Mismatch unemployment in Austria: The role of regional labour markets for skills

WIFO Research Seminar

René Böheim (JKU Linz and WIFO) and Michael Christl (JRC Seville),
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Overview

- Motivation
- Theoretical Background
- Data
- Results
- Robustness
- Conclusion and Outlook

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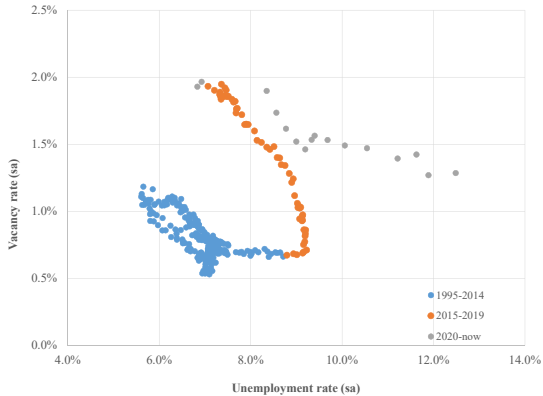
Motivation I

Figure: Beveridge Curve, Austria, 1995–now.



Source: Own calculation based on data from AMS.

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Motivation II

- Increasing unemployment rate and a substantial increase in the vacancy rate after 2014 $\Rightarrow$ outward shift of the Beveridge curve

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- Discussion: What caused this outward-shift?
  - Labour supply shock caused by the opening of the labour market to several Eastern European countries. (see Schiman (2021))
  - Mismatch: Increase in labour market mismatch (see Christl et al. (2016) or Christl (2020))

- **Research question:** What caused the shift, and which labour markets are responsible for the shift?

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Theoretical Background I

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$$M_t = A_t U_t^{\alpha} V_t^{(1-\alpha)}, \tag{1}$$

$0 < \alpha < 1 \Rightarrow$ constant returns to scale (Petrongolo and Pissarides, 2001)

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- The steady state unemployment is given by:

$$u_t^{ss} = \frac{s_t}{s_t + f_t}, \tag{2}$$

where the separation rate is $s_t = \lambda_t^{EU} + (\lambda_t^{EI} * \lambda_t^{IU})/(1 - \lambda_t^{II})$ and the job finding rate is $f_t = \lambda_t^{UE} + (\lambda_t^{UI} * \lambda_t^{IE})/(1 - \lambda_t^{II})$.

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Theoretical Background II

- We define mismatch unemployment as the difference between the steady state unemployment rate, u_t^{ss}, and the counterfactual unemployment rate, u_t^*, that would have been the outcome of stable matching function:

$$u_t^{mm} = u_t^{ss} - u_t^* = \frac{s_t}{s_t + f_t} - \frac{s_t}{s_t + f_t^*}. \tag{3}$$

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- Following Veracierto (2011) we calibrate our model separately by region and skill level.

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  - manual routine tasks,
  - manual non-routine tasks,
  - analytical non-routine tasks,
  - interactive non-routine tasks, and
  - cognitive routine tasks.

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Data II

Labour market transitions

- Quarterly data from 2004:Q1 until 2016:Q4 for five skill categories, and the nine federal states from Statistik Austria (2020): Austrian Labour Force Survey (LFS, ‘Arbeitskräfteerhebung’)

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- Rotating panel structure.
- Allows us to follow workers for five consecutive quarters $\Rightarrow$ estimate transition rates by skill category and by region.

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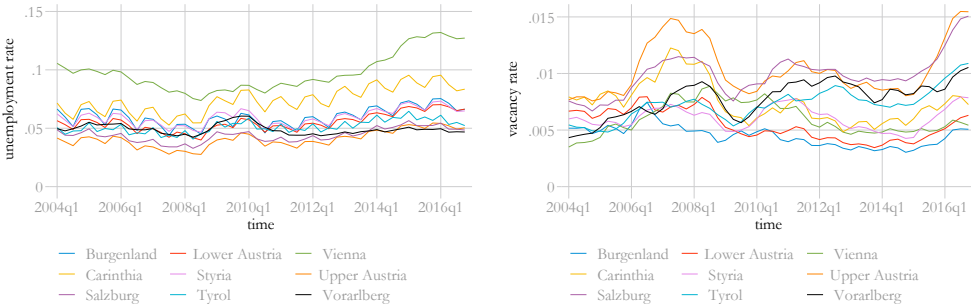
Data III

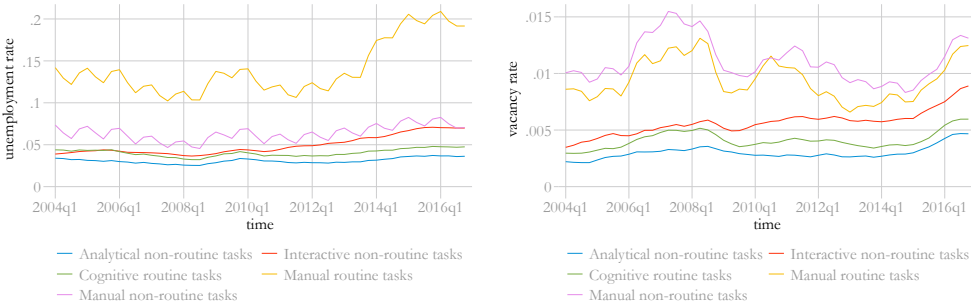
Figure: Unemployment rates and vacancy rates, by region.



Source: Vacancies and unemployment obtained from AMS Österreich (2020); data on employment obtained from Statistik Austria (2020).

Data IV

Figure: Unemployment rates and vacancy rates, by skill category.



Source: Vacancies and unemployment obtained from AMS Österreich (2020); data on employment obtained from Statistik Austria (2020).

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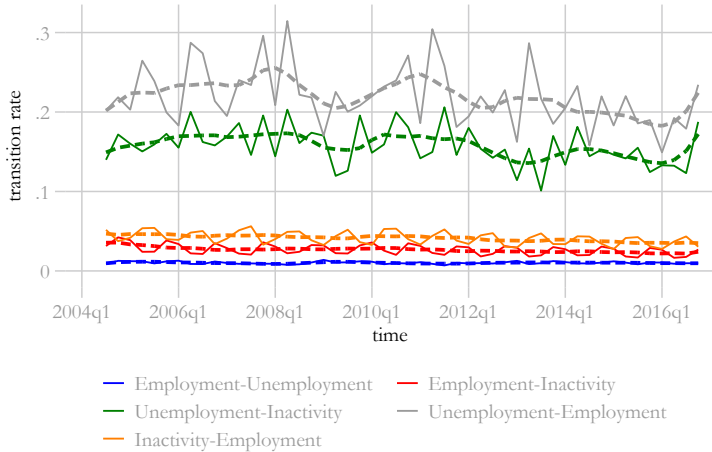
Data V

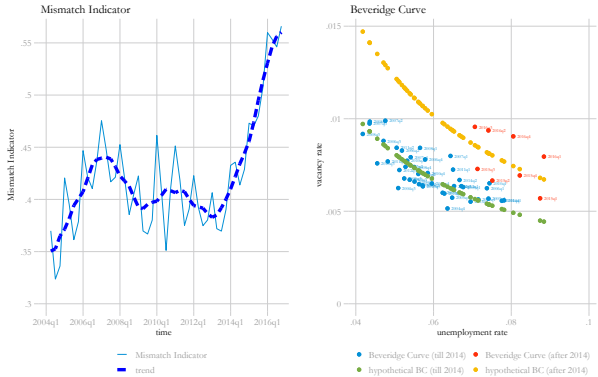
Figure: Transition rates, aggregated data for Austria, 2004–2016.



Source: Own calculations, based on quarterly data from 2004 to 2016 from (Statistik Austria, 2020).

Results I

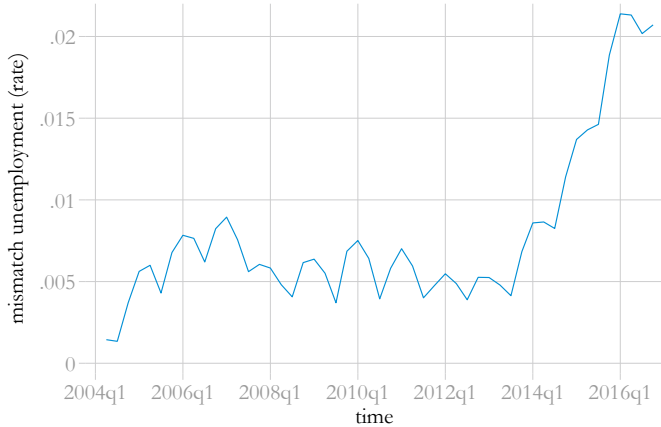
Figure: Mismatch Indicator and Beveridge Curves, Austria, 2004–2016.



Source: Own calculation based on data from Statistik Austria (2020) and AMS Österreich (2020).

Results II

Figure: Mismatch unemployment, Austria, 2004–2016.



Source: Own calculation based on data from Statistik Austria (2020) and AMS Österreich (2020).

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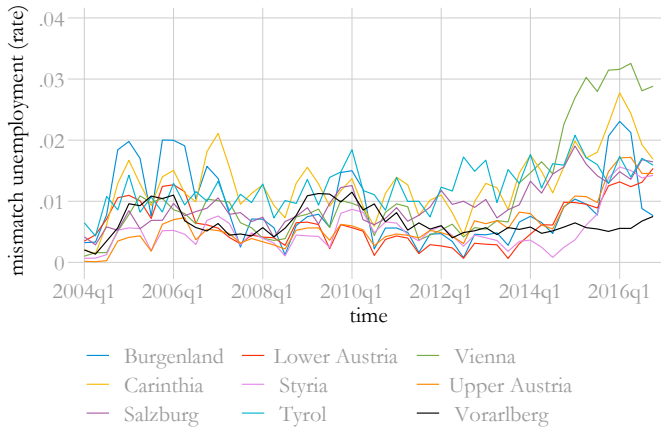
Results III

Figure: Mismatch unemployment, by region.



Source: Own calculation based on data from Statistik Austria (2020) and AMS Österreich (2020).

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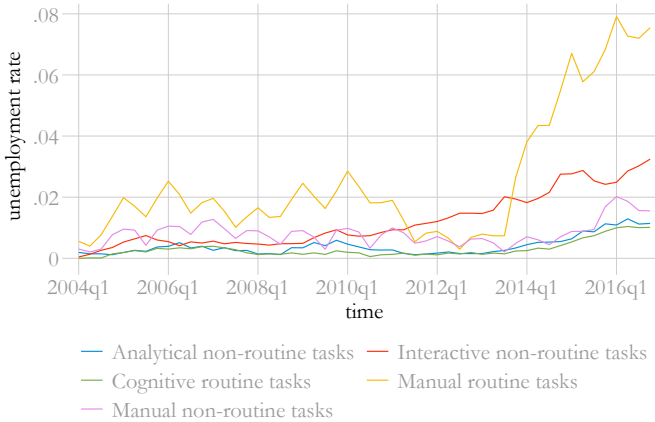
Results IV

Figure: Mismatch unemployment, by skill level.



Source: Own calculation based on data from Statistik Austria (2020) and AMS Österreich (2020).

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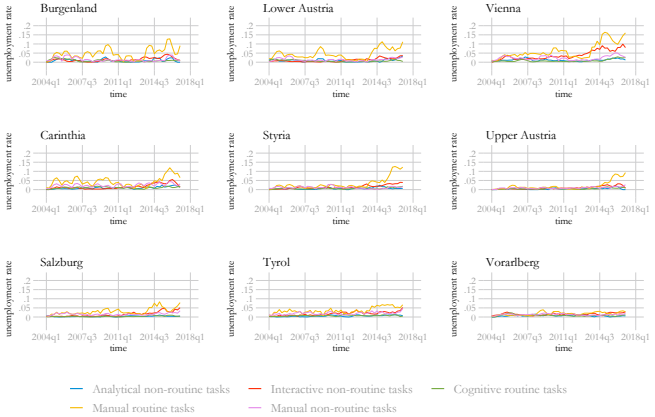
Results V

Figure: Mismatch unemployment, by region and skill level.



Source: Own calculation based on data from Statistik Austria (2020) and AMS Österreich (2020).

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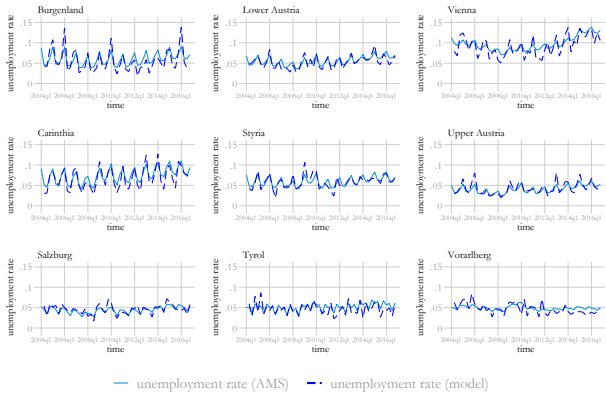
Robustness I

Figure: Model prediction of the unemployment rate, by regions



Source: Own calculations, based on data from AMS Österreich (2020) and Statistik Austria (2020).

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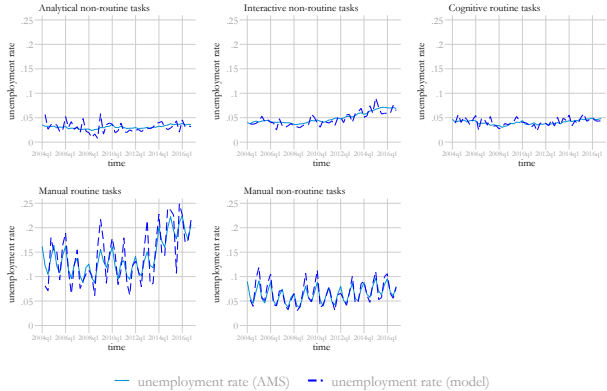
Robustness II

Figure: Model prediction of the unemployment rate, by skill level



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Conclusions I

- We analyze the Austrian Beveridge curve shift after 2014, using **detailed vacancy data** and **labour market transition data**, on both skill and regional level.

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- Substantial **increase in mismatch unemployment** after 2014
  - **Austria**: 0.5% $\Rightarrow$ 2%.
  - **Regions**: Increase is especially strong in **Vienna**: 0.5% $\Rightarrow$ 3%.
  - **Skills**: Strong increase in mismatch unemployment for **manual routine tasks**. 1.5% $\Rightarrow$ 8%.

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Conclusions II

- Our analysis suggests that a decrease in matching efficiency after 2014 led to a shift in the Beveridge curve.

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- Demand problems in the labour market are often transitory. The same holds true for shifts due to labour supply shocks, which are usually not persistent.

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- Our analysis suggests that a decrease in matching efficiency after 2014 led to a shift in the Beveridge curve.
- Demand problems in the labour market are often transitory. The same holds true for shifts due to labour supply shocks, which are usually not persistent.
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- Demand problems in the labour market are often transitory. The same holds true for shifts due to labour supply shocks, which are usually not persistent.
- A decrease in matching efficiency is typically persistent. As such, a decrease in matching efficiency requires different policy responses than cyclical problems.
- Regional and skill disaggregation especially important from a policy point of view, since **policies to tackle the mismatch problems** on the labour market can be **targeted especially on the identified labour markets**.

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Thank you

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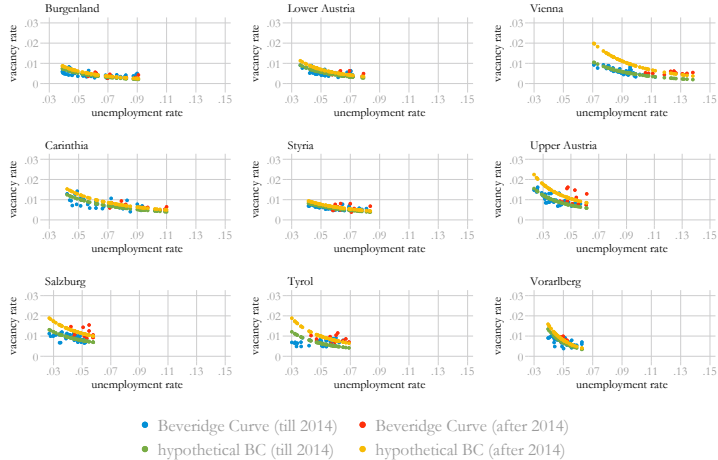
Additional Figures I

Figure: Beveridge curve, by region, 2004–2016.



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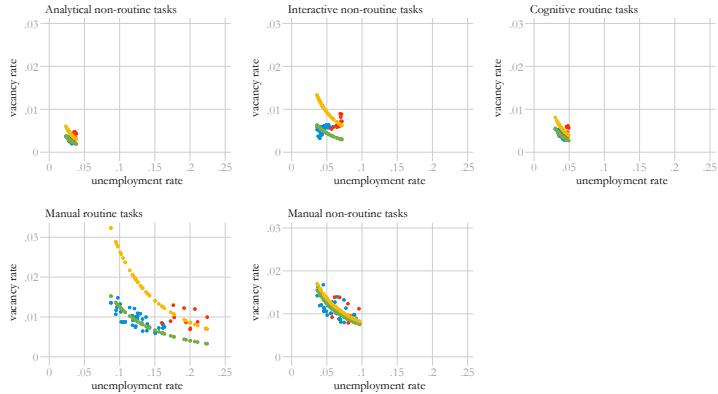
Additional Figures II

Figure: Beveridge curves, by skill level, 2004–2016.



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