NOTES

Seminars of the Big Data Knowledge Hub
Analysing job mismatch without big data

Notes of the online seminar promoted by the Big Data Knowledge Hub of the European Network on Regional Labour Market Monitoring (ENRLMM). November 28, 2024

The eighth of the Seminars of the Big Data Knowledge Hub took place on November 28, 2024. The aim of these series of seminars is to offer an opportunity to deepen the Network's knowledge on how to use Big Data for labour market research and consulting by presenting practical cases and demonstrations.

The Seminar included a presentation by **Francesca Parente** (Regional Observatory on Labour, Training and Education Policies of Regione Lazio, Italy) titled "Analysing job mismatch without big data".

The open discussion counted with the participation of: **Christa Larsen** (IWAK Goethe University Frankfurt am Main, Germany) and **Aleksandra Webb** (University of the West of Scotland, UK).

Introduction

The meeting begins with **Eugenia Atin** (Coordinator of the Big Data Working Group) welcoming attendees to the seminar, part of a series of the Big Data Seminars focusing on labour market analysis. She emphasizes that the series aims to make big data concepts more approachable for researchers and analysts in regional labour market observatories. This particular session focuses on analysing job mismatch without using big data and is designed to resonate with the practical realities of the labour market analysts' work.

Eugenia introduces herself as a senior member at Prospektiker, a Spanish institute for future studies, and as a speaker for the Big Data Working Group within the European Network on Regional Labour Market Monitoring. She highlights the seminar's interactive format, encouraging active participation during the discussion following the presentation.

Christa Larsen (IWAK Goethe University Frankfurt am Main, Germany), speaking on behalf of the European Network EN RLMM, acknowledges the network's 20 years of work in analysing labour market demand, supply, and mismatches. She underscores the growing importance of understanding job mismatches as a pressing issue and

praises **Francesca Parente**, the seminar's presenter, who has contributed significant insights on mismatch analysis in past events.

Finally, **Francesca Parente** is introduced as a representative from the Regional Observatory on Labour, Training, and Education Policies at Regione Lazio. She is invited to deliver her presentation on analysing job mismatch without big data.

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Presentation by Francesca Parente

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Francesca Parente began by thanking the organisers for the opportunity to present and introduced the topic: "Analysing Job Mismatch Without Big Data." She highlighted that the Regional Observatory on Labour, Training, and Education Policies at Regione Lazio currently lacks access to certain datasets, such as online job advertisements, but continues its work supporting public employment services (PES) and addressing job mismatch issues in the region.

Context and Figures on Job Mismatch

Francesca set the scene with an overview of labour market imbalances, emphasizing the misalignment between labour demand and supply. She explained that mismatch problems manifest in several ways:

- Vacancies remaining unfilled despite the availability of workers.
- Unmet supply of employment for workers facing underemployment, unemployment, or inactivity.

In 2023, 12% of the EU labour force (approximately 27 million people) faced job mismatch issues. Italy's figures were higher, and although improvements were noted compared to the previous year, challenges persist. A particular criticism in Italy is the high number of people classified as available for work but not actively seeking employment (44% of the labour market slack), a figure exacerbated during the COVID-19 pandemic. This trend is especially notable among the youth (NEETs), with over 3 million individuals not in education, employment, or training as of 2020.

Italy also has a double gender gap compared to the EU average, with women disproportionately affected by these issues.

Labour Market Dynamics in Lazio

Francesca provided an overview of the labour market in the Lazio region:

- Italy's job vacancy rate has been increasing, reaching 2.3% in 2023.
- Recruitment efforts in Lazio grew by 6.4% compared to previous years.
- However, 45% of planned hires faced challenges due to:
    - A mismatch in professional profiles (primary reason).

     o A skills mismatch (secondary reason).

Despite increased job opportunities, a significant struggle persists in finding suitable candidates, reflecting systemic issues in the labour market.

Role and Challenges of Employment Services

Francesca highlighted the role of public employment services (PES) in connecting job seekers and employers but noted significant limitations:

- Nationally, only 10% of hires use public channels, and in Lazio, just 6% of firms rely on PES.
- Public employment services are mandatory for job seekers accessing unemployment benefits or participating in labour policies but optional for firms, limiting employers' engagement.
- Firms often use private services and are not obligated to hire candidates proposed by public employment services, making them co-creators of employment policies without accountability.

This asymmetry between job seekers (highly regulated) and employers (largely voluntary) impacts the effectiveness of public employment services.

Restructuring and Data Challenges

Francesca explained recent changes in the active labour market policy framework:

- Employment policies in Italy are steered by the Ministry of Labour and Social Policies and regionally managed. Along with all other regional administrations, Lazio's system was restructured from five sub-regional systems to a unitary regional system, affecting the informative system and databases consistency.
- The Employability Guarantee for Workers (GOL) Programme, part of Italy's National Recovery and Resilience Plan, currently represents the main scheme for users of public employment services (PES).

Mapping Lazio's labour market revealed significant inequalities:

- Rome dominates, accounting for 74% of the region's population, around 70% of unemployment, and most public employment service users.
- Remote and mountain areas in north-eastern Lazio are underserved, reflecting geographical imbalances in service provision.

Francesca emphasized that while job centres align with areas of high demand, high unemployment rates in other regions indicate gaps in coverage and support.

Analysing Local Labour Markets

Francesca introduced Local Labour Systems (LLSs) as statistical boundaries for analysing employment dynamics:

- Lazio has 18 Local Labour Systems, with the one of Rome being the largest in Italy, encompassing 6% of national unemployment.
- The distribution of job seekers using public employment services generally overlaps with the location of job centres.
- However, unemployment rates are not highest in Rome, suggesting additional regional challenges outside the capital.

She noted that the Observatory's analysis focuses on users of public employment services, which represent only a portion of the overall job-seeking population.

Francesca reiterated the dependence of public employment services on firms' voluntary participation, as this limits the capacity to bridge mismatches effectively. While public employment services provide comprehensive support to job seekers—profiling, counselling, and training—results depend on employers' engagement and hiring decisions. Efforts to enhance employment services include:

- Analysing data at local and regional levels to identify underserved areas.
- Expanding access and improving service quality through initiatives like the GOL Programme.

Francesca continued by explaining the current active labour market policies (ALMP) framework, emphasizing its relevance for the Observatory's analysis. The scheme places significant emphasis on training and professional development, and participants are sorted into targeted groups based on their distance from the labour market.

User Groups and Services Provided
Participants are categorized into five groups after undergoing quantitative and qualitative profiling conducted at job centres upon accessing services:

1. "Ready to Work"

This group directly accesses active job search support without requiring additional services like training.

2. Groups Requiring Training and Orientation

Alongside orientation services, these individuals receive:
- short-term training for upskilling
- long-term for reskilling

3. Work and Inclusion Group

This category consists of participants with complex needs beyond unemployment (e.g., care responsibilities or health issues).

4. Collective Reallocation Group

Designed for individuals affected by collective layoffs; however, this group was not analysed because there were no participants during the period under review.

Data Sources: Labour Supply and Demand

Francesca outlined the data sources used for labour market analysis:

Internal Data on Labour Supply

- Sourced from the regional database, which records profiles of individuals registering for the GOL Programme.
- Key data includes:
    o Socio-demographic characteristics: age, gender, education level.
    o User profiling: categorization based on distance from the labour market.
    o Career aspirations: individuals specify up to three preferred job titles, aligning with ISTAT occupational classifications.

Labour Demand Data

- Derived from the Excelsior Survey, a national tool managed by the Italian Chambers of Commerce and supported by the Ministry of Labour and Social Policies via the National Agency for Active Labour Market Policies (ANPAL).
- The survey captures:
    o Occupation and sector-specific employment needs.
    o Preferred qualifications, experience, and skills of candidates.
    o Geographic and industry-specific labour market trends.
- However, Francesca noted limitations:
    o Labour demand estimates are only available at the provincial level, hindering finer regional analysis.

Matching Labour Supply and Demand

Francesca detailed the methodology used to align labour supply (users) with demand (employer needs):

- The Observatory analysed data from 2022–2023, comparing user preferences against firm vacancies based on job titles.
- A key metric, Employment Needs Coverage, was calculated as the ratio of users seeking specific roles to vacancies in those roles.

Key Findings

User Distribution and Profiles
- around 28% of unemployed individuals in Lazio used public employment services in 2022, rising to 35% in 2023.
- The largest group consisted of recipients of unemployment benefits.

- Gender analysis revealed that women consistently outnumbered men in all user categories, including the "working poor" group, highlighting gender inequality in both access to stable jobs and wages.

Labour Market Trends

- Some occupations demonstrated higher alignment between user preferences and vacancies (e.g., unskilled positions).
- For certain roles, like clerical workers, overqualification among users was evident.
- Territorial disparities persisted, with job seekers in Rome having better opportunities than those in remote areas. However, users showed low geographic mobility, with many preferring jobs within their immediate locality.

Challenges in Youth Employment

- Employment prospects for youth (under 29 years) were limited by:
  o A mismatch between qualifications and job demands, especially for highly specialized roles.
  o Lower demand for entry-level managerial roles.
- Youth unemployment rates were higher in smaller provinces compared to Rome.

Training Programs

Francesca highlighted the training programs offered at regional level align with national skill development goals:

- Tailored courses for upskilling and reskilling users.
- Ongoing efforts to assess the effectiveness of training programs by tracking participants' employment outcomes, job contracts, and accordance with provided training.

Challenges and Future Directions

Improving Data Accessibility

- Efforts are underway to access more granular data from the Excelsior Survey, enabling a better understanding of local employment needs.

Addressing Qualitative Gaps

- Many users face complex socio-economic challenges (e.g., health or caregiving responsibilities) that existing welfare tools do not fully address.
- Francesca emphasized the need for more qualitative data to guide job centre operators, who often rely on discretionary decision-making.

Expanding Geographical Analysis

- Future work aims to provide insights beyond provincial boundaries, incorporating territorial nuances at the local level.

Evaluating Policy Effectiveness

- The Observatory will continue to evaluate employment outcomes to ensure training programs meet employer demands and users' career goals.

Francesca concluded with a reflection on the need for cross-regional collaboration to share methodologies and insights, acknowledging differences in data availability and labour market structures. She stressed the importance of enhancing public employment services and providing operators with the tools to better support diverse user needs in a complex labour market.

OPEN DISCUSSION

Eugenia Atin (Big Data Working Group) thanks Francesca Parente for her comprehensive presentation, noting that it addressed a wide range of topics relevant to participants' daily professional activities. She invited attendees to share their reflections, particularly in light of the final slide, which she described as thought-provoking. Eugenia encouraged comments comparing participants' regional experiences to those of Francesca's region, as well as questions or deeper discussions regarding the analyses presented by Francesca and her team.

Christa Larsen (IWAK Goethe University Frankfurt am Main, Germany) congratulated Francesca for the informative presentation, emphasizing the value of the insights into the regional framework conditions, which provided critical context for participants less familiar with the region. She highlighted the opportunities arising from structural changes and expressed admiration for the Excelsior survey, a resource many regions would find invaluable. Christa pointed out that in her region, data on job openings is often limited, unreliable, and sourced only annually, contrasting sharply with Italy's monthly survey. She sought advice on how Italy had implemented such a robust system, acknowledging its potential cost and complexity. Additionally, Christa inquired about Francesca's work on integrating structural data with qualitative information. She asked whether there were existing concepts or discussions around combining these data types, underscoring the importance of understanding qualitative factors such as motivation and behaviour.

Francesca addressed Christa's questions, starting with the integration of qualitative data. She explained how her team had worked directly with employment centres, conducting questionnaires and semi-structured interviews to gather information. However, a significant challenge was convincing colleagues of the relevance of qualitative data, as they often viewed research work as unrelated to their immediate tasks. Despite these challenges, Francesca and her team emphasized collaboration and demonstrated the utility of their analyses, gradually fostering acceptance and understanding. Francesca also detailed the systematic collection of data through structured profiling questionnaires implemented at the national level. These forms, mandatory for users applying for unemployment benefits or seeking employment support, ensured a high response rate. However, challenges remained in standardizing the collection of qualitative insights, particularly from employees of public

employment services (PES). Francesca described efforts to streamline data collection using digital tools and to build trust and cooperation with PES staff by working alongside them and highlighting the practical applications of the data.

Regarding the Excelsior survey, Francesca explained its origins within the Chambers of Commerce and its later adoption as an official statistical tool through collaboration with Italy's Ministry of Labour and Social Policies and the National Agency for Active Labour Market Policies (ANPAL). She emphasized its value in providing granular, monthly data on labour demand and foresight into employment trends. This data was used to guide regional planning and decision-making, such as setting internal targets and orienting users of public employment services.

Christa Larsen followed up with a question about motivating PES employees to share qualitative insights. She sought to understand how Francesca's team encouraged staff to provide information gained through their interactions with unemployed individuals.

Francesca explained that a mix of mandatory procedures and supportive measures ensured data collection. Users of PES were required to complete questionnaires during registration, while PES staff used simplified digital tools to record additional data. Early resistance from staff was addressed through direct engagement, including working alongside them and demonstrating the value of the data. Over time, this approach fostered greater collaboration and improved the quality of data collection.

Francesca explained that Excelsior's success stemmed from its strong foundation in the Chambers of Commerce and the collaborative framework established at the national level. She underscored its importance as an official statistical source, providing accessible and detailed data that supported both immediate and long-term labour market strategies.

Eugenia Atin noted the envy many regions felt toward the survey's robust data collection and analysis and posed a forward-looking question about emphasizing skills over job titles. She inquired whether it would be feasible to incorporate more skill-based questions into surveys like the Excelsior survey, and whether changes to such surveys were possible.

Francesca responded, explaining that modifying the Excelsior survey based on regional inputs may not be currently possible due to its established structure. However, she elaborated on the existing tools that allowed for detailed data analysis, such as filtering data by experience level, digital skills, and language abilities. She described the project's focus on profiling user skills, including evaluating digital and linguistic competencies and identifying specific training needs. Francesca emphasized the importance of tailoring training offers to users' professional aspirations, citing examples of users seeking business or technical qualifications.

Aleksandra Webb (University of the West of Scotland, UK) then contributed by underscoring the value of qualitative data, noting its richness but also its challenges in terms of usability. She highlighted the need to build capacity among data analysts and advisors to better interpret and apply qualitative insights. Francesca agreed, acknowledging the cultural resistance to qualitative data within organizations and the perception of its analysis as time-consuming. She noted a lack of training opportunities in this area compared to other fields, such as financial management.

Eugenia Atin (Big Data Working Group) then introduced the possibility of using artificial intelligence to streamline qualitative data processing, addressing concerns about costs and resource management. Francesca acknowledged the potential of AI but emphasized the complexities involved, such as GDPR compliance and the risk of losing critical user insights if sensitive data were excluded. She stressed that AI tools must be sensitively designed to address users' needs without discrimination and admitted that such advancements were unlikely to be implemented in the near future due to political and financial constraints.

The session concluded with Eugenia Atin thanking Francesca Parente for her engaging presentation and encouraging everyone to look forward to the next seminar, wishing participants a happy new year.

Bilbao, December 2024

References
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