Monitoring staffing bottlenecks in Austria

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Seminars of the Big Data WG

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Context

Previous approach

$$\text{Rush for jobs} = \frac{\text{Number of unemployed}}{\text{Number of PES vacancies}}$$

Für das Jahr 2024 gelten folgende Berufe als bundesweite Mangelberufe:

1. DiplomingenieurInnen für Starkstromtechnik ▼
2. TechnikerInnen mit höherer Ausbildung (Ing.) für Starkstromtechnik ▼
3. TechnikerInnen für Starkstromtechnik ▼
4. LandmaschinenbauerInnen ▼
5. TechnikerInnen mit höherer Ausbildung (Ing.) für Maschinenbau ▼
6. TechnikerInnen mit höherer Ausbildung (Ing.) für Datenverarbeitung ▼
7. DachdeckerInnen ▼

List of national and federal bottleneck occupations *(Mangelberufsliste der Fachkräfteverordnung)*, published by

- Ministry of Labour and the Economy
- Ministry of the Interior
- Ministry of European and International Affairs

https://www.migration.gv.at/de/formen-der-zuwanderung/dauerhafte-zuwanderung/regionale-mangelberufe/

= Basis for labour migration of non-EU citizens

Shortcomings of *Mangelberufsliste*

Skills demand is characterised by vacancies registered at Austrian PES only, and thus

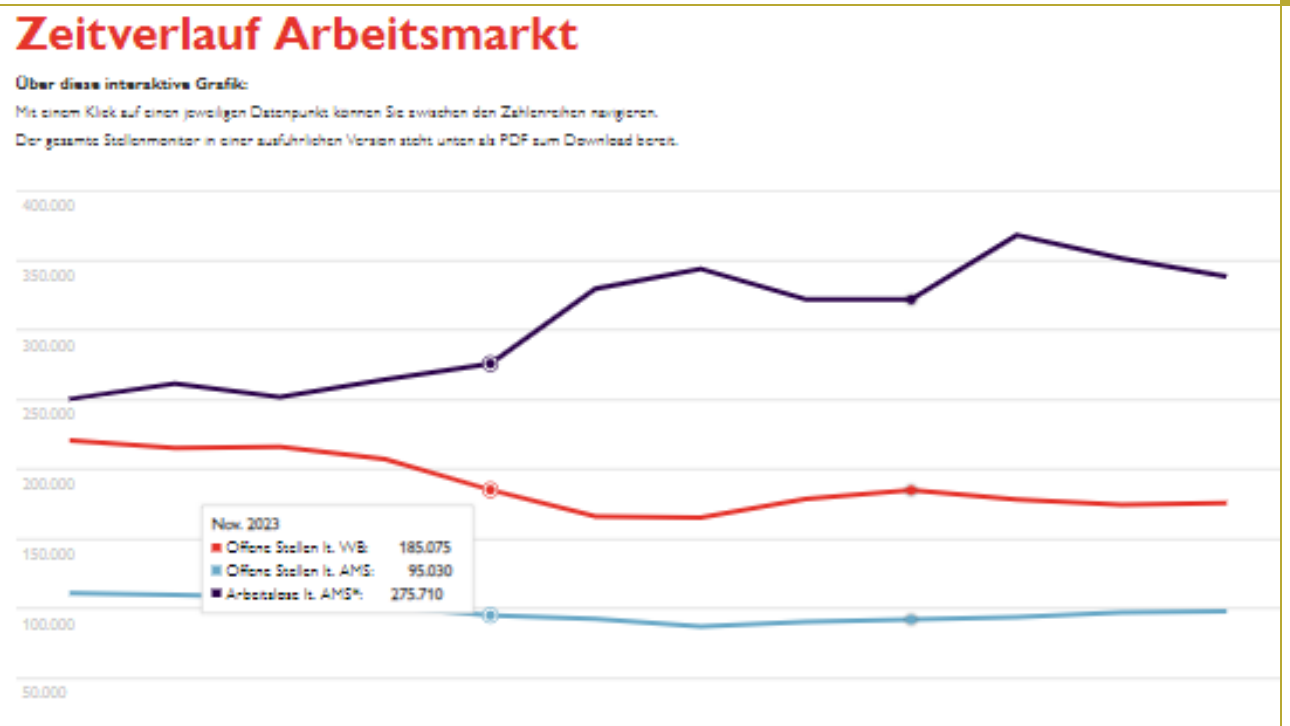
- Incomplete
- Biased with respect to certain skill levels and specialisations, to some extent also biased with respect to federal states

Updated once a year only

...and not based on the most recent data

Supplemented approach

Number of OJAs



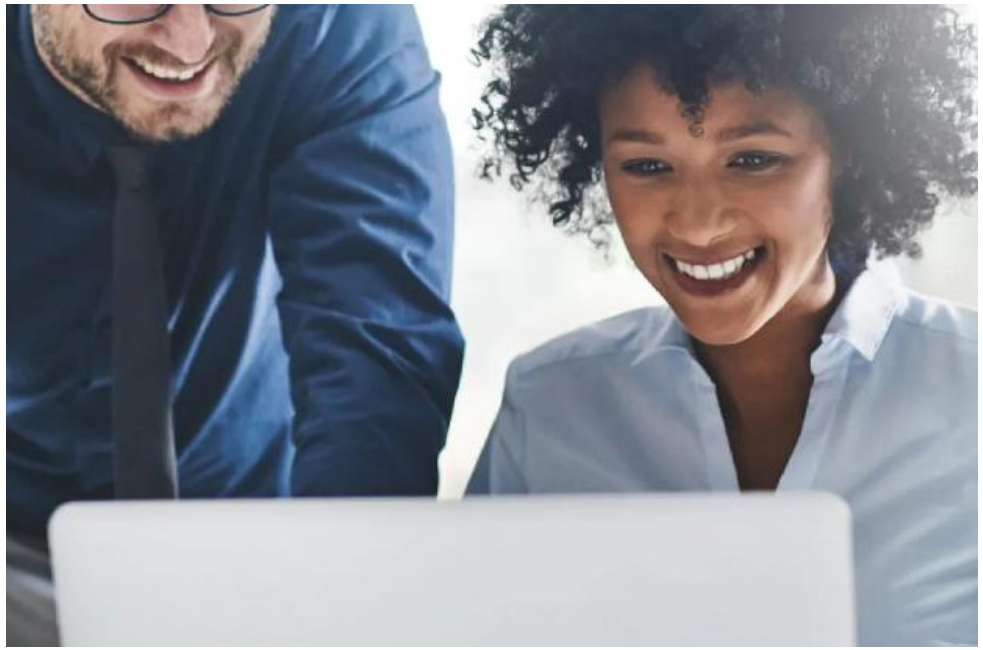
Vacancy monitor of the Austrian Trade Association (Wirtschaftsbund-Stellenmonitor)

https://www.wirtschaftsbund.at/stellenmonitor/

Goal: draw a more realistic and timely picture of labour shortages

OJAs as data source?

Jobfeed as source for OJAs



https://www.textkernel.com/jobfeed

- OJA platform
- Exists since 2003 for the NL; was by and by implemented for another 14 national OJA markets; for AT available since 03/2015
- Austrian PES as key customer, therfore additional query options using PES-specific taxonomies and regional clustering
- Coverage of AT OJA market estimated to be around 95-97%
- Continuous improvement of market coverage and data quality

Jobfeed

Advantages

- No primary collection of OJA data necessary
- (Almost) complete coverage of national OJA market
- Timeliness
- Level of detail: jobtitles, job requirements, offered salaries, employers, place of work etc.
- Flexible query options: free text, systematic, any desired timeframe etc.
- Accessible via online portal, API, or data feed
- High transparency

Challenges

- Count only unique OJAs
- Count only active OJAs
- Assess reliablity of automatically collected, extracted and normalised data
- Extrapolate from the number of OJAs to the number of contained vacancies
- Assess representativeness of collected OJA data
- Produce reliable time series

Feasibility study

Research questions

How trustworthy is demand information derived from Jobfeed? How can OJA analysis be used for monitoring labour shortages?

1. How to assure that only unique active OJAs are counted?
2. How comprehensive and accurate is the normalisation of the regional information and the occupational reference contained in OJAs?
3. How to infer the number of vacancies from the number of OJAs?
4. How to produce robust time series?

Methods

Data comparisons as plausibility checks:

- Results from a *Jobfeed* based pilot study (Stock 2019-2021; Flow 2019-2023/Q1) plus additional analyses of individual months and quarters, using different data cleaning and calculation methods
- Results of Statistic Austria's company survey, PES' vacancy statistics, Cedefop's *Skills OVATE* results for AT, OJA data compiled by *WB-Stellenmonitor*

Sampling inspection of Jobfeed's normalisations (regionalisation, ISCO unit groups)

Literature review, e.g. methodological discussions at EU level, best practice examples (e.g. Swiss *Vacancy Monitor* and Dutch *Tension indicator)*

Expert interviews

Summary of Findings

1. **How to assure that only unique active OJAs are counted?** OJAs posted over extended periods (or erroneously still registered as ‚active') and re-postings potentially blow up quantities in Jobs Data.
2. **How comprehensively and accurately are regional information and occupational reference contained in OJAs normalized?** The normalization onto federal states is sufficiently reliable; the normalization onto ISCO unit groups less so: in particular, a clear distinction between ISCO unit groups differentiated by skill level alone, is barely possible.
3. **How to infer the number of vacancies from the number of OJAs?** Without larger investments this will not be possible.
4. **How to produce robust time series?** Without larger investments this will not be possible.

Outcome

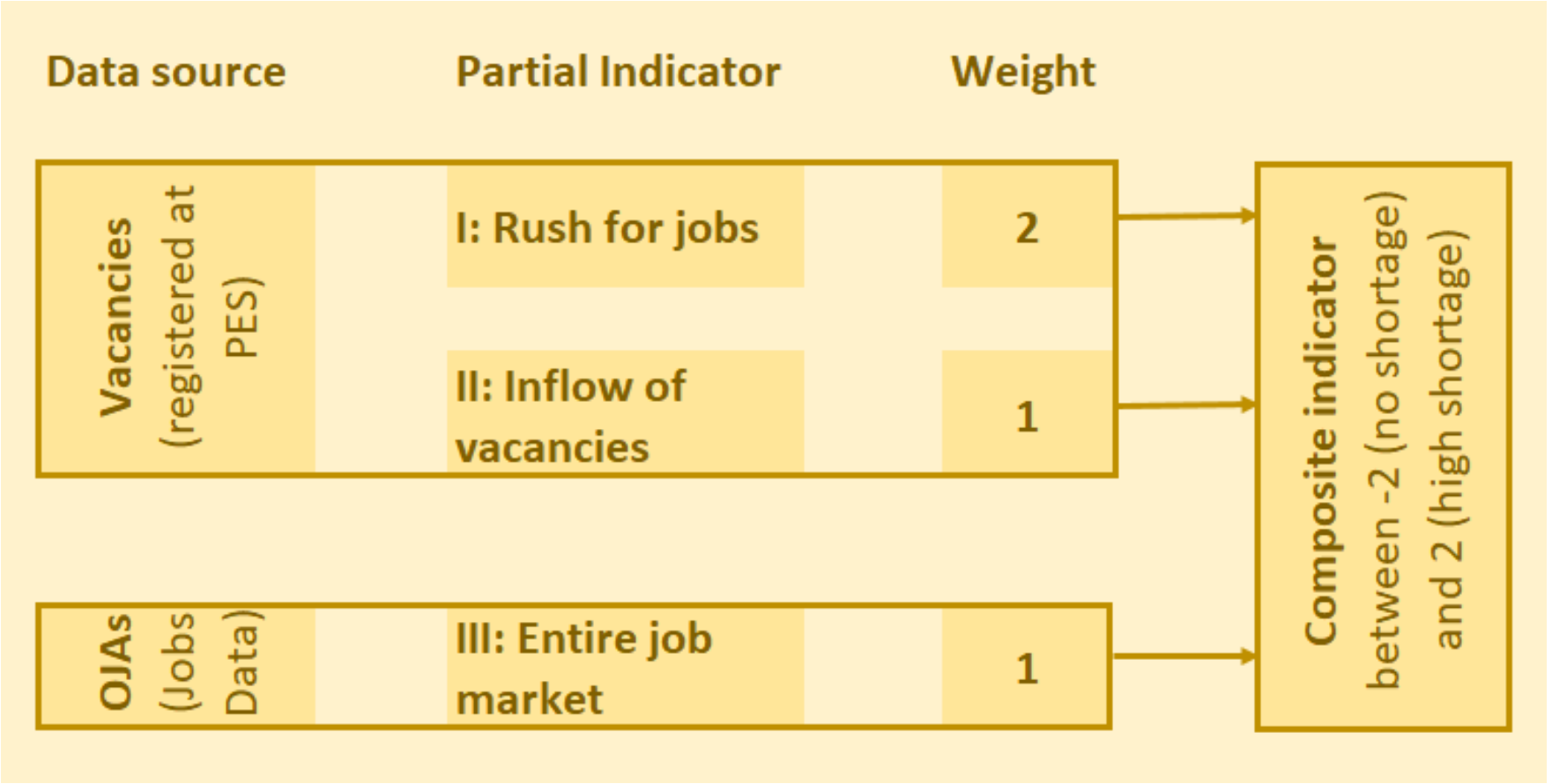
Recommendations

- Prefer **evaluation of short periods** (much shorter than 6 weeks), otherwise re-postings blow up quantities.
- Prefer **flow analysis**, because stock analysis risks misinterpreting potentially outdated (= old but still online) OJAs as still active.
- **Be careful with statements at the detailed level of ISCO unit groups.**
- **Focus on changes in demand** rather than attempt relating OJAs to registered unemployed.
- **Check the quality of *Jobfeed's* sources** to remove job portals which contain barely any original OJAs or which renew their timestamps on a daily basis.
- Use results of OJA analysis as **supplementary** demand information only.

BMAW AMS *Fachkräftebarometer*

- June 2023: Publication of a new **composite indicator for bottleneck occupations** – see: https://www.bmaw.gv.at/Themen/Arbeitsmarkt/Arbeitsmarktdaten/Fachkraeftebarometer.html
- **Quarterly updated** information pointing at labour shortages at the level of **4-digit AMS occupations, 9 federal states**, and **Austria as a whole.**
- **3 partial indicators** showing short-term /seasonal as well as structural and cyclical developments.

BMAW AMS *Fachkräftebarometer*



Current top-5 bottleneck occ. in AT

Old: List of bottleneck occupations

New: Barometer of shortage occupations

Bottleneck occupations for 2025

1. TechnikerInnen für Starkstromtechnik
2. LandmaschinenbauerInnen
3. TechnikerInnen mit höherer Ausbildung (Ing.) für Starkstromtechnik
4. TriebfahrzeugführerInnen
5. DiplomingenieurInnen für Starkstromtechnik

https://www.migration.gv.at/de/formen-der-zuwanderung/dauerhafte-zuwanderung/bundesweite-mangelberufe/

Top 5 Bottleneck occupations in 2024/Q4

Gesamtösterreich	Bestand AMS OS*	Fachkräfte-engpass	T1	T2	T3	Veränderung Vergleichs-quartal Vorjahr
Dipl. Krankenpfleger, -schwestern	2.166	2	2	2	2	↔
Nicht diplomierte Krankenpfle-ger/innen und verwandte Berufe	1.870	2	1	2	1	↑
Kraftfahrzeugmechaniker/innen	1.360	2	2	2	0	↔
Fürsorger/innen, Sozialarbeiter/innen	1.288	1	0	2	0	↔
Rohrinstallateur(e)innen, -monteur(e)innen	1.108	1	2	-2	0	↔

https://www.bmaw.gv.at/Themen/Arbeitsmarkt/Arbeitsmarktdaten/Fachkraeftebarometer.html

Thanks for your attention!

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