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| 1 | Methodological Note |

Experimental Statistics - Labour Market Concentration Index

* 1. Context

The experimental statistics “Labour Market Concentration Index” (LMCI) is based on the work done by DESTATIS within the Work Package C of the ESSnet project on Big Data II[[1]](#footnote-1), co-financed by Eurostat.

The methodology used for the calculation of the index based on Online Job Advertisement (OJA) data has been adapted and replicated on all the 27 EU Member States.

## Previous work

The algorithm for calculating the LMCI based on OJA data is inspired by the work done by Azar on OJA data collected by Burning Glass in the U.S. market.[[2]](#footnote-2)

<https://ec.europa.eu/eurostat/documents/3888793/12287170/KS-TC-20-008-EN-N.pdf/6a86d53e-d0b8-d608-988d-d91f0cef6c21?t=1611673495829>

## Current Job Vacancies Statistics

Currently, Eurostat publishes […]

* 1. Data

## Data provider

Description of the Burning Glass Data […]

For the production of the experimental statistics we have used the most recent version of the dataset (i.e. v8) released on November 2020. This dataset contains data from Q32018 to q32020.

## Quality Issues

* 1. Labour Market Definition

## Time

The time dimension is the Quarter. Variations between quarters are however limited in terms of LMCI. It is therefore unlikely that the changes labour market offerings are significant over a 3-month period. To compute the reference quarter of an online job advertisement the variable grab date is taken in considerations. For example if a job advertisement has a value ‘grab date’ = 15/02/2020 (i.e. the advertisement was scraped on 15/02/2020), then the advertisement will be counted for the index of Q1 2020.

## Geography

The correspondence between Local Administrative Units and NUTS region is obtained from Eurostat data[[3]](#footnote-3).<https://ec.europa.eu/eurostat/web/nuts/local-administrative-units>

The job advertisements data from Burning Glass are labelled with NUTS2013 code.

The LAU code of the OJA data is based on the classification from 201X. However there are many issues in the original OJA dataset regarding the LAU code (e.g. OJA data from Cyprus have a one-digit LAU code/idcity). For the countries with incomplete LAU code/idcity the algorithm runs a reverse matching: looking at the *city* variable (i.e. LAU name) it completes the OJA data with the correct LAU code, using Eurostat LAU tables.

The matching of the OJA data with the geographical entities is primarily made using the LAU code/id city.  
For the OJA data where this is not possible (i.e. missing LAU code/idcity), it is possible in some cases to match the job advertisement with the geographical unit by looking at the NUTS3 id.

Assign1 code

The code for the matching of LAUs, NUTS and FUAs uses the excel correspondence file from the Eurostat website, with NUTS 2016. To avoid losing some of the matchings we had corrected the value for the NUTS regions that were changed from 2013 to 2016, according to Eurostat data.

<https://ec.europa.eu/eurostat/documents/345175/629341/NUTS2013-NUTS2016.xlsx>

<https://ec.europa.eu/eurostat/web/nuts/history>

* 1. Methodological Assumptions

For the purpose of this analysis, we drop internships and OJAs where the type of contract is not present.

## Companies

Company name […]. The company name variable is crucial to the calculation of the index. However the company name data is often missing, due to the fact that many OJAs, usually posted by staffing agencies or intermediary companies, do not have the name of the company that has an actual job openings. Sometimes it is the company itself that do not want its name to be disclosed.

We normalize the company name column by transforming everything to lower case and eliminating special characters.

Staffing agencies […]

Franchising […]

Same company, different spelling (e.g. two character strings indicating the same company such as “IKEA” and “IKEA ltd”) […]

Where company names are missing, these are filled with imputed values. The median value of observation of advertisements of the same company per region (NUTS2), occupation (isco level 4) and quarter.

We assume that branches of the same company are now competing between them and can be grouped under the same ‘companyname’.

* 1. Outputs

## Results

## R-Code

## Future Work

Open questions are:

* How to account for border areas with commuting phenomena (e.g. border regions in Germany, France and Belgium have a high share of residents working for companies based in Luxembourg)
* How much of the job offering in the public sector is captured by the OJA dataset. Are there ways identify posts in the public administration sector?

### Heading 3

#### Heading 4

##### Heading 5

###### Heading 6

Body text body text body text Body text body text body text Body text body text body text Body text body text body text Body text body text body text Body text body text body text Body text body text body text Body text body text body text

* Body bullet list
* Body bullet list
* Body bullet list

1. Body number
2. Body number
3. Body number

Hyperlink

Figure 1: Table-graph-map title 🡪 modify title colour into grey

(Table-graph-map unit)

Table-graph-map source: remove italic for the source itself

Footnote

## Heading 2 #

### Heading 3 #

#### Heading 4 #

|  |
| --- |
| Box title  Body text   * Body bullet list |

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| Box title  Body text  Body theme colour bold (you can also put some coloured text inside)  Background = theme colour 20% |

|  |
| --- |
| Box title white  Body white bold  Background = theme colour  This kind of box should be avoided for content with more than 15 lines |

Insert a space break before a new chapter / part or the publication   
(Page layout / Breaks / Section break next page).

# How to use the template

Save the template file (.dotx) as a doc file.

All the styles and quick parts (auto text) available in the template are shown on the 2 first pages.

The style gallery is available under the HOME tab; the quick parts menu is available under the INSERT tab.

Apply the styles and quick parts as follows.

## How to modify the header and footer

Insert a **page break** at the end of the previous chapter:

### Header

INSERT Tab / HEADER Button / EDIT HEADER

🡪 Unselect ‘Link to previous’

🡪 Modify chapter title in the header

🡪 Modify chapter number in the coloured box (if no number needed (e.g. TOC), leave the box empty).

### Footer

INSERT Tab / FOOTER Button / EDIT FOOTER

🡪 Select ‘Link to previous’.

🡪 Modify publication title in the footer (this should correspond to the cover title).

🡪 Adapt the length of the leading line if necessary.

🡪 Start numbering at 3 (as title and copyright pages are the 2 first pages of a publication).

## How to insert the chapter title

Insert a **section break** at the end of the previous chapter:

PAGE LAYOUT / BREAK / SECTION BREAKS / NEXT PAGE

Put the cursor on the 1st paragraph mark at the beginning of the chapter.

Use the **quick parts** included in this template:

INSERT Tab / QUICK PARTS Button

🡪 click on the **chapter title** quick part;

🡪 This will insert a box containing the title in your document;

🡪 Modify chapter number and title.

## How to use the styles

**Predefined styles** are included in this template: the 2 first pages of this template give you an overview of all the different styles available in the style gallery. The text refer to the corresponding style of the style gallery.

Click in the paragraph you want to format and use the following command:

HOME Tab / STYLES GALLERY 🡪 click on the style you want to apply.

## How to insert a box

There are 3 types of boxes (see above).

Use the **quick parts** included in this template:

INSERT Tab / QUICK PARTS Button

🡪 Click on the corresponding box   
(Box dotted stroke — Bow with light background — Box with dark background).

## Tables and graphs layout

Use the Excel add-in to make the layout of your tables and graphs (Eurostat layout menu in Excel).

The tutorial is available on Cybernews (Publications tools page) and Statistics Explained.

### Tables and graphs titles

Apply the ‘Table-Graph-Map title’ style. This will give a fully coloured title.

Figure 1: Table-graph-map title

🡪 Select the title only and modify colour into **grey**.

Figure 1: Table-graph-map title

(unit)

The unit should always be on a separate line and between (brackets). Use the corresponding style in the style gallery.

Refer to Statistics Explained tutorials to write correctly the units (e.g. million EUR instead of EUR million).

### Tables

* Don’t repeat the percentage sign in the table as it is already in the title unit or in the header;
* No left and right borders;
* If vertical borders are used, they should go through the heading.

## How to insert the table of content

Insert the table of content using the ‘References’ menu:

REFERENCES Tab / TABLE OF CONTENTS Button / STYLE GUIDE / TOC EUROSTAT STYLE GUIDE

This command will select automatically 4 levels of headings.

## How to update previous manuals with the new style guide?

2 options:

### Copy / paste

* Select the text of the old publication and copy it into the template (chapter by chapter if large texts).
* Remove the old styles from the styles gallery (Right click on the style in the gallery / Remove).
* Use the new styles and quick parts to update the layout.

### Import styles from the template in your old document:

* Open the document you want to import style to in Word
* Click on DEVELOPER Tab / DOCUMENT TEMPLATE Button
* In the ‘attach’ box, select the template and tick ‘Automatically update document styles’
* Remove the old styles from the styles gallery (Right click on the style in the gallery / Remove).
* Use the new styles and quick parts to update the layout.

Common writing conventions

When writing your text, apply the following rules. They can be found in the interinstitutional style guide.

* Presentation of footnotes reference: (1);
* URLs and hyperlink: in blue without underline;
* Use minus sign (alt 0150 –) to separate age series and time periods (50–69 instead of 50-69 or 2010–15 instead of 2010-2015);
* Use dashes (alt 0151 —) to separate sections in a sentence;
* Use ‘single quotation marks’ in English text (alt 0145 ‘ and alt 0146 ’);  
  Double quotation marks (“) can be used for a quotation within a quotation.
* Use italic for referring to titles of books or citations — no quotation marks needed.
* Insert a fixed space before the percentage sign (10 %) and between thousands (1 000 000)  
  (CTRL ALT Space bar);
* Currency: Use ‘EUR 2 500’ instead of ‘2 500 EUR’ in the text.
* Titles are never justified.
* The text does not need to be justified.

# Example of predefined table of content

This is for your comment, it will not be included in the template (should it ?)

Chapter title 1

Heading 1 1

Heading 2 1

Heading 3 1

1.1. Heading 1 # 1

1.1.1. Heading 2 # 1

1.1.1.1. Heading 3 # 1

General layout instructions Error! Bookmark not defined.

How to use the styles 3

How to insert the chapter title 3

How to modify the header and footer **Error! Bookmark not defined.**

Header **Error! Bookmark not defined.**

Footer **Error! Bookmark not defined.**

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Tables and graphs layout 3

Tables and graphs titles 3

Tables 3

How to insert the table of content 3

How to update previous manuals with the new style guide? 3

Common writing conventions 3

Example of predefined table of content 3

1. <https://github.com/OnlineJobVacanciesESSnetBigData/Labour-market-concentration-index-from-CEDEFOP-data> [↑](#footnote-ref-1)
2. <https://www.sciencedirect.com/science/article/pii/S0927537120300907> [↑](#footnote-ref-2)
3. <https://ec.europa.eu/eurostat/web/nuts/local-administrative-units> 2019 Validated data, for IE 2018 data are used. [↑](#footnote-ref-3)