MEASURING LABOUR MARKET TIGHTNESS TO IMPROVE THE BALANCE BETWEEN LABOUR DEMAND AND SUPPLY

Michael Orand (DARES)

15-16 October 2018

Contents

- Context
- Work on a new indicator
  - Data sources
  - Results
- Conclusions and further questions

CONTEXT

Labour market tightness

- Labour demand of firms exceeds the labour supply provided by workers
- In general or by occupation, skills, industry…
- A result of labour market mismatch

Forms of labour market mismatch

- **Market defaults:** skills mismatch, geographical mismatch, inadequate working conditions
- **Structural evolutions:** demography, technological progress, increase in short-term contracts
- **Behaviours:** difficulty to define needs, difficulty to provide training for employees, recruitment practices

The measure of labour market tightness

- Compares unsatisfied labour demand and available labour supply
- Inspired by the Beveridge curve
- Form of commonly used indicators:

$$\theta = \frac{V}{U} = \frac{Nb\ \ Job\ vacancies}{Nb\ \ Unemployed}$$

The former indicator

- Published quarterly until mid-2017

- Ratio between:
  - Job vacancies: job offers collected by Pôle Emploi (French PES) (inflow)
  - Number of unemployed: people registered at the PES (inflow)

- Detailed by ‘occupational families’ (FAP - similar to ISCO)
  - For the employer, occupation that appears on the job offer
  - Unemployed people declare which occupation they are looking for

Problems with former indicator

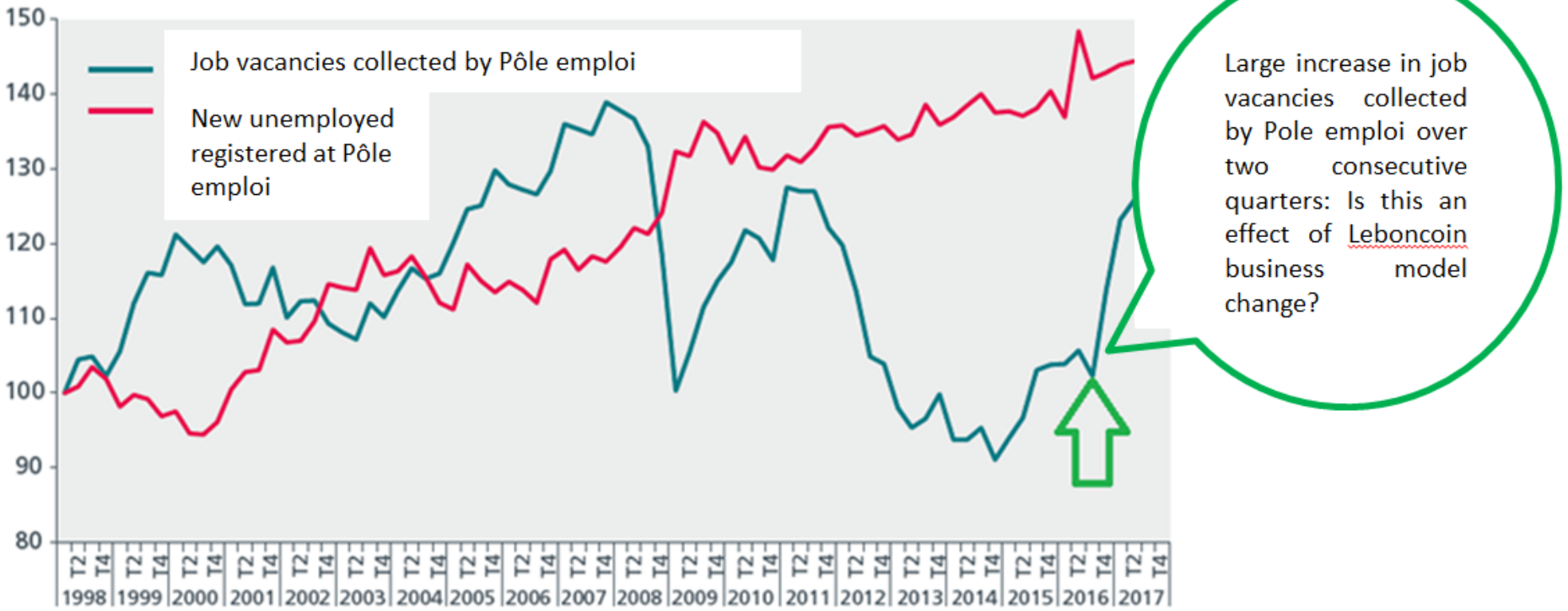
- New stakeholders publish job offers not necessarily collected by Pôle Emploi
  - websites, social networks (e.g. Leboncoin, LinkedIn)
  - for all jobs, specific industries or levels of qualification

- Job vacancies collected by Pôle Emploi are too sensitive to other stakeholders behaviour. In consequence, the indicator lack precision.

Job vacancies collected by Pôle Emploi

Job vacancies collected by Pôle emploi and new unemployed registered at Pole emploi

Quarterly seasonally adjusted series, base 100 in January 1st, 1998



Metropolitan France, for the 74 professional occupations selected.
Source: Dares-Pôle emploi, Data from the PES labour market statistics (STMT), Calculation by Dares.

WORK ON A NEW INDICATOR

Objectives

- Define the content of a new publication on labour market tightness:
  - More robust indicator
  - Growing collective concerns about difficulties to hire (business surveys) : leads us to explore a larger spectrum of dimensions

- Open-minded exploration of several options:
  - One / several indicators
  - Annual / quarterly
  - Detailed by industry / occupation

Opportunity

- To explore multiple dimensions of labour market tightness and mismatch identified in the literature:
  - Demand side (e.g. recruitment needs)
  - Starting salary
  - Types of contracts (e.g. short-term v long-term)
  - Working conditions
  - Employers feelings on difficulty to hire

Strategy

- Identify relevant data sources

- Analyse relationships within a battery of selected indicators and with the former indicator:
  - Linear correlations
  - Multivariate analysis

- International comparison (MLP)
- And next…?

DATA SOURCES

Sources and dimensions explored

- Different data sources:
  - Surveys
  - Administrative data
  - Web-scraping
- Indicators on various dimensions:
  - Demand side of labour: recruitment needs, difficulties
  - Supply side of labour: labour statistics
  - Quality of job: wage, working conditions
- Multiple level of details: industries, occupations, occupational family, etc.
- Different frequencies: annual, quarterly

Chosen dimensions:

- **An annual frequency (with mean on four quarters for quarterly indicators)**
- **Detail at the occupational families level**

Source 1: STMT

- Labour market statistics from Pôle Emploi:
  - Tightness indicator in flow (formerly published): ratio between job vacancies collected and unemployed people registered at Pôle Emploi
  - Tightness indicator in stock: as above but in stock
  - Exit rate of jobseekers: measures labour market fluidity for jobseekers
  - Share of long-term job vacancies: measures quality / attractiveness of job vacancies
  - Number of vacancies per employee
  - Jobseekers per employee: measures the relative importance of available labour supply

Source 2: BMO

- Labour Needs Survey (‘Enquête besoin de main d’œuvre’) survey with private firms
- Collect figures on the potential future hires for each occupation and establishment
  - Potential future hires per employee: ratio between potential future hires and average employment by occupation
  - Non-seasonal future hires per employee: same restricted to non-seasonal recruitments
  - Potential future hires anticipated as difficult per employee: same restricted to difficult future hires
  - Share of anticipated as difficult future hires

Source 3 : DADS

- Administrative data used to calculate social contributions (in particular good quality data on wages)

$$\text{Wage attractiveness indicator} = \frac{Wage\ of\ newly\ hired\ (not\ present\ on\ january\ 1st)}{Mean\ wage}$$

Work in progress

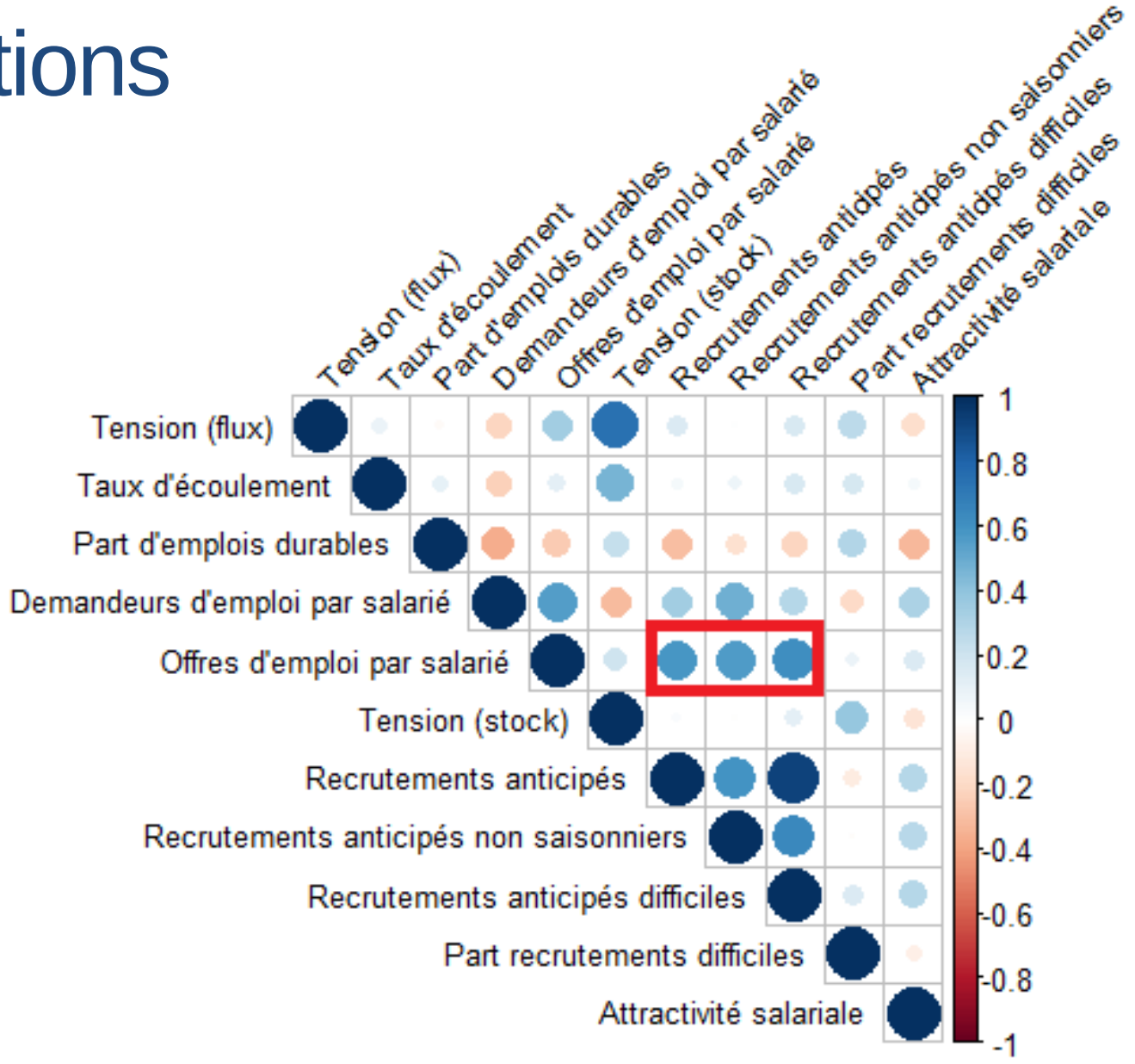
- Data sources left on the side at the moment :
  - DPAE (pre-hire declarations)
  - Acemo (employer survey on vacant positions)
  - Business surveys

- Because of insufficient coverage or unavailable detailed classsification
  - There might be solutions to add them in the future

- Potential new sources are coming :
  - Nominative social declaration (DSN)
  - Web scraping

RESULTS

Linear correlations

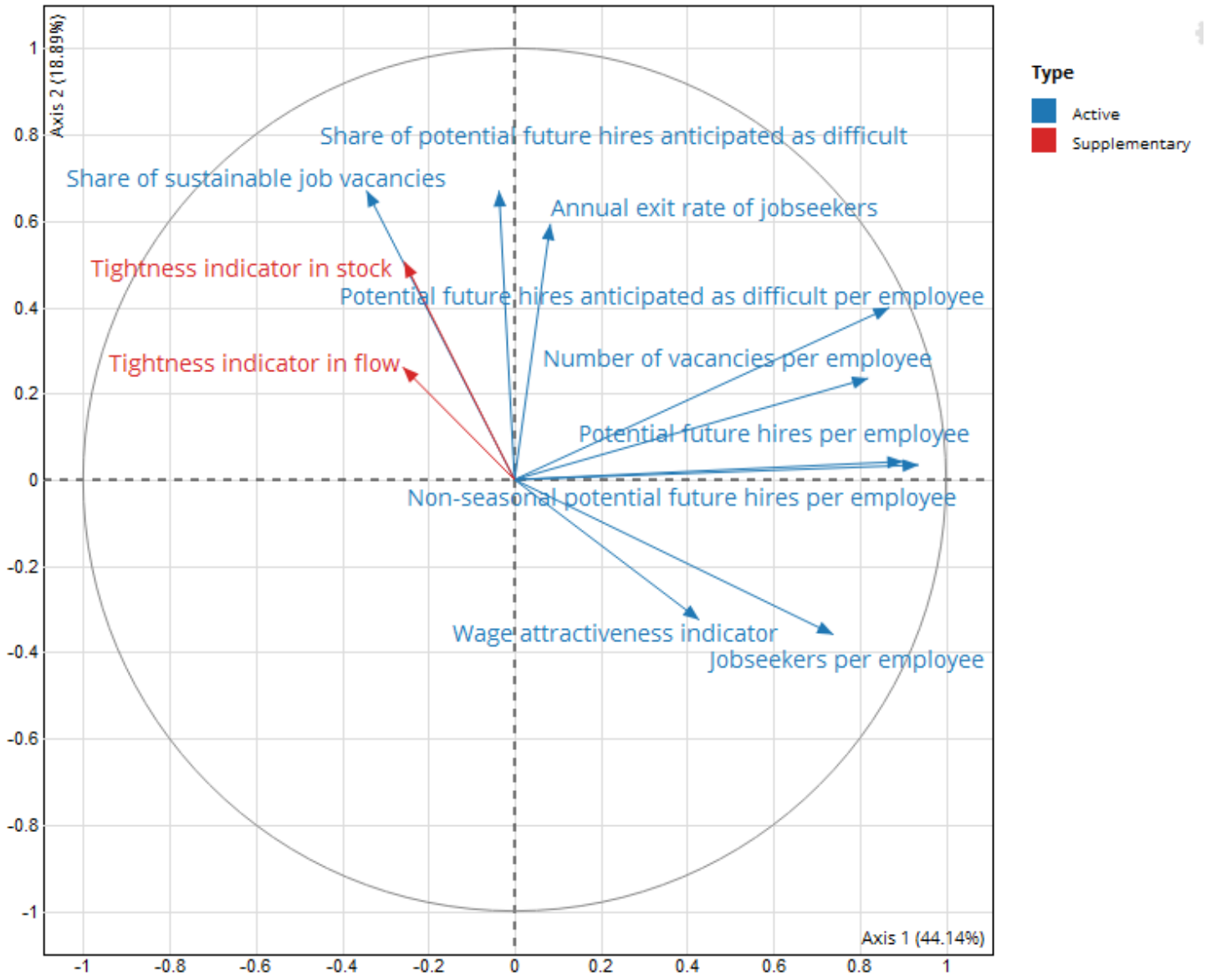


Multivariate analysis

- Principal component analysis (PCA):
  - The former indicator (and its variant in stock) are used only as additional variables
  - The other nine indicators are used as active variables

- Results are presented:
  - For 2015 (annual level) – last year with all indicators available
  - Detailed in 77 occupations

Results

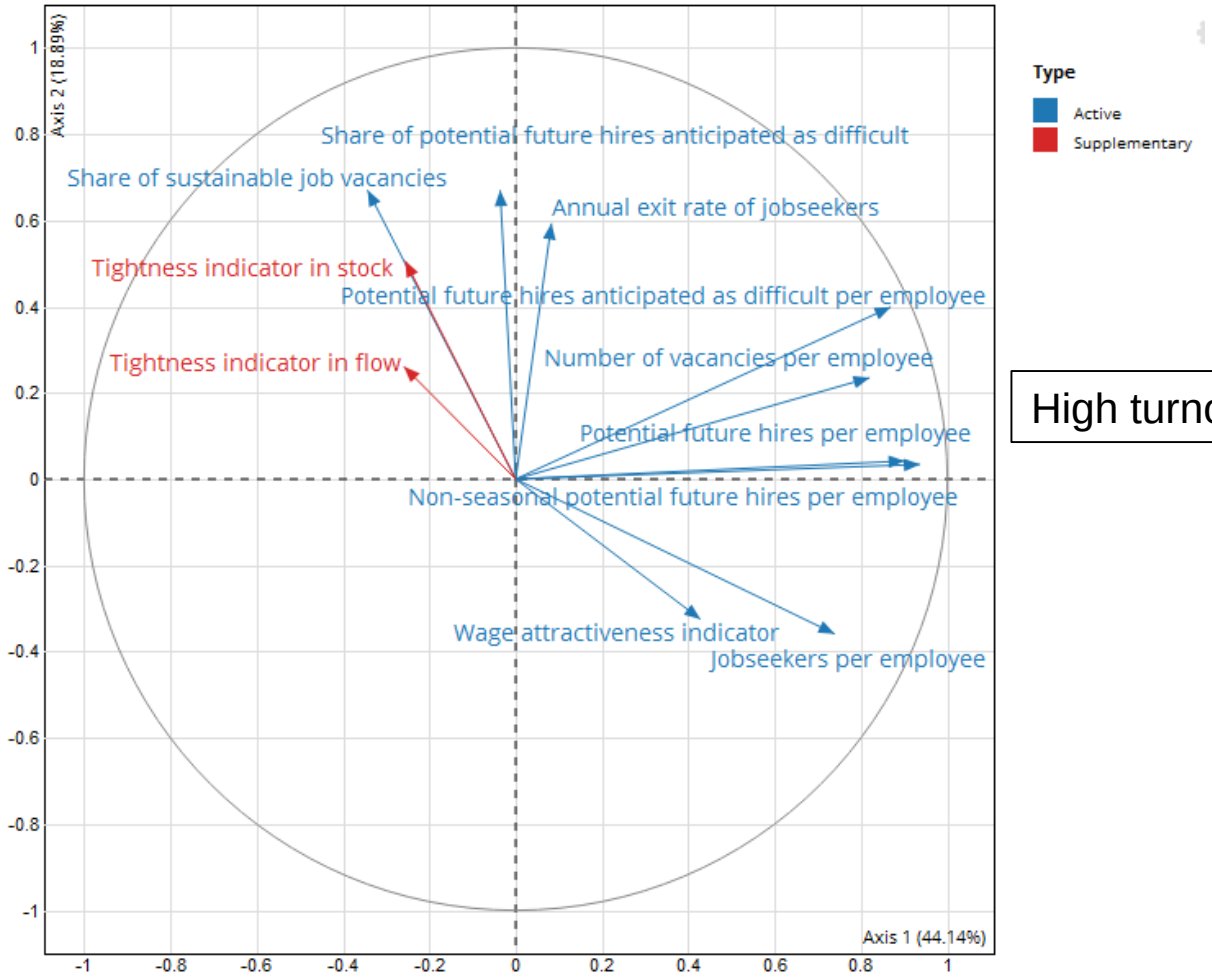

Axis 2 (18.89%)
Axis 1 (44.14%)
Share of potential future hires anticipated as difficult
Share of sustainable job vacancies
Annual exit rate of jobseekers
Tightness indicator in stock
Potential future hires anticipated as difficult per employee
Number of vacancies per employee
Tightness indicator in flow
Potential future hires per employee
Non-seasonal potential future hires per employee
Wage attractiveness indicator
Jobseekers per employee
Type
Active
Supplementary

Interpretation

- Horizontal axis : high number of vacancies relatively to the size of the industry (intensity of demand ?), high turnover, short-term and low-skilled jobs
- Vertical axis : high number of vacancies relatively to the number of unemployed people, high-skill jobs (skills mismatch ?)
- The former indicator is mainly on the vertical axis

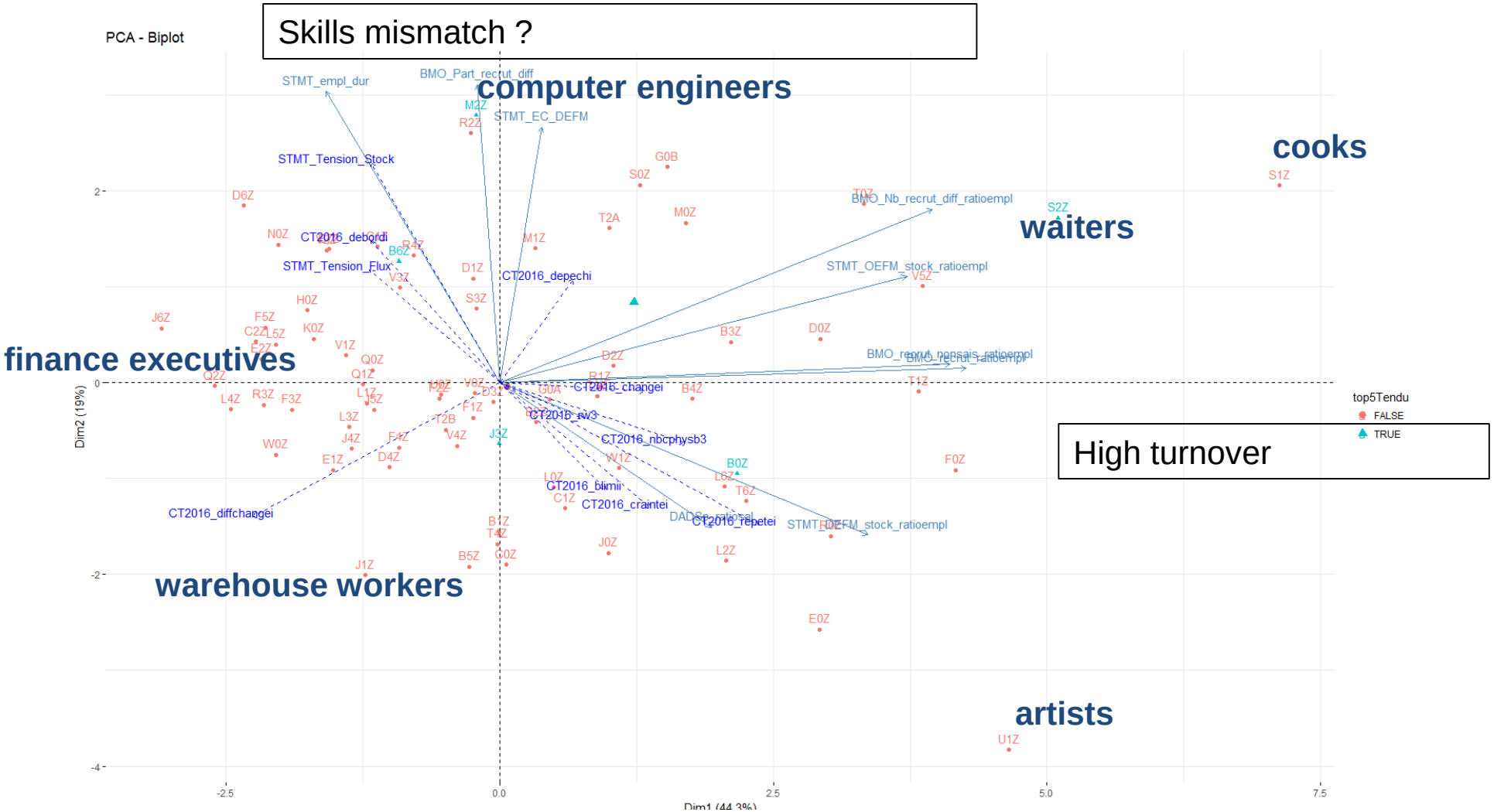
Interpretation of axis

Skills mismatch ?



High turnover

Examples of occupations

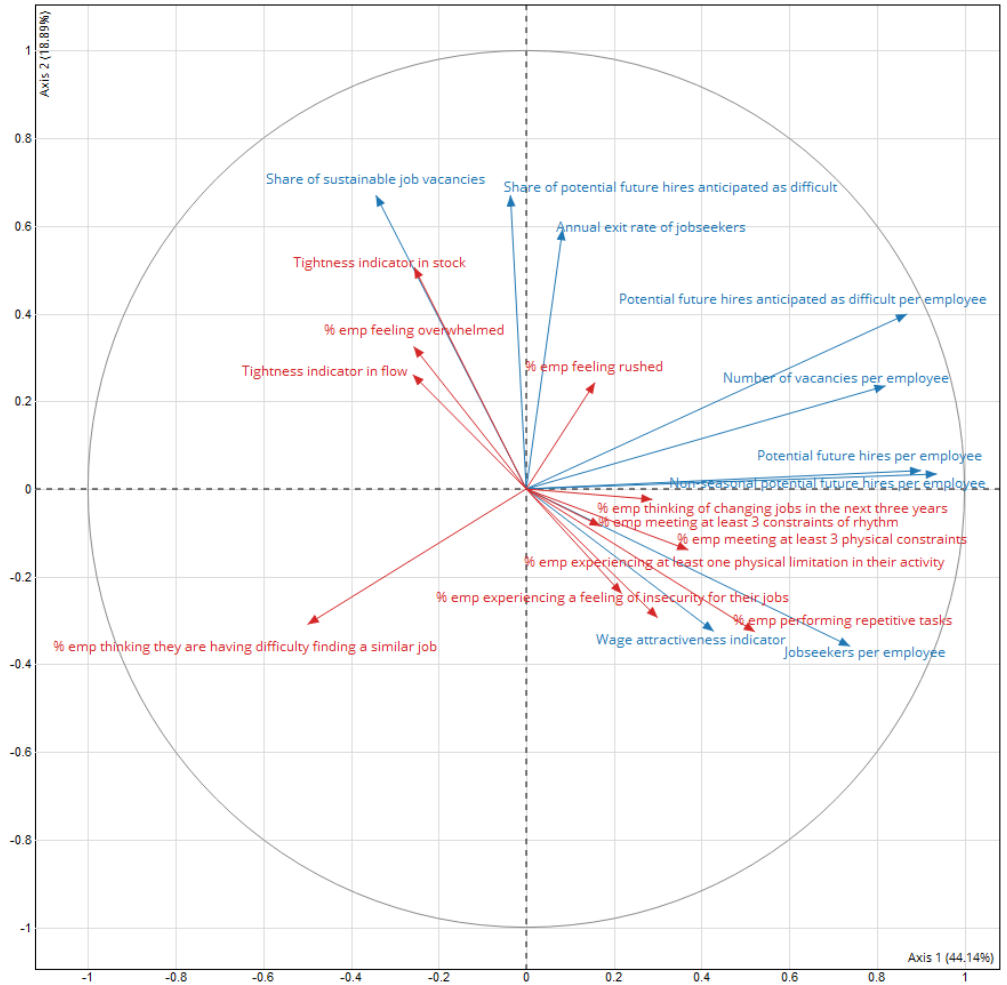


Robustness checks

- We have run several robustness checks:
  - Different levels of granularity for the occupational classification
  - Various time-windows: 2010-2015 period instead of only 2015
  - Choice of active and supplementary variables

Further interpretation: working conditions

Skills mismatch ?



High turnover

Working conditions and tightness

- Two points that reinforce the interpretation of the results:
  - Difficulty of finding a similar job is correlated with lower labour demand
  - Work intensity seems higher for occupation that experience labour market tightness

- Structural effect: occupations with physical constraints (often low-skilled) are those where turnover is high

CONCLUSION AND FURTHER QUESTIONS

Conclusions

- Our sources allow to identify a two-dimensional tightness:
  - Horizontal axis: excessive labour demand intensity compared to the size of the industry, high turnover, high frequency of short-term contracts, hard working conditions…
  - Vertical axis: insufficient labour supply, high-skilled jobs (potential scarcity of adequate skills and need for training)

- Results seem consistent with experts analysis

- Each dimension calls for specific policies : e.g. training on one side, improvement of job quality and matching process on the other side

Questions about the indicator

- Composite indicator? (e.g. based on the value or signs on each axis)
  - Only one information
  - Very sensitive to changes in the input data (e.g. timewise)
  - Qualitative definition ? – less explicit
- Multiple indicators?
  - Explicit definitions
  - Harder to use for economic analysis
- Both ?
  - Indicators not used for the PCA could be used too

Policy questions

- The former tightness indicator was used to:
  - Define occupations available for non-EU residents
  - Define occupations for which a special training allowance is granted

- This can interfere with the definition of a new indicator:
  - Need for readability and clarity
  - Are the two dimensions relevant for all users of the indicator?
  - Should the indicator be linked with training data or policies (recently important area of investment in France)?

THANK YOU
FOR YOUR ATTENTION