

# **Working hours: analysis of Italian LFS results versus administrative data and business survey**

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## **Introduction**

In recent years, in Istat, the interest in the number of hours worked estimated by the labour force survey (LFS), increased a lot, due to several reasons. First of all, the willingness to go into this issue comes from the belief that after the renewal of the labour force survey in Italy (in 2004) the quality of these variables increased, and the desire to verify if it is true. Secondly, the interest shown by Istat national accounts unit for the use of information coming from the LFS as an input in the calculation of worked hours, both regular and not. Finally the intention of reproducing the studies presented by France and Germany on the occasion of 2012 workshop on LFS methodology, to compare the results.

These motivations are supplemented by the setting up of an Istat working group composed by personnel working in the LFS and in the national accounts divisions, with the aim of the development of methodological solutions for the integrated use of statistical sources in the estimation of employment and hours worked (for national accounts purposes); in this context available statistical sources are data from household or businesses surveys, and data from administrative archives.

In this paper, first a review is made on the flow of questions related to working hours that are asked in the Italian labour force survey questionnaire, following, analysis similar to those conducted by France and Germany are produced, then the improvements achieved by inserting a warning in the questionnaire aimed to remind the interviewed the presence of festivities during the reference week are shown. Finally comparisons are made with some data on hours worked derived from business survey and data archives from administrative sources..

## **Questions flow on working hours**

In the Italian labour force survey questionnaire, information on the number of hours worked are taken immediately after the module on the type of working time (full time / part time). The first question is about the number of usually worked hours, (excluded interruption for meals and home-to-work commuting); for those who answer “don’t know” or declare a very variable working time, the average number of hours worked per week is asked, with reference to the last 4 weeks.

The module for the definition of actually worked hours during the reference week is more detailed: first we ask whether the respondent worked less or more hours than the hours that he usually works and why he worked less or more; then we ask whether he has worked overtime hours paid and / or unpaid and their number, and finally we ask for the number of actually worked hours during the reference week.

This set of questions should allow to go step by step into the analysis on hours worked initially distinguishing the number of usually worked hours by those actually worked in the reference week, and then investigating the motivations and intensity of differences.

USUAL

**HWUSUAL (hours usually worked)**  
**HWMEAN4:** if HWUSUAL don't know or very variable an additional question on the average of the worked hours in the last 4 weeks  
**DWUSUAL (day usually worked) – NEW!**

REFERRED TO RW

**HOURREAS** splitted into 3 questions:  
 In RW did you work less or more than usual? Why more? Why less?  
**HWOVERP, HWOVERPU:** 3 questions:  
 Did you any overtime (paid or not)? How many hours? How many are paid?  
**HWACTUAL**  
 ...**WISHMORE** and **HWWISH** (in IT referred to the RW)

## Not worked hours due to bank holidays and annual holidays

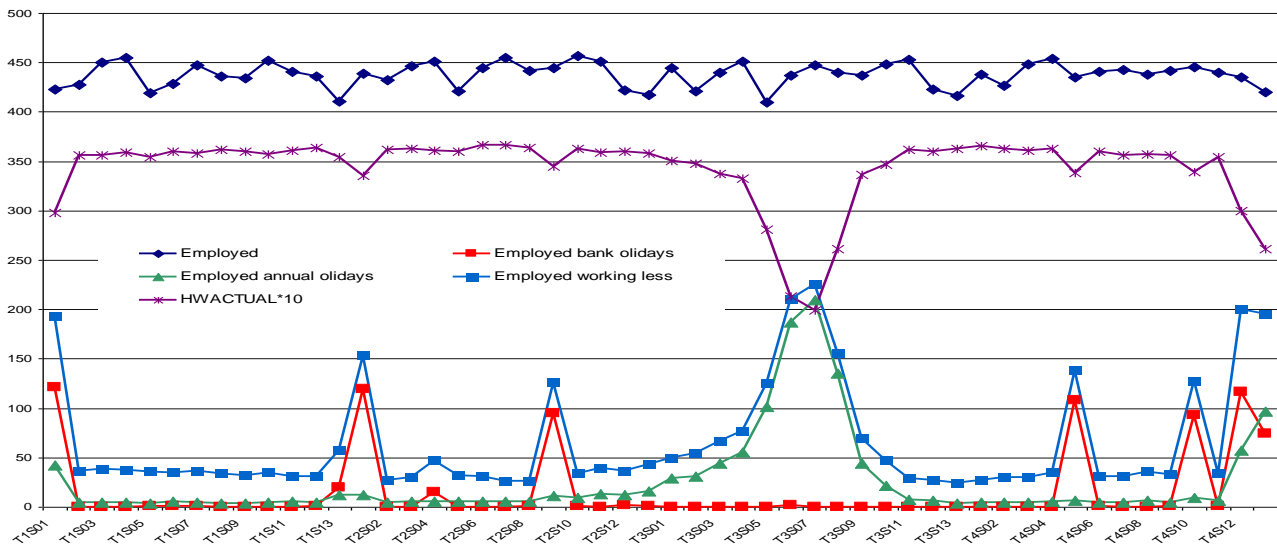
The figure 1 shows, for the 52 weeks of 2010, the number of employed, the actually worked hours (multiplied by 10 just for graphical issues), the number of employed who worked less than usual, and among them, those who worked less due to bank holidays or annual holidays.

We may note that the survey captures the seasonality of the phenomenon and especially the peaks of absences due to summer holidays and bank holidays that occur throughout the year.

In the weeks in which there are bank holidays or there is a more widespread use of annual holidays, the average number of hours actually worked is always lower and the share of employees who claim to have worked less for one of these reasons is always higher.

During the year, the peaks are reached in summer, and particularly in the 2 weeks of August, when nearly half of employed said they worked less hours due to annual holidays, and in few weeks of the year, particularly those with Christmas and Epiphany, where over one third of the employed said having worked less hours because of the presence of a bank holiday in the reference week.

**Figure 1 - Employed for reason of the absence and worked hours in the 52 weeks of 2010**



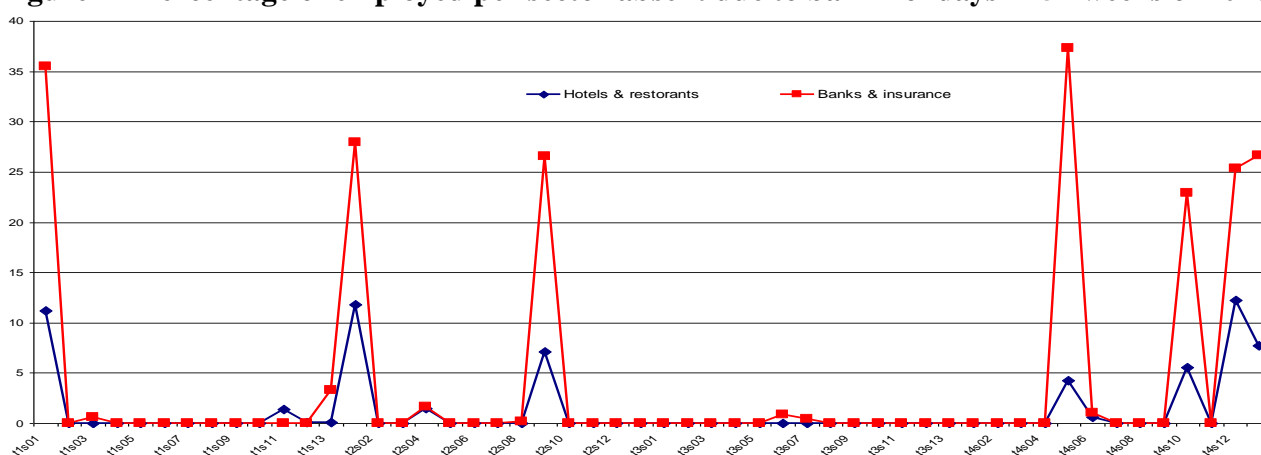
Although the dynamic trend in the number of weekly worked hours and absences from work are consistent with expectations, we expected a greater intensity in the phenomenon, especially for certain groups of employed in certain weeks.

We tried to analyze the statement of absences from work because of bank holidays respect to certain characteristics of the interview and of the respondents.

The main results are:

- No evidence about the effect of the lag between reference week and interview week (memory effect).
- The CAPI interviews detect absences less than CATI.
- There are no differences between direct and proxy interviews.
- For the main macro activity sectors, the differences are consistent with expectations, the employed in the secondary and tertiary sectors benefiting more than employed in agriculture of the holidays.

**Figure 2 - Percentage of employed per sector absent due to bank holidays in 52 weeks of 2010**



Going more deep, the differences between two particular sectors among the services do not seem to fully reflect the expectations. In Figure 2 there is a comparison between employed in hotels and restaurants, which are the ones to enjoy less of the bank holidays in the service sector, and those in banks and insurance companies, who are the ones who enjoy it more. But we may observe that in the weeks in which, presumably, all the employed in banks and insurance companies should have been absent at least one day, not more than 35% state they have benefited.

After these analysis of absences due to bank holidays we tried to compute the number of days of annual holidays enjoyed throughout the year. We wanted to replicate the analysis presented by France and Germany at the previous workshop on LFS methodology; in particular, restricting to full-time employed declaring to have worked less in the reference week because of annual holidays, the total amount of not worked hours per week is defined subtracting the actual at the usual number of hours and adding overtime hours. This total is divided by the number of the employed multiplied by the number of weeks per year (52) to obtain the number of hours not worked due to annual holidays per single employed throughout the year. Dividing by the average number of daily worked hours, which for simplicity is established equal to 8, we get the number of days not worked because of annual holidays which is equal to 12.5.

**Table 1 – Obtaining the not worked days due to annual holidays per single employed throughout the year (2010)**

Total amount per week of not worked hours due to annual holidays	Employed	Number of week	Not worked hours due to annual holidays per single employed throughout the year	Not worked days due to annual holidays per single employed throughout the year
37171	19263	52	100.3	12.5

Going more deep into the analysis, we noticed that some employed who said they had been absent for bank holidays, declare a number of hours not worked during the reference week higher of a normal working day (> 10) although in the week there was only one day of bank holiday; this probably comes from the union of vacation days with feast days ('bridge' effect). The additional vacation hours retrieved in this way resulted in 0.5 days of annual holidays, which added to the previous 12.5 give a total of 13 days taken for annual holidays per year.

This result, compared with our prior expectation and with the results obtained by France and Germany, seems to underestimate the number of vacation days per year. Moreover, considering the differences shown in the detection of absences for bank holidays between CATI and CAPI interviews, and the apparent underestimation in certain sectors, we considered the need to insert some revision in the structure of the questionnaire.

## **An attempt to improve the information on worked hours**

Taking advantage of a pilot survey of 500 households, carried out with reference to the first week of November 2012 with the aim of testing the questions for the ad hoc module 2013, it was decided to test also some changes in the questions on working hours. In particular, we tried to help the respondent to remember if he had enjoyed bank or annual holidays, highlighting the presence of a feast in the reference week (the 1<sup>st</sup> November); in the following the remind message introduced before questions on actual working time referred to the reference week.

*«Next questions refer to the hours worked «LAST\_WEEK» that is the week «from Monday... to Sunday...». Please remind that «LAST\_WEEK» there was the 1st November holiday and consider also eventual annual holidays, illness, overtime...»*

The results were satisfactory, the percentage of employed who said they worked less hours in the reference week increased from 54.1% (resulting from the normal sample for this reference week, without the remind message) to 76.9% (in the pilot sample, with remind message) and the percentage of those who enjoyed bank holidays increased from 43.7% to 66.2%. It is worth noting that the percentage of those who declare having enjoyed annual holidays increased too (probably the remind effect helps to focus on the reference week, to remind all the events that could have been occurred in this week).

**Table 2 – Comparison among the pilot and the normal weekly sample results**

	<b>Normal week sample</b>	<b>VS</b>	<b>Pilot</b>
<b>Weekly worked hours:</b>	28,6		26,2
<b>% less hours:</b>	54,1		76,9
<b>% bank holidays:</b>	43,7		66,2
<b>% annual holidays:</b>	3,2		5,2

Starting from 2013 the warning about the presence of bank holidays in the reference week has been included in the current questionnaire; it is then possible to make comparisons with 2012, to verify the effect. The main results are:

- in the first reference week worked hours decreased from 27 to 23.9, the percentage of employed who said they had worked less in the reference week increased from 49.6% to 60.3% and the percentage of those who enjoyed bank holidays rose from 26.9% to 32.2%.

- we replicated the estimation of the number of not worked days due to annual holidays by full-time employed and, including also the 'bridge' effect, it passes by 1 day in January 2012 to 1.4 days in January 2013.

## Comparisons and integration with other sources

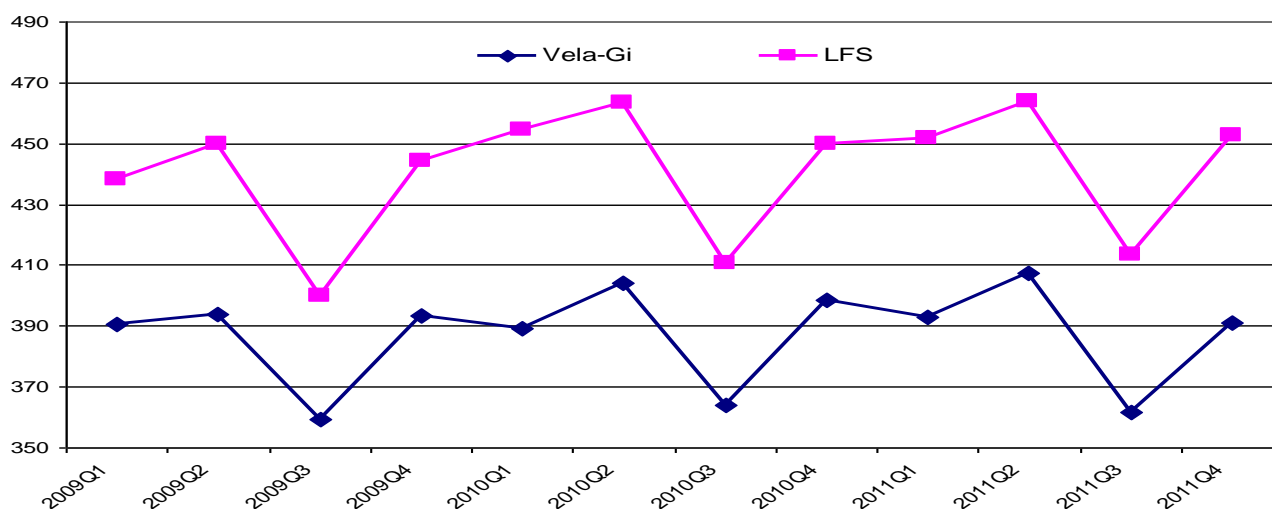
The estimate of the number of hours worked can also be produced by other sources.

The business survey VelaGi (quarterly survey on *job vacancies* and hours worked, that is a sample survey for enterprises with less than 500 employees and exhaustive for larger enterprises) detects, for all businesses with at least 10 employees classified in Sections B to N of Nace rev. 2, hours actually worked and paid in the reference quarter (ordinary and extraordinary) and the number of employees at the beginning and at the end of the quarter (both variables excluding the managers).

The availability of another source to estimate the hours worked allows us to make comparisons with the figures obtained by the labour force survey, of course, after having harmonized the universe of reference, selecting individuals sampled of LFS with the characteristics of the universe of VelaGi.

For the period 2009-2011 the total number of worked hours per quarter per each employee in LFS is significantly higher than in VelaGi and the difference is about 1.5 weeks per quarter; the seasonality is the same and the differences seems to be constant over time (Figure 3).

**Figure 3 – Quarterly worked hours per each employee, Vela-Gi vs LFS**



Going into detail, for all the activity sectors, the longitudinal profiles are very similar (the most evident differences are found in Horeca – Hotels Restaurants Catering – sector); trying to take into account also the potential bias that could have been caused by proxy and lay-off in LFS and job on call in VelaGi (that is eliminating them from the analysis) differences slightly decreased (on average the reduction is 5-6 hours per quarter) but the residual discrepancy remains to be explained.

The remaining gap between the two estimates per capita could be due to the following causes:

- Tendency, already shown in the previous paragraphs, to overestimate worked hours in LFS due to underreporting of absences.
- Inclusion of a piece of grey work in the actually worked hours by LFS, that is actually worked hours but not paid or irregularly paid.
- Inclusion of a piece of non regular employment in LFS, where it is assumed that the worked hours of irregular workers are higher than those of regular ones.

More specific analysis on working time can be produced integrating LFS microdata with individual data recorded in administrative archives. In particular are very useful archives taken by INPS, the social security institute, for which it is possible to derive the information on some absence events with respect to the corresponding reference week in LFS.

We focused on parental leave and long illness, restricting to employed matching with the archive, excluding proxy (year 2010). The first results revealed that:

- 50% of those who resulted in parental leave or illness in the RW in INPS did not declare the absence in LFS.

- 10% of those who resulted in parental leave or illness in the RW in INPS, declared the absence in LFS but gave a different reason.

- 45% of those who resulted in parental leave or illness in the RW in INPS, declared parental leave or illness in LFS.

- 30% of the LFS respondents who said having worked less in the RW due to illness, are not recorded in the INPS archives.

More deep analysis is currently ongoing. The first results reported in this section give a first idea of the possibilities arising from the integration of sources and in particular of the potential of administrative records which are becoming increasingly strategically important in ISTAT.

We may conclude that the analysis on actually worked hours coming from the LFS and the comparisons with other sources confirm the initial hypothesis that Italian LFS overestimates actually worked hours due to underreporting of absences. The introduction of the remind message to help the respondent to remember if he was absent during the reference week (in particular due to bank holidays) has produced satisfactory results. Further efforts will be dedicated to this issue in the future, to improve the detection of absence events; in this sense it will be useful the work conducted by the task force on Measurement of absences and working time in the EU LFS.

## References

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