OECD MEASURES OF TOTAL HOURS WORKED[1]

According to the 1993 System of National Accounts (SNA93), total hours actually worked is the preferred aggregate measure of labour input for productivity analysis, as it reflects the volume of work engaged per year in self-employment and employee jobs for the production of goods and services by resident units of production. In practice, total hours of work are derived from combining available estimates of annual hours actually worked per person in employment with average employment levels over the year from OECD databases that are coherent with the hours worked figures. In general, the international comparability of employment levels and trends is ensured by their compliance to ILO guidelines on employment statistics[2]. They are therefore less prone to important conceptual differences compared to the measurement issues that affect estimates of hours worked.

Current situation and the international comparability of working time estimates

Estimates of average hours actually worked per year per person in employment are currently available on an annual basis for 24 OECD countries (See OECD Employment Outlook, Statistical Annex Table F). The OECD Productivity Database includes, in addition, hours of work per employee for Hungary and Korea which expand the range of countries covered. These estimates are available from National Statistical Offices for 18 countries, 8 of which are consistent with National Accounts concepts and coverage. To develop these estimates, countries use the best available data sources for different categories of workers, industries and components of variation from usual or normal working time (*e.g.* public holidays, annual leave, overtime, absences from work due to illness and to maternity, *etc.*). For example, in many countries actual hours are derived from establishment surveys for production and non supervisory workers in employee jobs and from labour force surveys (LFS) for self-employed, managers and supervisory workers, farm workers and public sector employment. Hours lost due to sickness are estimated from the number of days not worked from social security registers and/or health surveys. Vacation time is derived from establishment data on paid leave or from the number of days of statutory leave entitlements (assuming all vacation time is taken by workers). In France, Germany and Switzerland, the measurement of annual working time rely on this method. Estimates for the United States are derived by complementing hours at work reported in Current Employment Statistics (CES), an establishment survey, with hours worked from Current Population Survey (CPS) and other sources for uncovered worker categories and industry divisions.

The national estimates for 11 other OECD countries rely mainly on labour force survey results. Annual working hours are derived using a direct method annualising actual weekly hours worked from continuous surveys. Alternatively, for labour force surveys with fixed monthly reference weeks, this method results in averaging hours worked during 12 weeks in the year, which necessitates adjustments for special events, such as holidays, falling outside the reference week (i.e. Canada and Finland). Finally, estimates of annual working time for 7 more EU member states are derived by the OECD Secretariat by applying a variant of the component method to the results of the Spring European Labour Force Survey (ELFS). A summary of the various measures is shown in Table 1 below.

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1 . This summary is based on OECD (2003*d*).

2 . However, many employment estimates are derived from labour force surveys, which are limited to resident population and do not cover, in a number of cases, people living in institutions, collective households, armed forces and people below or above a certain age limit. Thus, employment estimates do not cover cross border workers, while expressed on a worker basis, which makes up for most of the difference with National Accounts coverage, albeit only in countries where these features are prevalent. Lastly, labour force survey based employment estimates are benchmarked to population censuses, which are only conducted every 5 to 10 years.

Table 1: Measures of annual working time and employment included in the OECD Productivity Database

	Annual actual working time per worker[a]	Employment estimates from OECD data sources
Australia	LFS - (NA)	ANA - ET Dom Conc
Belgium	CLFS	ANA - ET Dom Conc
Canada	LFS (NA)	AnnHrs
Czech republic	LFS	AnnHrs
Denmark	CLFS	ANA - ET Dom Conc
France	Establishment survey (NA)	LFS - ET
Finland	LFS	ANA - ET Dom Conc
Germany	Administrative	ANA - ET Dom Conc
Greece	CLFS	ANA - ET Dom Conc
Iceland	LFS	EO72 - ET
Ireland	CLFS	EO72 - ET
Italy	CLFS	LFS - ET
Japan	Establishment survey	ANA - ET Dom Conc
Mexico	LFS	ANA - ET Dom Conc
Netherlands	CLFS	LFS - ET
New Zealand	LFS	LFS - ET
Norway	Establishment survey/LFS (NA)	ANA - ET Dom Conc
Portugal	CLFS	ANA - ET Dom Conc
Slovak Republic	LFS	LFS - ET
Spain	LFS	AnnHrs
Sweden	Establishment/LFS (NA)	ANA - ET Dom Conc
Switzerland	LFS (NA)	AnnHrs
United Kingdom	LFS	EO72 - ET
United States	Establishment survey (NA)	ANA - ET Dom Conc

ANA	National Accounts database
Annhrs:	Annual hours worked database
LFS:	Labour Market Statistics database
EO72:	Economic Outlook No 72

Source: See OECD Employment Outlook 2004, forthcoming for more detail.

Two other considerations should be kept in mind. First, annual working time measures are reported either on a job or on a worker basis. To harmonise the presentation, annual hours worked measures can be expressed either on one or the other measurement unit by using the share of multiple job holders in total employment, which is available in labour force surveys, albeit no further distinction is possible between second and more jobs[3].

Second, given the variety of data sources, of hours worked concepts retained in data sources, and of measurement methodologies (direct measures or component methods[4]) to produce estimates of annual working time, the quality and comparability of annual hours worked estimates are constantly questioned, and are subject to at least two probing issues:

3. For example, the BLS-Office of Productivity and Technology (OPT) estimates of annual hours of work for the United States are reported on a (per) job basis and are later converted by the OECD Secretariat to a per worker basis by multiplying the job based annual hours of work by (1 + CPS based share of multiple jobholders in total employment).

4. However, both methods can be summarised by the following identity: Annual hours per worker = Standard weekly hours worked x Number of weeks actually worked over the year = Weekly hours actually worked x 52 weeks, considering weekly reference period for reporting hours worked.

- Labour force survey based estimates are suspect of over-reporting hours worked compared to work hours reported in time use surveys, in particular for those working long hours, like managers and professionals.

- Employer survey based estimates do not account for unpaid overtime hours and are sometime suspect of under-reporting hours worked with consequences on productivity levels and growth (Eldridge et al. (2003)).

Current practices and evidence on key measurement issues

Countries with a long practice in producing aggregate and industry level measures of annual hours of work revise periodically their measurement methodologies to achieve complete and adequate coverage of workers to conform to National Accounts output measures. For example, the Office of Productivity and Technology (OPT) of the Bureau of Labor Statistics in the United States undertook studies to improve the estimation of hours worked of worker categories not covered by the establishment survey – the Current Employment Statistics (CES) -, which is the main source for annual hours worked measures[5]. Germany revised annual working time series to better account for workers with few hours of work, which resulted in a decrease in aggregate hours; France recently undertook a revision of series previously published to account for a change in hours worked concepts following the introduction of working time reduction in 1999. Short periods of rest at the workplace (or work breaks) are no longer counted as hours worked, which however departs from ILO recommendations, and resulted in a decrease in working time over the period 1990 to 1999 compared to previous series of around 40 hours per year. In light of all these developments, it is necessary to have a more complete documentation of measurement methodologies, in terms of hours concepts retained in data collections, methods used to derive annual hours of work, and worker coverage limitations, to understand the strengths and weaknesses of current measures and to work on improving the quality of hours worked measures.

On the other hand, annual hours worked measures rely mainly on labour force survey results for a large number of countries. Indeed, in a majority of countries labour force surveys are the only source available to derive annual hours of work measures. This source has the advantage of covering all workers[6]. But, the reporting of actual hours worked is suspect to be less accurate than those recorded by employers for the same workers. Therefore, the quality of annual hours actually worked requires a proper assessment of the main sources of variation from standard working time, that is, usual or normal weekly hours of work reported in labour force surveys. Working time components should then be confronted to external sources – time use surveys, health surveys, establishment surveys, social security registers, and other sources.

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5. The question of quality of annual hours worked measures is best addressed by countries themselves. In the United States, official estimates of annual hours worked are mainly based on estimates of weekly paid hours worked by employees recorded in the Current Employment Statistics (CES), a monthly employer survey of non-farm establishments. Hours paid are later converted into hours worked using the Hours at Work Survey (HWS) until year 2000 and since then the National Compensation Survey program. However, the survey covers only production workers in goods producing industries (i.e. manufacturing) and non-supervisory workers in services producing industries. The Current Population Survey, a monthly household survey, and other sources are used to derive hours worked by workers not covered by CES, apart from non-production workers and supervisory workers in good and services producing industries. For the latter two categories of employees, official estimates of annual hours worked assume that the average weekly hours of work of non-production and supervisory workers are the same as those of production and non-supervisory workers. A recent study wanted to test this assumption and built a CPS-adjusted series of average weekly hours worked for non-production and supervisory workers to derive a new total hours worked series for the non-farm business sector. Official estimates and the new hour series showed similar trends, but the latter series and adjustments, based on survey evidences, are expected to replace current series, which are based on assumptions (See Eldridge *et al.,* 2003).

6 . Apart from workers excluded from the scope of the surveys like geographical, institutional, collective households and age exclusions.

So far, some results of data confrontation undertaken for a limited number of countries (OECD 1998b) highlighted the following results:

- "Standard" hours of work from establishment-based surveys and labour force surveys (LFS) differ by 1 to 3 % for the four countries (France, Germany, Netherlands and Switzerland) included in the analysis, with labour force surveys yielding the higher estimates.

- Monthly labour force survey estimates of hours not worked due to holidays, even when adjusted for the irregular occurrence of holidays during the reference week; seem to be downward biased (Canada).

- Estimates of hours lost due to illness, work accidents and maternity leave from labour force surveys appear to be underestimated by about 45% to 60% compared to administrative sources (in France, Germany and Switzerland). These seem to be associated largely with a serious underreporting of part-week absences.

- Labour force surveys seem also to underestimate overtime work (e.g., Germany). However, this is not entirely certain, because some regularly occurring overtime may be included in usual hours of work in labour force surveys.

- Finally, in the aggregate, empirical results from 2 countries suggest that labour force survey estimates yield figures for annual hours of work that are only somewhat higher than those from establishment surveys. This is due in part to the fact that biases in estimates of components of working time tend to cancel out to a certain extent. Note, however, that such relatively close agreement is not found everywhere.

A second study (OECD 1999) examined the effect of so-called “unpaid overtime” worked by managers and professionals on the estimates of annual working time from labour force surveys relative to those from administrative or establishment survey sources. That is, the additional hours worked by managers and professionals, over and above those worked by full-timers in other occupations. The impact of this “unpaid overtime” recorded in labour force surveys varied by country from as little as no measurable effect to as much as 40 hours per year, depending on the country.

This partial evidence suggests, however, that the comparability of labour force survey based estimates are likely to be enhanced when adjusting for obvious underestimation of main reasons of absences, that are, public holidays, paid annual leave, and sickness and maternity leave, while estimates of unpaid overtime captured by labour force surveys seem to have a limited impact on non-LFS based annual working time measures, at least at an aggregate total economy level. As a result, OECD Secretariat estimates of annual working time for certain European countries based on the Spring ELFS are adjusted, first, by doubling hours lost due to sickness absence and maternity leave reported in labour force surveys. Second, holidays and annual leave entitlements are taken from external sources assuming that all workers are entitled to annual leave and take all days off over the year.

Recent international initiatives to improve the quality and comparability of annual working time

Furthermore, the Paris Group, a UN city group on Labour and Compensation, at its meeting held in September 2003, discussed measurement issues pertaining to statistics of hours of work, where the need for accurate measures of annual hours of work was recognised for use in productivity measures (in terms of levels and growth), and for social partners (e.g. to assess the impact of working time reduction in France)[7]. The draft report of the meeting supports the idea of making a clear distinction between developing and adapting international standards on hours worked measures such as hours actually worked, and making progress on practical measurement issues. Progress can be achieved in two areas: first, by clearly describing the strengths and weaknesses of different measurement methodologies of annual hours of work that are currently available; second, by developing best practices to improve the quality and comparability of annual hours of estimates, which involves: data confrontation with alternative sources – such as time

7. Apart for productivity measures, annual hours of work are also important to measure hourly compensation and unit labour costs. However, annual hours of work are not considered to be an important concept to measure well-being where issues relating to working time arrangements matter most.

use surveys – for possible ex post adjustments of current series, possible changes to collection processes used to derive current estimates, and a provision of appropriate metadata on conceptual and methodological issues of current estimates. The Paris Group foresee more focused work on the working time measurement to be discussed at its September 2004 meeting. The work would involve, in particular, having a closer look at specific problem areas such as the measurement of overtime and absences of work in collection methodologies.

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