickness leaves  
 For strikes and temporary lay-offs  
 For paid but unreported overtime  
 For unpaid overtime

Other adjustments

- (4) National Accounts annual average hours per worker

**C. Total hours worked**

- (2) \* (4) =