Has COVID-19 Induced Labor Market Mismatch? Evidence from the US and the UK

Carlo Pizzinelli and Ippei Shibata

International Monetary Fund Research Department
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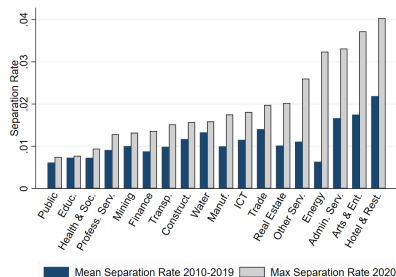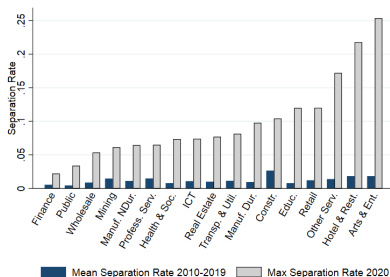
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COVID19 has induced large and unequal disruptions in labor markets

Separation rates by industry

US

UK

Note: The separation rate shows the probability of transitioning from employment to unemployment between two adjacent months (quarters) for the US (UK).
Sources: US CPS, UK LFS, and authors' calculations.

Vacancies have quickly recovered but not employment rate

- Why hasn't the employment already gone back to the pre-crisis level despite the fast recovery in the vacancy-unemployment ratio?
- Different policy responses to COVID-19, but similar situations in 2021.

Employment-Population Ratio and Vacancies-Unemployment Ratio
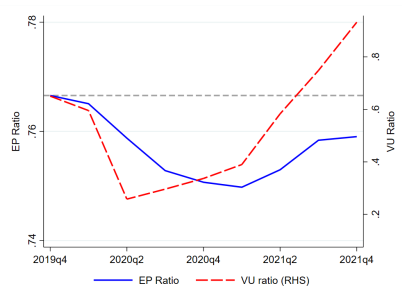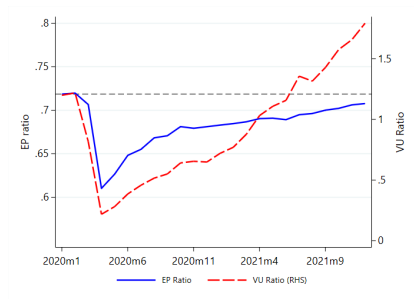
Source: JOLTS, CPS, ONS, UK LFS, and staff calculations.

Research Questions

1. Has COVID-19 generated labor market mismatch, in comparison to the 2008-2009 Global Financial Crisis (GFC)?

2. To what extent can mismatch explain the coexistence of tight labor markets and sluggish employment recoveries as of 2021Q4 in the US and the UK?

3. What other factors may be driving this puzzle (in conclusion)?

Rest of the Talk

- Mismatch

- What's driving the differences in mismatch between COVID vs GFC?

  - Differences in sectors that had seen larger mismatch
  - Alternative definitions of job seekers (e.g., temporary layoffs, non-participants)
  - Searching in different industries
  - Contact-intensity and teleworkability

- Conclusion

Preview of the Results

1. Has COVID-19 generated labor market mismatch, in comparison to the 2008-2009 Global Financial Crisis (GFC)?
   - Employment loss due to mismatch by industry increased at the onset of the COVID-19 pandemic but less than during the GFC.
   - Result robust to
     1. alternative definitions of job seekers,
     2. allowing workers to search in other sectors, and
     3. considering COVID-19 specific job characteristics (contact-intensity and teleworkability)

2. To what extent can mismatch explain the coexistence of tight labor markets and sluggish employment recoveries as of 2021Q4 in the US and the UK?

3. What other factors may be driving the puzzle?

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2. To what extent can mismatch explain the coexistence of tight labor markets and sluggish employment recoveries as of 2021Q4 in the US and the UK?
   - around $1/10$

3. What other factors may be driving the puzzle?

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2. To what extent can mismatch explain the coexistence of tight labor markets and sluggish employment recoveries as of 2021Q4 in the US and the UK?

3. What other factors may be driving the puzzle?
   - UI benefits: little role
   - Persistent she-cession (in the US): around 1/10
   - Retirement/Withdrawal of Elderly Workers: 1/3
   - Shift in worker preferences toward safe jobs

1. How Can We Measure Mismatch?

1. Follow Sahin et al (2014): Lucas-Prescott Island Model:
   - Segmented labor markets $i \in \mathbb{I}$ by industry etc.
   - Matches are concave function of vacancies V_i and unemployment U_i
   - Heterogeneity in matching efficiency

2. Mismatch:
   - Deviation of $\{U_i\}$ from social planner's efficient allocations $\{U_i^*\}$
   - Given $\{V_i\}$, $\{U_i^*\}$ equalizes marginal increase in hires across markets

3. Limitations:
   - Granularity: Mismatch across broad industries may not be capturing mismatch within narrow industry categories.

   - Segmented markets: Workers are assumed to search in their previous industry/occupation. COVID-19 might have shifted workers' preferences.

The Sahin et al. (2014) mismatch framework

Hires in industry i: $h_{it} = \Phi_t \phi_i v_{it}^\alpha u_{it}^{1-\alpha}$

Total hires: $h_t = \Phi_t v_t^\alpha u_t^{1-\alpha} \left[\sum_i \phi_i \left(\frac{v_{it}}{v_t} \right)^\alpha \left(\frac{u_{it}}{u_t} \right)^{1-\alpha} \right]$

Total efficient hires h_t^* must satisfy for two industries i and j:

$$\frac{v_{it}}{u_{it}^*} = \left(\frac{\phi_{jt}}{\phi_{it}} \right)^{1/\alpha} \frac{v_{jt}}{u_{jt}^*}$$

Mismatch:

$$\mathcal{M}_{\phi t} = 1 - \frac{h_t}{h_t^*}$$

Laws of Motion for Counterfactual EP ratio

Define E_t, U_t as employed and unemployed relative to the total population.
Job finding rate: $f_t = h_t/U_t$
No-mismatch job finding rate: $f_t^* = f_t/(1 - \mathcal{M}_{\phi t})$
Separation rate from employment: x_t Set $E_0^* = E_0$, $U_0^* = U_0$
Empirical flows:

$$E_t = (1 - x_t)E_{t-1} + f_t U_t$$

$$U_t = (1 - f_t)U_{t-1} + x_t E_t$$

No-mismatch flows:

$$E_t^* = (1 - x_t)E_{t-1}^* + f_t^* U_t^*$$

$$U_t^* = (1 - f_t^*)U_{t-1}^* + x_t E_t^*$$

Framework augmented with inactive workers N_t to consider expanded measures of job searchers.

Data Sources

UK:

- UK Labour Force Survey: worker-level microdata 2001-2021
- Office of National Statistics: vacancies by industry 2001-2021

US:

- Current Population Survey: worker-level microdata 2003-2021
- Job Openings and Labor Turnover Survey: hires and vacancies by industry 2003-2021

Main Results: COVID-19 vs GFC

- A sharp rise in mismatch during COVID19, but short-lived.
- Employment lost due to mismatch was *smaller* during COVID-19.

Mismatch Index and Employment Lost due to Mismatch GFC vs COVID
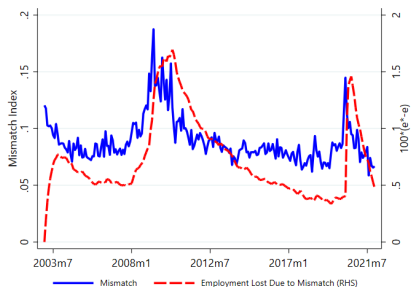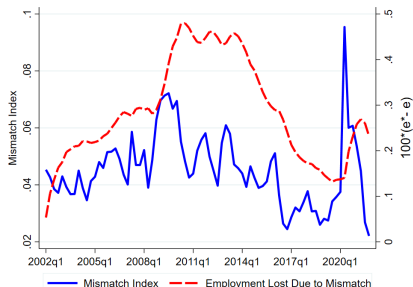
Construction (Leisure and Hospitality) matter less (more) during COVID-19 than during GFC.

US

UK

US

Our baseline results are robust to different definitions of searchers. UK

To account for workers trying to switch industries, we recover effective searchers from cross-industry transitions via unemployment. Detail

US: A fraction of unemployed persons who search in other sectors
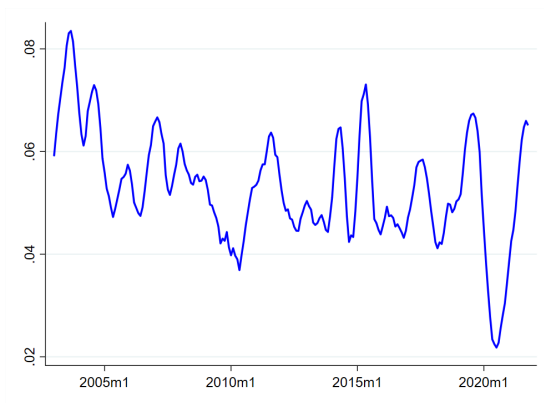
US: Mismatch when computing effective searchers by sector
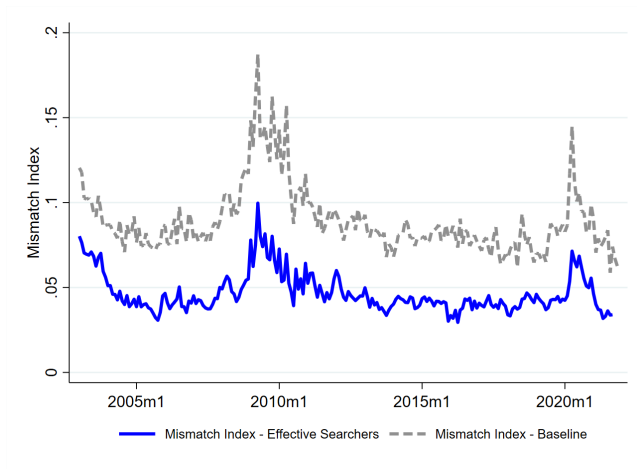
Did Contact-Intensity and Teleworkability Matter?

US: Mismatch across teleworkable and contact-intensive industries
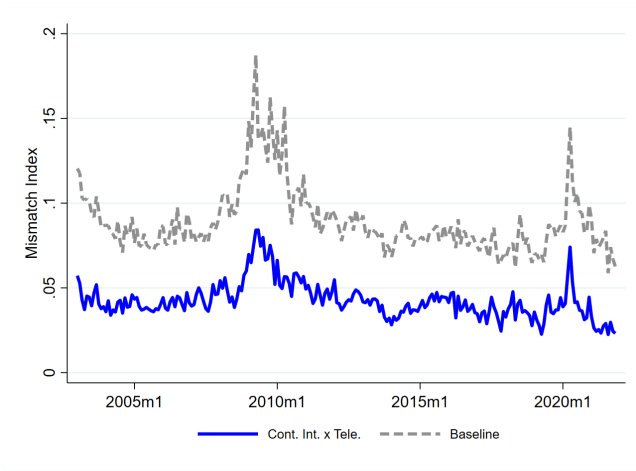
Conclusion

- Mismatch has increased during COVID-19 in both US and UK, but less important for employment dynamics than during the GFC.
- Robust to alternative definitions of job searchers, allowing workers to search in other industries.
- Job characteristics specific to COVID-19 (contact-intensity and teleworkability) might have mattered more for COVID-19 but don't overturn the result
- Potential Drivers of slow labor market recovery during COVID-19 are:
    - Industry level mismatch explains $\sim 1/10$
    - She-cession (in the U.S.) explains $\sim 1/10$ She-cession
    - Elderly Workers' Withdrawal explains another $\sim 1/3$ Elderly
    - Rising demand for highly specific jobs together with people's preference change toward less contact-intensive jobs. Preference

Additional Material

Alternative Definitions of Job Searchers

UK
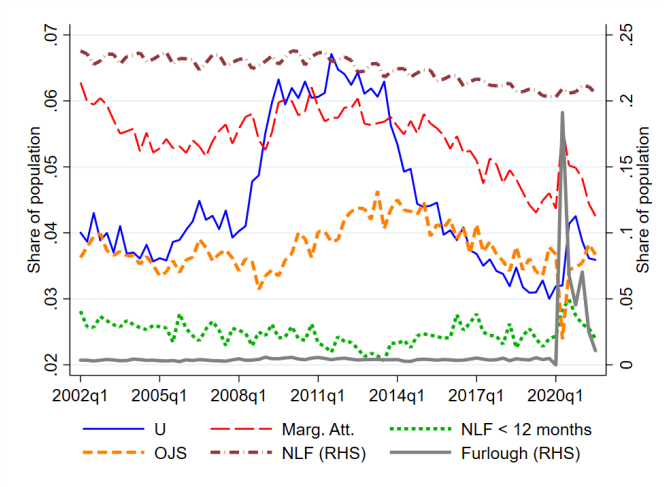
Back

UK Mismatch: Alternative Definitions of Job Searchers

Our baseline results are robust to different definitions of searchers. Back

Mismatch Index ▬▬▬   Employment Loss Due to Mismatch (RHS) ▬ ▬ ▬
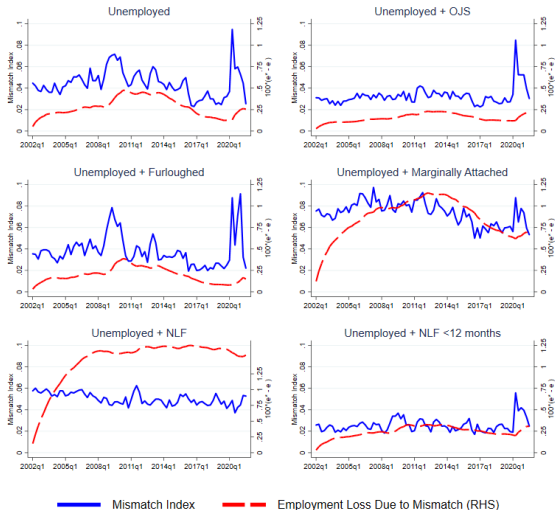
How to back out effective searchers

Assumptions: Back

- job-finding rate in sector j is the same for all the sectors except for those who previously worked in j (i.e., $i \neq j \in I$)
- job-finding rate in sector j is higher for those who previously worked in j by a factor $\gamma_t \geq 1$: $\frac{h_{jt}^j}{u_{jt}^j} = (1 + \gamma_t)\frac{h_{it}^j}{u_{it}^j}$, for $i \neq j$. We can solve for effective job searchers $\{U_{jt}\}_{j \in I}$ and γ_t:

$$u_{it} = \sum_{j=1}^{I} \frac{1}{\xi_{it}^j} \frac{h_{jt}^j}{h_t^j} U_{jt} \tag{1}$$

$$\sum_{j=1}^{I} U_{jt} = \sum_{j=1}^{I} u_{jt} \tag{2}$$

$$\text{where} \quad \xi_{it}^j = \begin{cases} 1 - \frac{h_{jt}^j}{h_t^j}\left(\frac{\gamma_t}{1+\gamma_t}\right) \text{ if } i \neq j \\ (1+\gamma_t)[1 - \frac{h_{jt}^j}{h_t^j}\left(\frac{\gamma_t}{1+\gamma_t}\right)] \text{ if } i \neq j \end{cases} \tag{3}$$

UK: A fraction of unemployed persons who search in other sectors
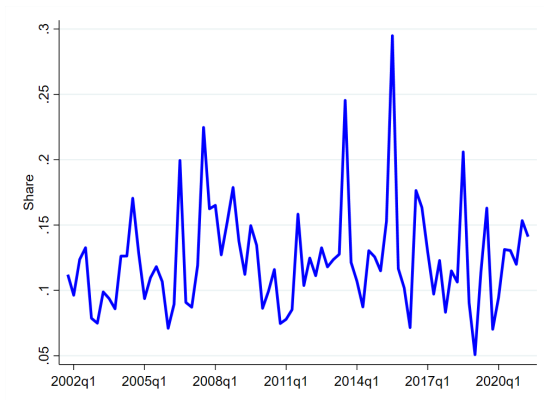
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UK:Mismatch when computing effective searchers by sector
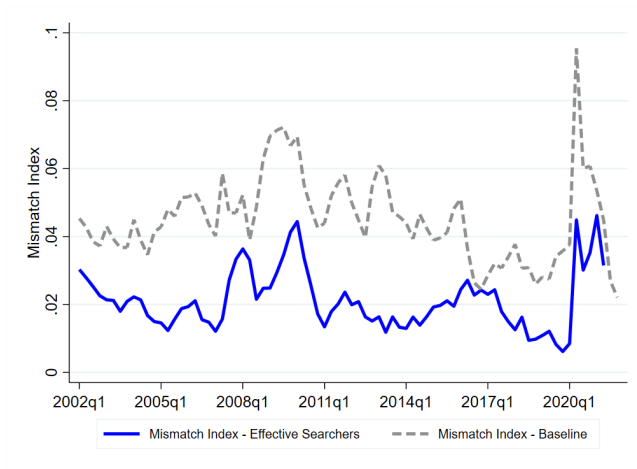
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Did Contact-Intensity and Teleworkability Matter?

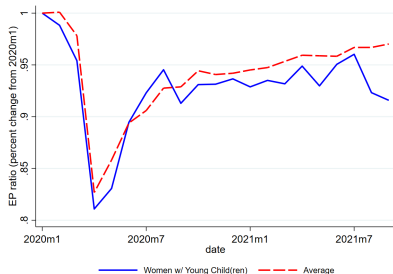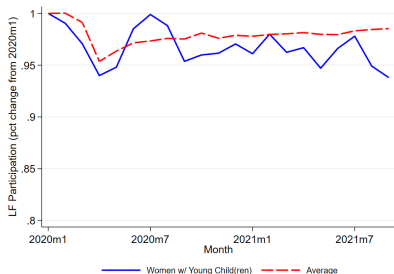UK: Mismatch across teleworkable and contact-intensive industries
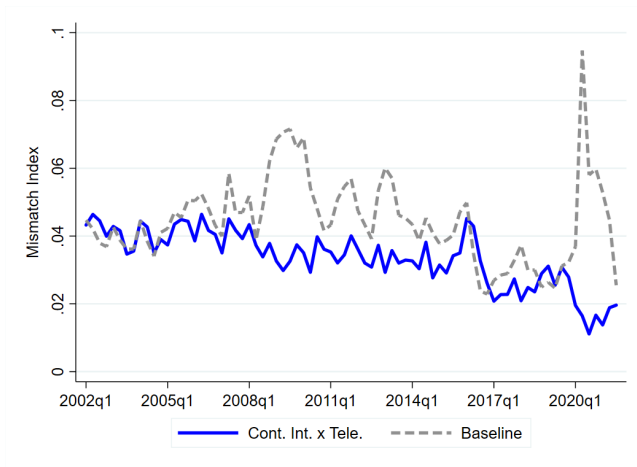
Mothers with young children contributed around 10% to the total decline in employment rate during the recovery in End 2021 in the US.
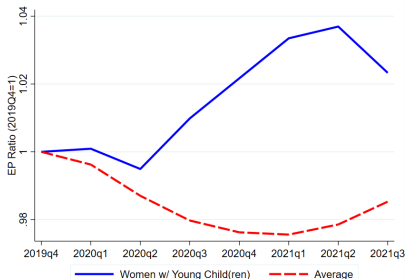
US

Employment

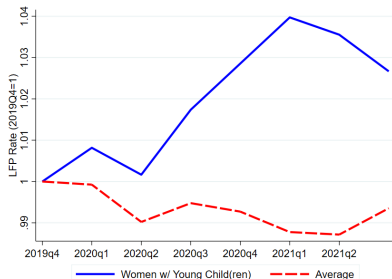Labor Force Participation

2. Persistent she-cession: UK

No evidence of a "she-cession" in the UK
The employment rate and labor force participation rate of women with young children actually increased since 2019Q4 (although the rate of growth slowed down)

UK

Employment / Labor Force Participation
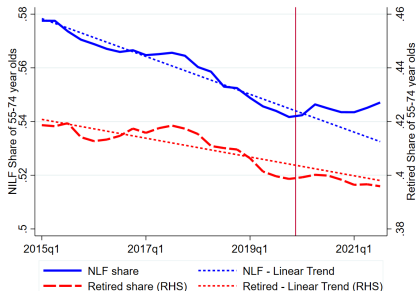
Back

3. Elderly Workers' Labor Force withdrawals

Elderly workers' LF withdrawal beyond the pre-COVID19 trend explain around 35 percent of the aggregate employment gap as of End 2021.

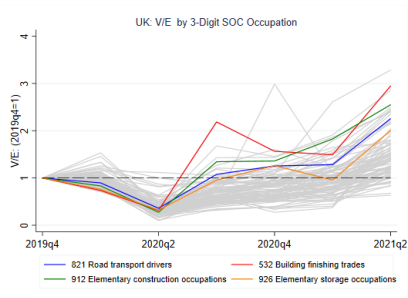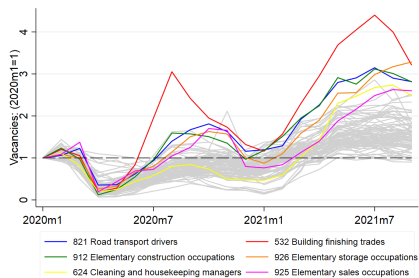NLF and Retired Share (of Population aged 55-74)

US

UK
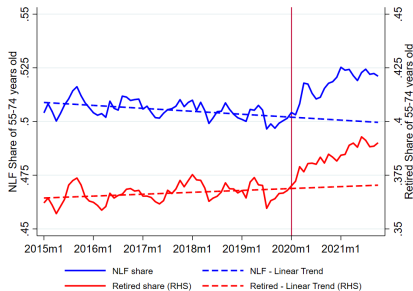
Back

4. Rising demand for highly specific jobs

Shortages of workers may be highly concentrated in specific occupations and might be due to high demand relative to employment elderly

UK: vacancies and V/E ratio for selected occupations

Back

4. Pent-up demand for highly specific jobs

Demand for specific low-wage occupations may be driving up wages at the low end of the distribution despite sluggish employment

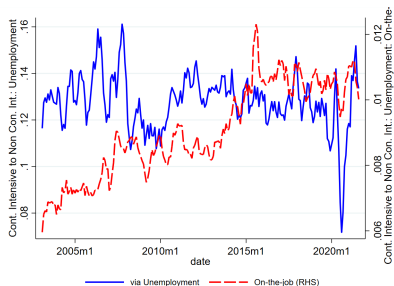UK: Employment, Average Wage, Vacancies by Occupations Ranked by Wages in 2019

4. Changes in preferences toward less contact-intensive sectors

Mixed evidence: quit rates and switches to contact-intensive sectors are rising.
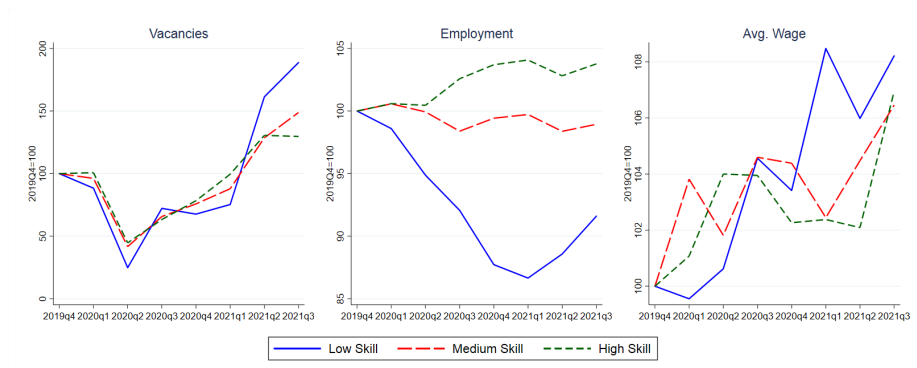
US: Quit Rates (JOLTS and CPS)

US: Switching toward less contact-intensive jobs via on-the-job and unemployment

Demand for specific low-wage occupations may be driving up wages at the low end of the distribution despite sluggish employment

UK: Employment, Average Wage, Vacancies by Occupations Ranked by Skill (% of College Graduates) in 2019
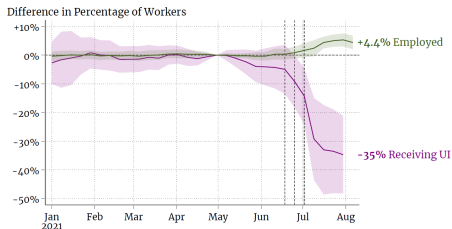
Generous UI benefits

Weak evidence on impact of extra UI benefits on employment from staggered timing of UI expiration across US states
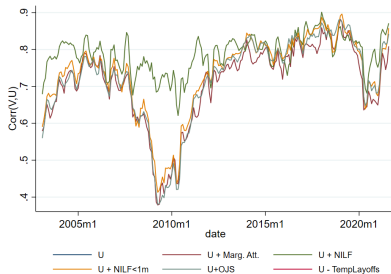
Dube (2021)
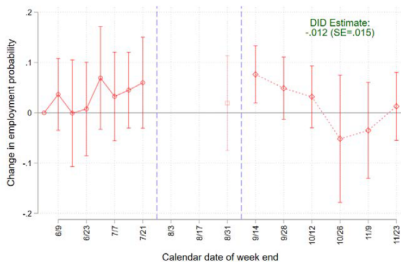
Coombs et al. (2021)

Correlations of Vacancies and Alternative Groups of Job Searchers between GFC and COVID-19
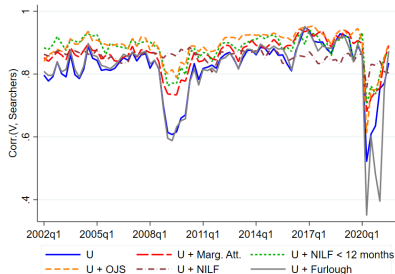
1. COVID-19 shock could be more broad-based
2. Nonparticipants (Not in Labor Force) EP ratio has fell sharply during COVID

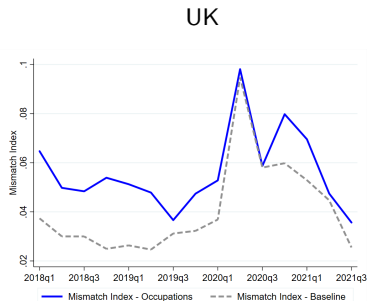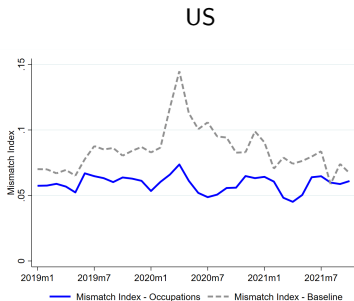Correlation of Vacancies and Alternative Groups of Job Searchers

Mismatch by Occupation

US

UK

Note: The solid blue lines report the mismatch index across occupations using vacancies from Indeed. The dashed grey lines show the baseline mismatch index across industries. The mismatch index represents the fraction of hires lost due to misallocation between job seekers and vacancies and is bounded below and above by 0 and 1. Higher values imply a higher degree of mismatch.
Sources: US CPS, UK LFS, Indeed, and authors' calculations.