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**Workpackage WPB**

**Implementation – Online Job Vacancies**

**Methodological framework for processing online job adverts data for Official Statistics V.2.:**

**Complementation of JVS production: methodological support from OJAs**

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# **Complementation of JVS production: methodological support from OJAs**

The analysis carried out so far have shown some of the potential enrichments that OJAs could offer for the official job vacancy indicators, as required by EU Regulations.

Despite their coverage and representativeness limits, OJAs have the main advantage of providing information on the job positions announced, not only high detailed in terms of the characteristics of job positions, but also at a high frequency level, providing an information on a daily, weekly and monthly basis. Therefore, in addition to offer a potential enrichment for job vacancy official indicator from an informative point of view, OJAs can support the current production of JV official indicator from a methodological side.

Amongst the several ways in which OJAs can be used to complement the current official JVS production, in the following sections we consider three other further uses:

a) to derive evidence on the vacancy flows during the reference quarters of the official surveys;

b) to evaluate the representativeness of the vacancy stocks at the specific reference dates used in the official surveys;

c) to indirectly calculate a monthly basis JV official indicators from the quarterly ones.

Vacancy flow instead of vacancy stock at specific reference dates

OJAs have the advantage of capturing the vacancy flows that is the vacancies opened and closed during a reference period, instead of only the vacancy stock at specific reference dates.

The vacancy stocks takes only into account the vacancies that survived at a specific date, without reporting the movements of vacancies before that date.

However, information on vacancy flows from a survey would require a collection on a continuous basis. The EU Regulations on job vacancy statistics consider this collection method as the preferred one: “MS shall provide data on the number of job vacancies and the number of occupied posts that can be considered representative for the reference quarter. The preferred methods to achieve this are data collection on a continuous basis or the calculation of a representative average of data collected for specific reference dates” (EC Reg. No 19/2009 implementing the JV frame Regulation EC No 453/2008).

A continuous collection method implies a significant improvement in the collection costs and in the response burden for the enterprises. From the enterprise side in fact, it would imply having a kind of register in which keeping the account of all vacancies opened and closed during the reference period.

OJAs offer a kind of a continuous based information without any additional costs. Starting from the stock of OJAs at the beginning of a reference period, using daily information on OJAs, it can be calculated the vacancy net balance (the differences between vacancies opened and closed) day after day.

*JVd-JVd-1=JVOd-JVCd* [1]

From a JV survey, in general, it can be computed only the vacancy net balance between the reference dates of two different reference periods (for, example, between two different months or quarters).

Therefore, OJAs allows to have the information on the net increase or decrease of vacancies at a very short time period, by day, week, half a month, etc..

Representativeness of the job vacancy stock at specific reference dates

Even if collecting vacancies on a continuous basis is a “best collection practice” the majority of EU Member States use either a representative average of data collected for specific reference dates during the quarter or a single specific reference date (such as the last calendar day of the quarter).

In addition to the vacancy flows information, OJAs daily distribution during the quarter can give useful insights on the representativeness of the vacancy stock at the specific reference dates used in the current job vacancy surveys.

In particular, OJAs can show whether, and to what extent, the single reference date used is representative for the quarter, since the flow of vacancies opened and closed during the quarter cannot be fully captured from a single specific stock. It is especially true during very peculiar period, such as the COVID-19 emergency months, when the single reference dates used in the official surveys fell during the enterprise total lockdown.

Therefore, it is worthwhile analysing the OJAs daily distribution in order to define the best reference dates of the job vacancy official survey collection, or at least, in order to better know the limits of the currently used reference dates.

Figure 1 shows the Italian daily OJAs distribution during the fourth quarters of 2019. The Italian job vacancy official survey collects vacancies at the last calendar day of the quarter.

The preliminary analysis carried out so far shows the intense flows of vacancies within the month; the different vacancy patterns over each month and the different monthly average numbers of OJAs within the quarter. However, there is no evidence of a clear OJAs daily pattern during each month. Furthermore, the “best capturing dates” during the quarter are difficult to be detected and there is not a strong signal supporting a change from the currently used reference date to another single one date for the Italian vacancy survey. It should be better moving from the last calendar day of the quarter to an average over several single dates; but the significant negative impact in the implementation costs for the survey and enterprise response burden need to be take into account.

Figure 1a: OJAs daily distribution during the four quarters of 2019: the Italian case, first quarter 2019



Figure 1b: OJAs daily distribution during the four quarters of 2019: the Italian case, second quarter 2019



Figure 1c: OJAs daily distribution during the four quarters of 2019: the Italian case, third quarter 2019



Figure 1d: OJAs daily distribution during the four quarters of 2019: the Italian case, fourth quarter 2019



From a quarterly to monthly basis JV indicator

The high frequency detailed information from OJAs can also be used to indirectly extend the frequency of the JV official indicator from a quarterly basis to a monthly one. This is another helpful use of the OJAs, taking into account the difficulties both in implementing a vacancy survey on a continuous basis and in changing the currently used reference date or extending it to more dates.

EU Regulations requires the job vacancy rate on a quarterly basis. In Istat, as already mentioned, for the computation of the vacancy rate, data on job vacancies refer to the last calendar day of the quarter. Daily information on OJAs provides valuable insight into vacancy flows during the quarter. The monthly average number of OJAs could be used to estimate the vacancy rate on a monthly basis, as follows:

[2]

Since there is no evidence of a clear daily pattern in the months, we preferred to use the monthly and the quarterly average of OJAs instead of the number of OJAs on a specific day (e.g. last day of the month or the quarter). Job vacancy rate is one of the principal European economic indicators (PEEIs), the primary source of information used to analyse and monitor short-term cyclical economic developments within the EU Member States, the euro area and the individual EU countries (ESSnet Big Data II, Methodological framework for processing online job adverts data for Official Statistics V.2, p. 10). Therefore, a monthly job vacancy rate, indirectly derived from the OJAs, can be used to better understand the dynamics of the economic cycle within the quarter, also in relation to other monthly indicators.

A first attempt of estimating a monthly vacancy rate, only for the Italian case, from the third quarter of 2018 to the fourth quarter of 2019 has been carried out. The exercise has been based on the monthly OJAs data over the months July 2018-December 2019 and on the current not seasonally adjusted job vacancy rate quarterly estimates, derived from the Italian official survey (Figure 2).

*Figure 2: From a quarterly to a monthly basis job vacancies rate estimates: the Italian case*

Table 1 shows the vacancy rate changes (percentage points differences), calculated comparing the vacancy rates to the same period, month or quarter, of the previous year. It is interesting to note, for example, that the growth in the vacancy rate in the third quarter of 2019 (+0.1) is mainly due to the growth in the vacancy rate in September 2019 with respect to September 2018 (+0.6).

*Table 1: Year on year change in the job vacancy rate (percentage points difference): the Italian case*

|  |  |  |  |
| --- | --- | --- | --- |
| **Quarter** | **Month** | **Change in monthly JVR** | **Change in quarterly JVR** |
| **Q319** | 7/19 | 0 | 0.1 |
| **Q319** | 8/19 | -0.2 | 0.1 |
| **Q319** | 9/19 | 0.6 | 0.1 |
| **Q419** | 10/19 | 0.1 | 0 |
| **Q419** | 11/19 | -0.1 | 0 |
| **Q419** | 12/19 | 0 | 0 |