Big Data for Labour Market Intelligence

Capacity development programme 2024:
AI and the impact on Labour Market and Education

Session 4
Using social profiles for analytics

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Using social profiles for analytics

- LinkedIn
- GitHub
- Facebook / Twitter
- Recruitment Processing

- Why social profiles?
- Why ... not social profiles? Info privacy...
- Insights from social profiles
- Limitations and biases
- Potential for analysis
- Synthesising with other sources
Why social profiles?

- Online postings provide great insights into the demand for talent, but not its supply – especially rich data on the skill content of demand.

- Traditional labour market information, from surveys or administrative data, can offer quantitative robustness but lack richness.

- Social profiles offer the promise of similar richness on skill content, but about the supply of talent, rather than the demand.
Social profiles and information privacy

- Social profiles are *people*, and people have rights – GDPR in Europe, but similar elsewhere
- Social profiles need to be *sourced* properly – public sources, opt-in sources only
- Social profiles need to be *managed* properly – the right to be forgotten
Social profiles and information privacy

- Social profiles need to be *used* properly – only for analysis, not for individual sales and recruitment
- Social profiles need to be *analysed* properly – data shared only with tight controls to avoid disclosure of individual data
Gaining insights from social profiles

- Job titles and occupations
- Company
- Education institutions
- Locations
- Past job titles and occupations, past companies
- Descriptions allow for skills
262m social profiles around the world
Limitations and biases: occupation bias

- Social profiles are highly skewed to managerial and professional roles

- Even more than online postings: in UK data here
  - 70% of profiles are in managerial and professional categories
  - 61% online postings
  - 45% of jobs in traditional LMI

Source: Lightcast data - Job Posting Analytics, Profile Analytics and Core LMI
Limitations and biases: geographic bias

- Social profiles are highly skewed to major urban centres

- Even more than online postings: in UK data here
  - Top 20 NUTS3 regions account for 42% of profiles
  - 41% of online postings
  - 29% of traditional LMI jobs data
**Limitations and biases: other issues**

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<th>Careers aren’t jobs</th>
<th>Timeliness</th>
<th>Sharing and privacy</th>
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<td>Every profile represents a person’s career history, and people often have multiple jobs – and stories are rarely ‘clean’ with regard to the current role.</td>
<td>People update their profiles occasionally and often driven by e.g. jobsearch reasons. At any one time, profiles data is a set of old and new information.</td>
<td>Cultural and legal differences mean variable levels of sharing across countries.</td>
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Social profiles allow straightforward quantification of rich questions.

Here we ask the % of social profiles mentioning AI skills for all profiles and only those in a current IT occupation.
Applications of social profiles data: identifying composition
Applications of social profiles analysis: comparisons with postings

- Here we look at the top 20 skills sought in job postings for Data Scientists with AI skills.
- Then, we take the share of profiles for Data Scientists with AI skills to explore how well served each skill is.

Source: Lightcast Job Posting Analytics and Profile Analytics
Applications of social profiles analysis: longitudinal analysis

- Where profiles have histories, it allows us to see the paths made through the labour market
- Here we look at US Amazon computer workers – where they come from and where they go to
Applications of social profiles analysis: modelling supply

- Profiles aren’t that reliable, but they give greater granularity than traditional LMI.
- They can be used with LMI to produce rich estimates of labour market size – as we do here.
Key functions for social profile analysis

- **Rich composition** – understanding the mix of talent supply in terms of detailed roles, companies, locations, education background etc

- **Skill content** – job postings allow us to understand the skill content of talent demand, valuable to understand talent supply

- **Trajectories** – longitudinal labour market analysis, looking at how careers develop
Trade-offs in social profile analysis

Pros

● Unrivalled richness for supply data, including the skills layer
● Potential high sample longitudinal analysis

Cons

● Information privacy – no excuses on safeguards
● Biases and variable timeliness/publicness

Key message

Social profiles offer deep insights in specific labour markets, but need to be understood in context