



Labour Market Tightness & the Friction Period in Ireland & Europe: Estimating Illness-Related Productivity Costs after COVID-19

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Covid recovery phase from mid-2021

Tighter labour market conditions

Characterised by a rapid increase in job vacancy rates combined with declining unemployment rates across the EU (Eurostat, 2024; Kiss et al., 2022) –

Post Covid recovery and Labour Markets



The Vacancy Duration and the Friction Period

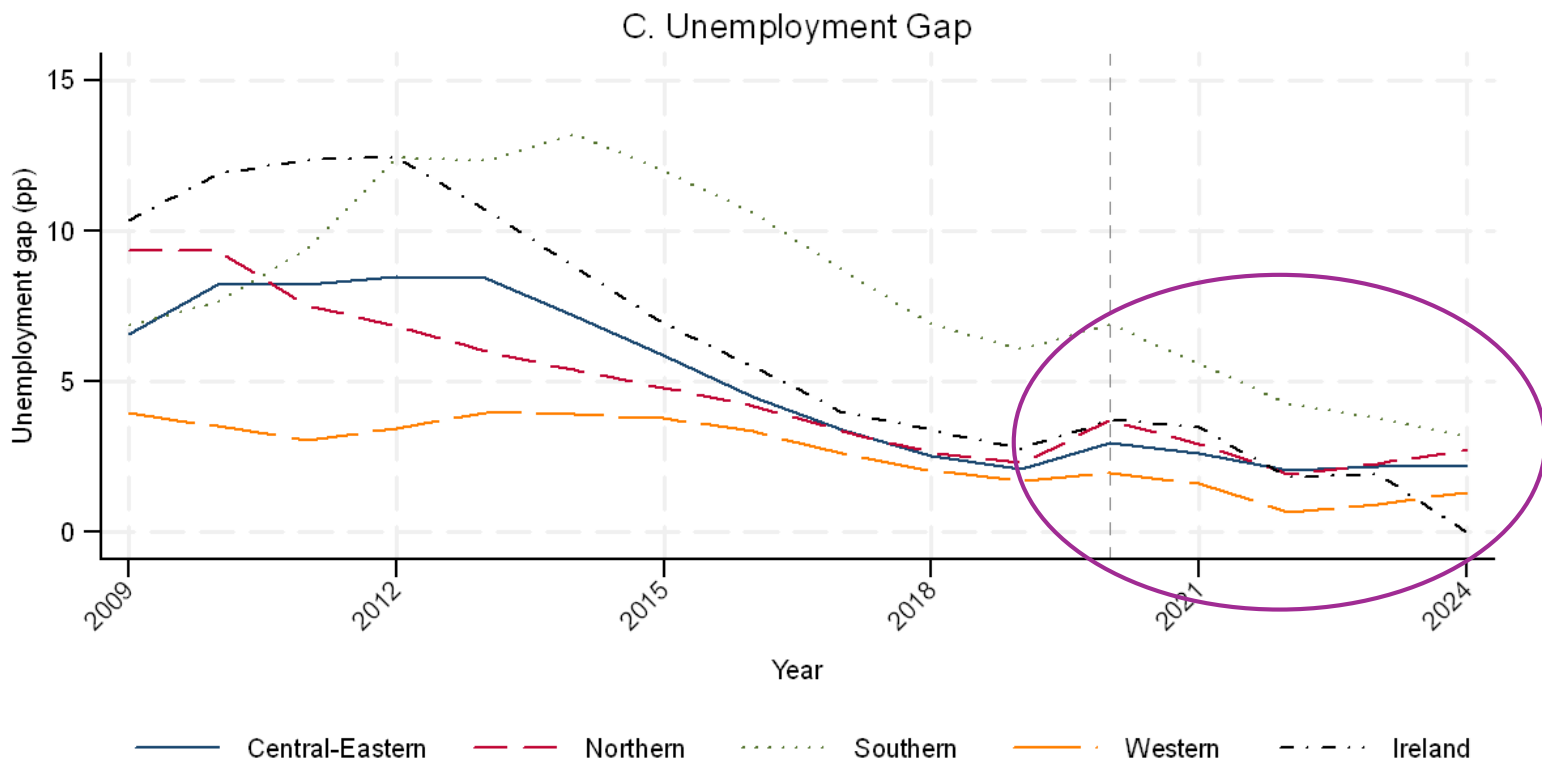
- *The friction period is the time from the onset of worker absence due to illness until a replacement has been recruited, trained and the firm's original production level restored (Kigozi et al. 2017).*
- The friction period is dependent on underlying labour market dynamics such as unemployment rates, vacancy rates and the efficiency of matching job seekers to jobs in the economy
- These labour market parameters evolve over time in response to macroeconomic shocks, structural change and institutional factors.
- Evidence suggests that these dynamics are closely linked to changes in labour market matching efficiency (Pissarides, 2000; Yashiv, 2007; Elsby et al., 2015).
- Macroeconomic shocks such as recessions and structural shifts alter vacancy durations, matching efficiency and the characteristics of the unemployed pool impacting friction periods

This study examines the extent to which the COVID-19 pandemic systematically altered friction periods across Europe.

Study Aim

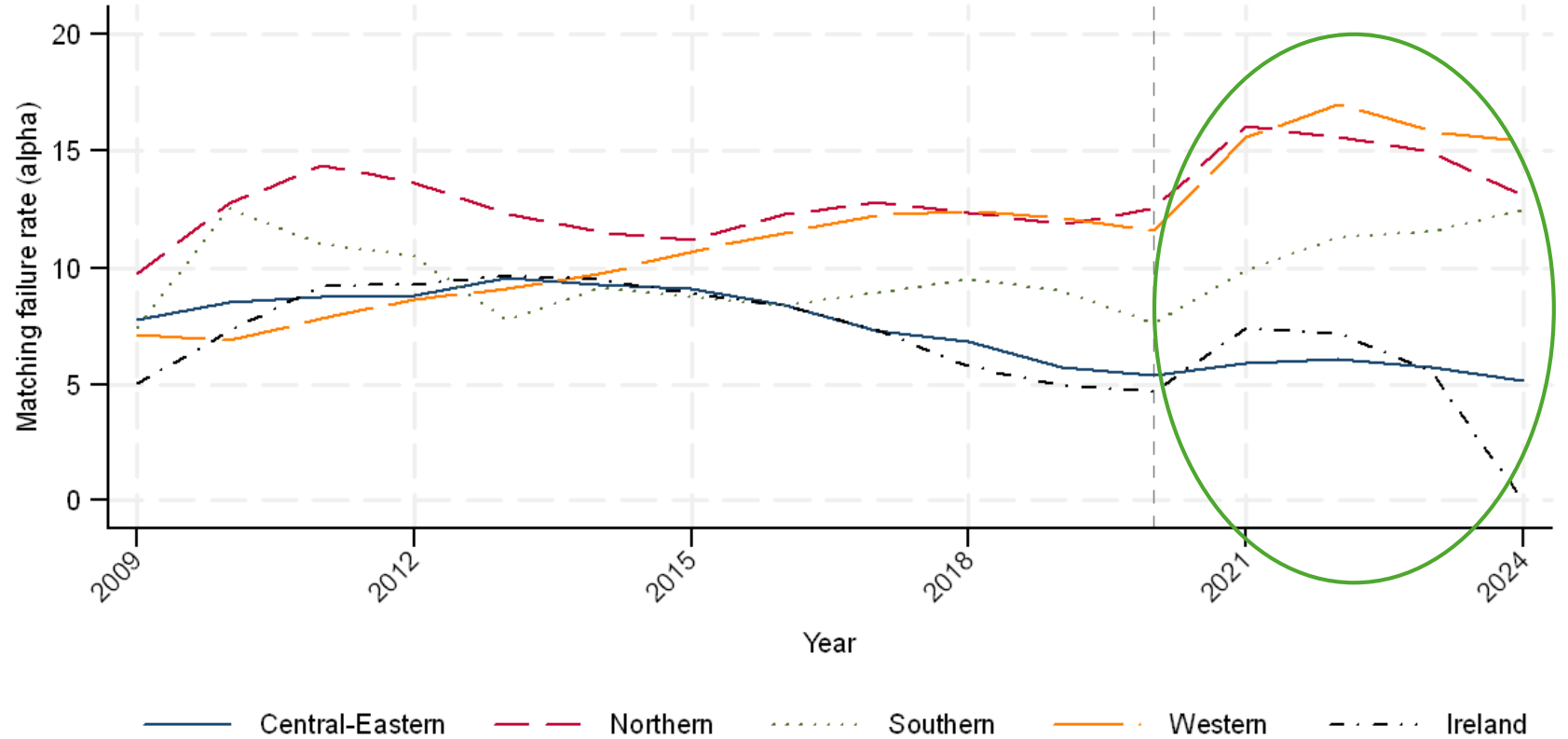


- The model most commonly used to describe labour markets is the **Diamond-Mortensen-Pissarides (DMP) model** which links labour turnover, tightness and wages (Pissarides, 2000; Mortensen and Pissarides, 1994).
- Theory predicts an inverse relationship between labour market tightness and friction period length. When unemployment is low, vacancy duration is high. And vice versa.
- **Labour dynamics**
- **Mismatches** can occur between an equal number of unemployed persons and unfilled vacancies even under conditions of full employment (**Structural unemployment**)
- An **Unemployment Gap** occurs where unemployment is larger than the mismatch unemployment level. This arises from insufficient labour demand compared to labour supply (Leythienne 2024) (**Cyclical unemployment**)
- A rising mismatch unemployment rate and a narrowing unemployment gap indicates increased structural friction in matching which is associated with a lengthening of the friction period.



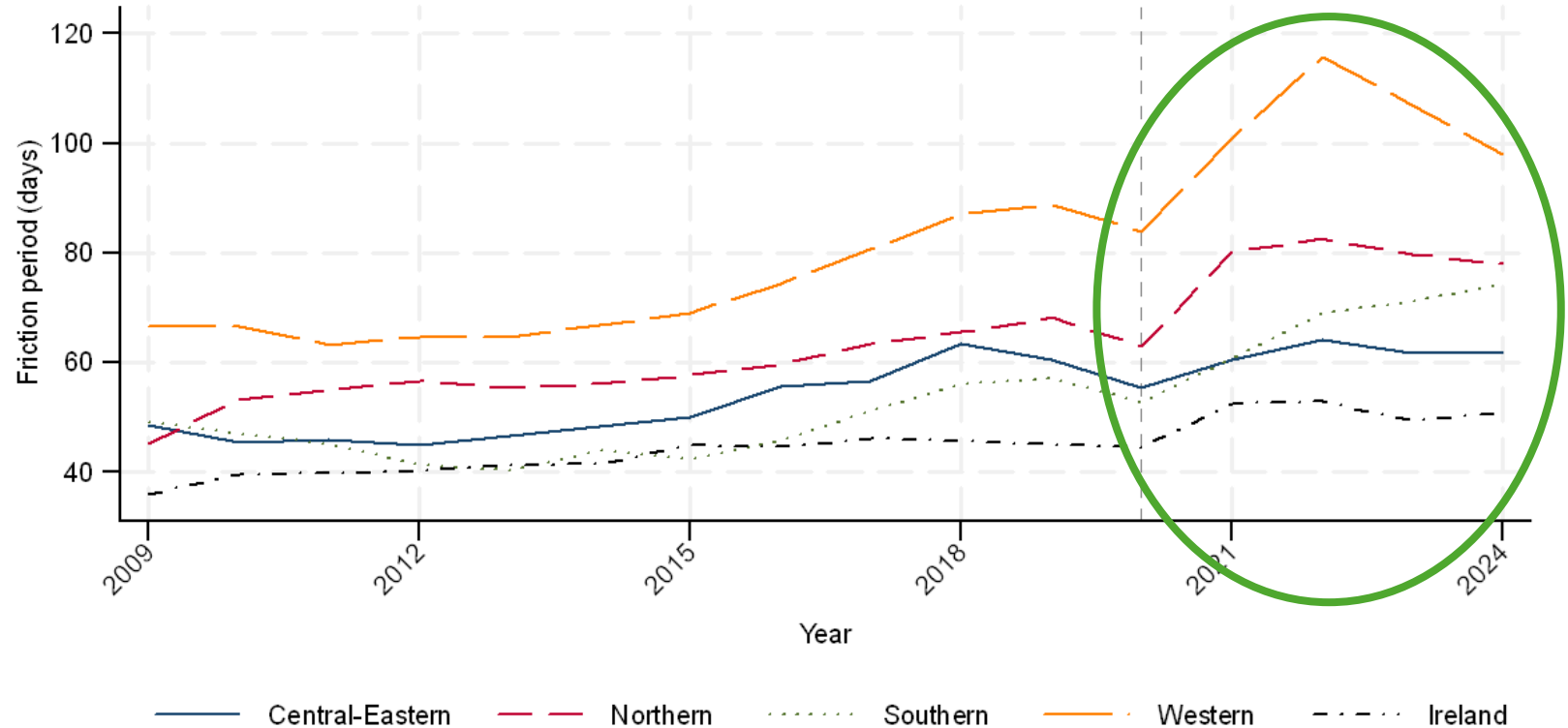
Regional means shown. Ireland overlaid as individual country comparator.
Dashed vertical line = COVID onset 2020.

B. Matching Failure Rate



European Labour Market Indicators 2009-2024

A. Friction Period



Vacancy Duration pre and post covid in days

Region	Pre covid friction period	Post covid friction period	Friction period change
Central-Eastern	52	61	+18 (35%)
Northern	58	76	+18 (31%)
Southern	48	66	+38 (80%)
Western	73	101	+39 (54%)
Ireland	42	51	+9 (21%)

- **Study Period and Sample**

- 27 European countries, 2009–2024
- Annual panel data (~430 country-year observations)
- Iceland, Denmark, Italy and UK excluded (data limitations)

- **Data Sources**

- Friction periods: Eurostat Job Vacancy Statistics (vacancy stock and flow data)
- Unemployment rate: EU Labour Force Survey
- Macroeconomic controls: Eurostat (GDP growth, inflation, temporary employment)
- Used for: the stock of unfilled job vacancies (V), the number of newly occupied posts (used as a proxy for vacancy flows, M), the job vacancy rate (JVR), and the unemployment rate (UR).

Vacancy duration estimation

- Job vacancy duration was estimated following Dur (1999) and adapted by Hanly et al (2020)

$$\text{Annual vacancy duration (VD)} = 365 * \left[\frac{\sum_{i=1}^4 \frac{Vi}{4}}{\sum_{i=1}^4 Mi} \right]$$

- Where V = stock of unfilled vacancies
- M = flows of filled vacancies (newly occupied posts)

Fixed effects regression model: Model 1 reference

- **Vacancy Duration on Lagged Unemployment Rate**

- $VD_{it} = \alpha_i + \beta_1 \cdot UR_{i,t-1} + \beta_2 \cdot Post_t + \beta_3 \cdot [UR_{i,t-1} \times Post_t] + \varepsilon_{it}$

Where:

- VD_{it} =vacancy duration in days for country i in year t
- α_i =country fixed effect
- $UR_{i,t-1}$ =unemployment rate (percentage points) in year $t - 1$
- $Post_t$ 1 =if year ≥ 2020 , 0 otherwise
- β_1 =Effect of unemployment rate on vacancy duration
- β_2 =post-COVID level shift in vacancy duration
- β_3 =post-COVID change in sensitivity of vacancy duration to unemployment rate
- ε_{it} =error term

Model 2 with controls

- **Augmented Model with Macroeconomic Controls**

- $$VD_{it} = \alpha_i + \beta_1 \cdot UR_{i,t-1} + \beta_2 \cdot Post_t + \beta_3 \cdot [UR_{i,t-1} \times Post_t] + \beta_4 \cdot GDP_{i,t-1} + \beta_5 \cdot Inf_{i,t-1} + \beta_6 \cdot Temp_{i,t-1} + \varepsilon_{it}$$

Where:

- $VD_{it}, \alpha_i, UR_{i,t-1}, Post_t, \beta_1, \beta_2, \beta_3, \varepsilon_{it}$ = as defined in Approach 2
- $GDP_{i,t-1}$ = annual GDP growth rate (%) in year $t - 1$
- $Inf_{i,t-1}$ = HICP inflation rate (%) in year $t - 1$
- $Temp_{i,t-1}$ = temporary employment share (%) in year $t - 1$
- β_4 = effect of GDP growth on vacancy duration
- β_5 = effect of inflation on vacancy duration
- β_6 = effect of temporary employment share on vacancy duration



Results

Regression results

	Model 1 reference	Model 2 with controls
Post-COVID (2020+)	22.211*** (5.217)	21.666*** (5.303)
Unemployment rate, % (t-1)	-0.949** (0.410)	-0.777* (0.389)
Post covid unemployment rate (%)	-1.181* (0.612)	-1.129* (0.629)
GDP growth (t-1)		0.329*** (0.079)
Inflation (t-1)		-0.014 (0.226)
Temporary employment (t-1)		0.490 (0.694)
Constant	40.080*** (3.984)	32.422*** (8.601)
Observations	361	361
R-sq	0.425	0.449

Dep var = vacancy duration (days).

Cluster-robust SE in parentheses.

Country fixed effects included.

* p<0.10 ** p<0.05 *** p<0.01

Key Findings



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Key Finding 1: Friction Periods Increased Substantially Post-COVID in the majority of European regions

- Corresponded to increasing mismatch rates and a reduction in the unemployment gap (tightening labour market)

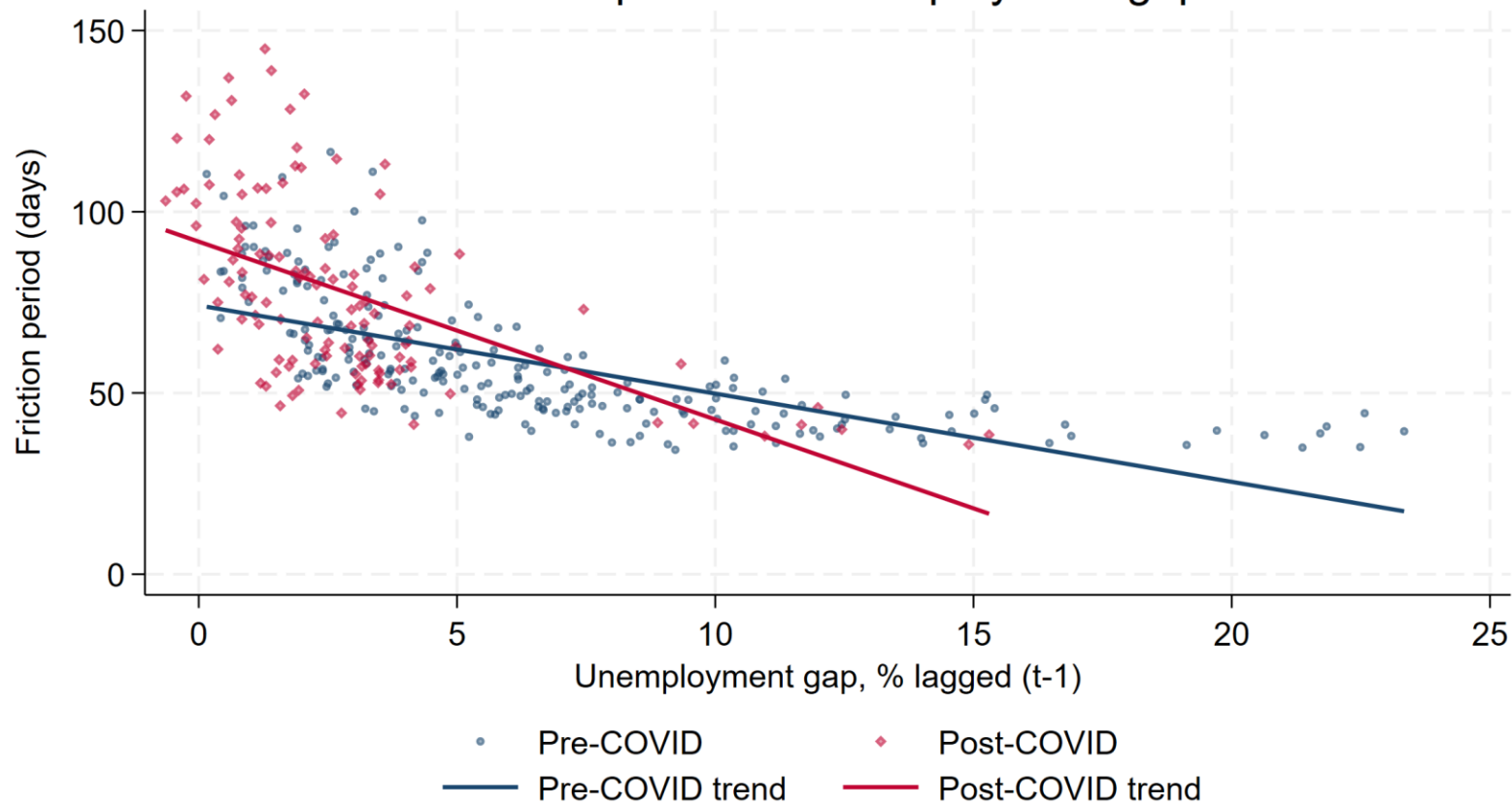


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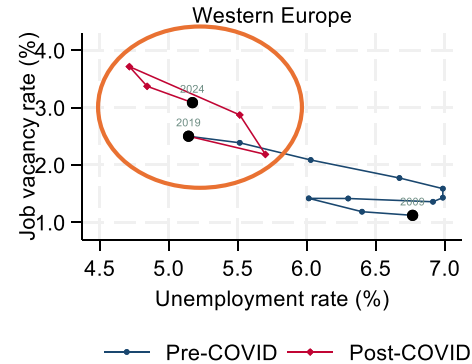
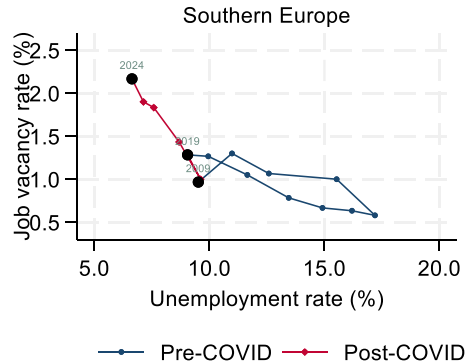
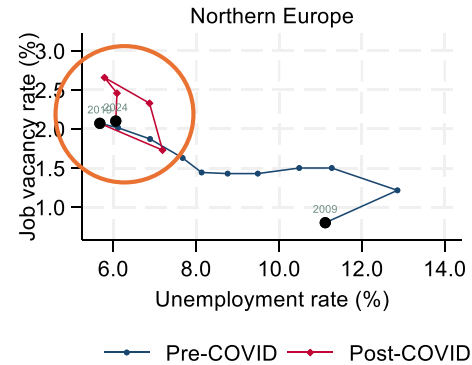
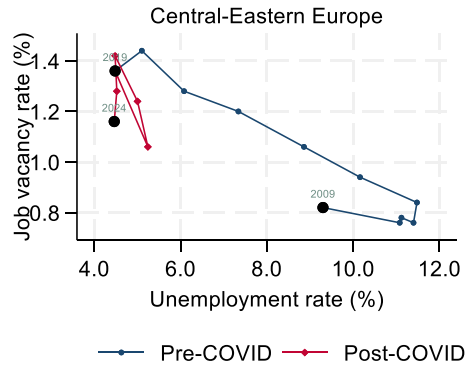
Key Finding 2: Labour Market Tightness Drives Friction Periods

- Post-COVID: vacancy duration 22 days longer on average — even at the same unemployment level
- Each 1 percentage point tighter labour market → vacancy duration 0.95 days longer
- Post-COVID: sensitivity to tightening increased — tight markets impact replacement speed and vacancy duration more than before

Friction period vs unemployment gap



Regional Beveridge Curves 2009-2024



Navy = Pre-COVID (2009-2019).
Crimson = Post-COVID (2019-2024).
Axes in percentage points.

Thank you

