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Sectoral Reallocation and Income Growth in the Labour Market During the COVID-19 Pandemic

Guanyu Zheng[1]   Marea Sing[2]

[1]Ministry of Business, Innovation and Employment (MBIE)

[2]Reserve Bank of New Zealand

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IDI Disclaimer

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit https://www.stats.govt.nz/integrated-data/.

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

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Background literature

- The COVID-19 pandemic period has been described as an atypical reallocation shock for global labour markets (Casarico and Lattanzio, 2022; Barrero et al., 2021; Barrero, Bloom, and Davis, 2020)

- In New Zealand, these pandemic-related impacts were expected to lead to an increase in structural unemployment as skill mismatches increased (Bannister et al., 2020)

- Job-to-job transitions have been shown to be pro-cyclical, indicating growing or easing income pressures (Ball et al., 2020; Karagedikli et al., 2018; Karahan et al., 2017)

- In particular, between-industry transitions tend to result in higher wage premiums (Coleman and Zheng, 2020)

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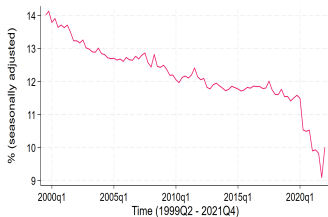COVID-19 and the labour market
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Data decisions: Who are we measuring?
Data decisions: What are we measuring?

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Data decisions: Who are we measuring?
Data decisions: What are we measuring?

Data

- The primary data source is based on the Employer Monthly Schedule (EMS), comprising all paid jobs and earnings from April 1999 to March 2022 in New Zealand

- **Data aggregation**
  All monthly earnings (at least $1) and jobs are summed on a quarterly basis.

- **Primary income job**
  The primary income job is the highest-paid job for a person at a point in time.

- **Age restriction**
  Any persons who are either less than 15 years of age or more than 64 years of age are excluded.

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Measuring worker flows

Reallocation rate

Transition rate
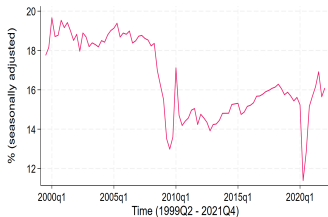
Worker classification
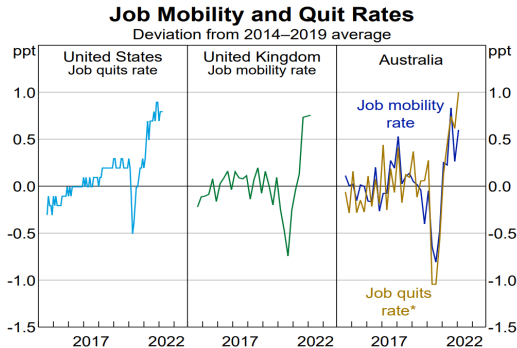
We classify workers into six categories:

- Entrants
- Exiters
- Stayers
- Job-to-job transitions:
  - Between industries
  - Within industries

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A tale of two economies: The uneven impact of COVID-19

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A global atypical labour market shock

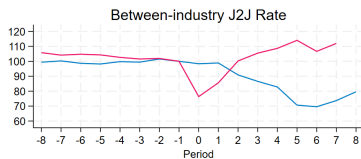**Job Mobility and Quit Rates**
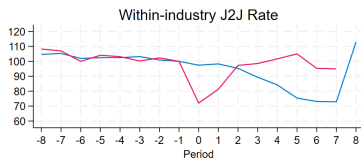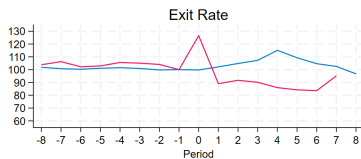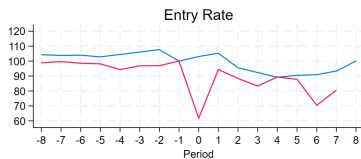Deviation from 2014–2019 average

* Share of employed persons who left their jobs in the past three months, except for retirement and other reasons.
Sources: ABS; BLS; BoE; RBA

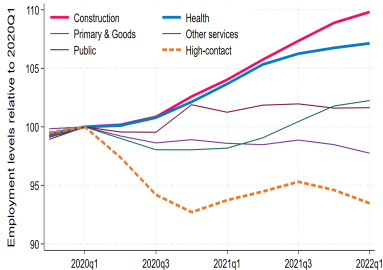The euro area, US, UK, and Australia, noticed elevated flows following the onset of the pandemic (Gómez, 2022; Barrero, Bloom, and Davis, 2020; Black and Chow, 2022)

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Labour flows during crises in New Zealand

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Employment by industry groups

(a) All industries
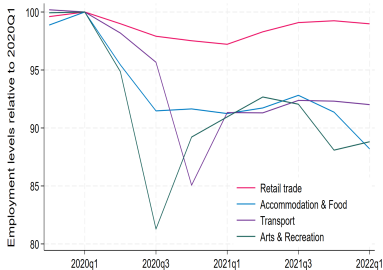
(b) High-contact and tourism-related industries

Similar to international experience, we note that non-essential high-contact industries experienced the largest job losses (Famiglietti, Leibovici, and Santacreu, 2020)

▸ Groupings

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Gross flows by industry groups

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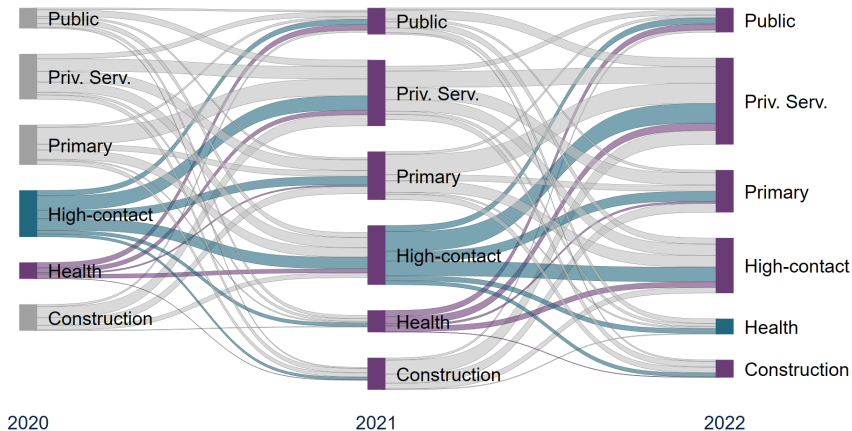
Between-industry job transitions: 2021

We consider the annual average between-industry outflow rates relative to a 5-year pre-COVID-19 average ("normal")
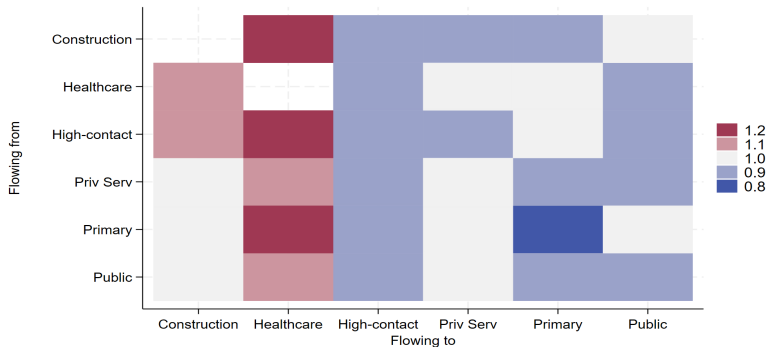
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A positive relationship between income and job transitions

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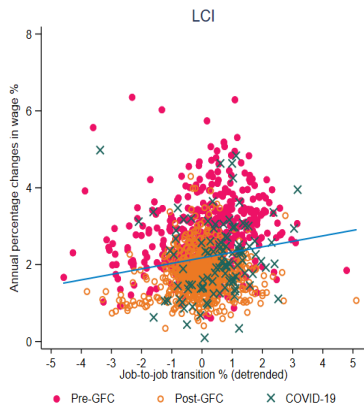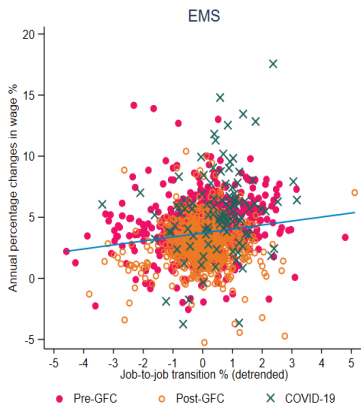
Linear panel regression

$$\Delta log(W_{it}) = \gamma_{it}^a + \beta_1^a realloc\_rate_{it} + \beta_2^a transition\_rate_{it} \tag{1}$$
$$+ \sum_k \rho_k^a X_k + \epsilon_{it}^a$$

$$\Delta log(W_{it}) = \gamma_{it}^b + \beta_1^b J2J\_within_{it} + \beta_2^b J2J\_between_{it} \tag{2}$$
$$+ \sum_k \rho_k^b X_k + \epsilon_{it}^b$$

where

- W_{it} represents one of our two measures of nominal income growth (EMS-based and LCI)
- i and t represent industry and time respectively, and k is the number of additional control variables
- The residual term (ϵ_{it}) in each specification is assumed to be serially correlated and follows an AR(1) structure

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	EMS		LCI	
	(1)	(2)	(1)	(2)
transition_rate	0.0674***		0.0306***	
	(0.0242)		(0.0065)	
realloc_rate	0.0079		−0.0093	
	(0.0483)		(0.0118)	
J2J_within		0.0207		0.0110
		(0.0464)		(0.0104)
J2J_between		0.1050**		0.0488***
		(0.0413)		(0.0116)
R^2	0.244	0.244	0.802	0.793
AR(1) residual coefficient	−0.475	−0.475	0.123	0.146
Industry fixed-effects	No	No	No	No
Observations	1,602	1,602	1,476	1,476
Industries	18	18	18	18
Time periods	1999Q3 – 2021Q1 (89 periods)		2001Q4 – 2021Q1 (82 periods)	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

▸ Full results   ▸ Robustness checks

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Thank you

- COVID-19 presented as an **atypical and relatively persistent** shock to the NZ labour market
- This **presented as elevated between-industry job transition rates**
- This period exhibited **stronger wage and income growth**, which were shown to be positively correlated with between-industry transition rates
  (even after controlling for economic activity and inflation)
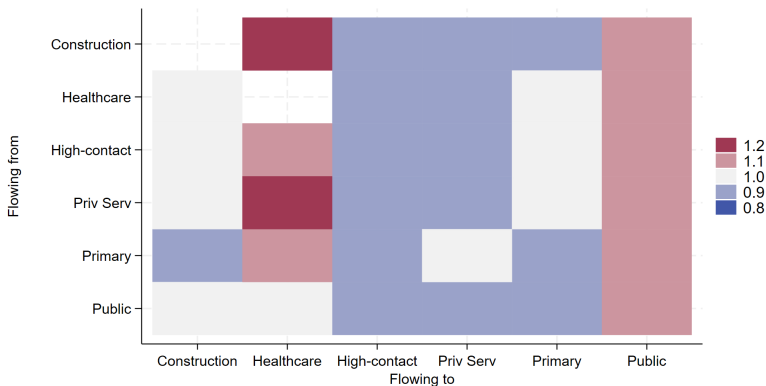
Contact details

✉ Guanyu.Zheng@mbie.govt.nz   ✉ Marea.Sing@rbnz.govt.nz

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after the Covid-19 shock". In.

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administrative data in New Zealand". In.

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over the business cycle?" In: *American Economic Review* 107.5, pp. 353–357.

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Between-industry outflows: 2020

Between-industry job transitions: 2020

Group	Included industries
The healthcare industry	Q: Health care and social assistance
High-contact and tourism-related industries	G: Retail Trade H: Accommodation and food services R: Arts and recreation services I: Transport, postal and Warehousing
The construction industry	E: Construction
The primary sector, manufacturing, and utilities	A: Agriculture, fishing, and forestry B: Mining C: Manufacturing D: Electricity, gas, water and waste services

Group	Included industries
The public sector	O: Public administration and safety P: Education and training
Other private services	F: Wholesale trade J: Information media and telecommunications K: Financial and insurance services L: Rental, hiring and real estate services

▸ Employment by group

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realloc_rate	0.0079		−0.0093	
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J2J_within		0.0207		0.0110
		(0.0464)		(0.0104)
J2J_between		0.1050**		0.0488***
		(0.0413)		(0.0116)
Industry output growth	0.0420***	0.0418***	−0.0005	−0.0007
	(0.0082)	(0.0082)	(0.0016)	(0.0016)
Lagged core inflation	0.6490***	0.6610***	0.2780***	0.2850***
	(0.1060)	(0.1060)	(0.0362)	(0.0373)
Unemployment rate	−0.1040***	−0.0952***	−0.0515***	−0.0459***
	(0.0303)	(0.0313)	(0.0106)	(0.0113)
2020Q2	−3.352***	−3.290***	−0.268***	−0.226***
	(0.3210)	(0.3250)	(0.0658)	(0.0689)
2020Q3	4.2160***	4.2410***	0.0305	0.0503
	(0.3170)	(0.3190)	(0.0630)	(0.0640)
constant	1.0240***	0.9720***	0.6430***	0.6060***
	(0.1970)	(0.2020)	(0.0700)	(0.0720)
R^2	0.244	0.244	0.802	0.793
AR(1) residual coefficient	−0.475	−0.475	0.123	0.146
Industry fixed-effects	No	No	No	No
Observations	1,602	1,602	1,476	1,476
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| | EMS | | | | LCI | | | |
	(2)	Fixed effects	Alt. slack	Alt. weights	(2)	Fixed effects	Alt. slack	Alt. weights
J2J_within	0.0207	0.0215	0.0295	0.0201	0.0110	0.0121	0.0134	0.0114
	(0.0464)	(0.0459)	(0.0485)	(0.0465)	(0.0104)	(0.0103)	(0.0108)	(0.0104)
J2J_between	0.105**	0.102**	0.124***	0.104**	0.0488***	0.0506***	0.0578***	0.0490***
	(0.0413)	(0.0410)	(0.0430)	(0.0414)	(0.0116)	(0.0113)	(0.0120)	(0.0117)
Industry output growth	0.0418***	0.0436***	0.0466***	0.0420***	−0.000700	−0.000586	−0.000901	−0.000626
	(0.00819)	(0.00812)	(0.00799)	(0.00815)	(0.00160)	(0.00160)	(0.00165)	(0.00160)
Lagged core inflation	0.661***	0.666***	0.827***	0.661***	0.285***	0.291***	0.367***	0.286***
	(0.106)	(0.104)	(0.0981)	(0.106)	(0.0373)	(0.0358)	(0.0333)	(0.0372)
Unemployment rate	−0.0952***	−0.0949***		−0.0952***	−0.0459***	−0.0440***		−0.0453***
	(0.0313)	(0.0309)		(0.0314)	(0.0113)	(0.0109)		(0.0113)
2020Q2	−3.290***	−3.257***	−3.024***	−3.296***	−0.226***	−0.236***	−0.128**	−0.232***
	(0.325)	(0.322)	(0.295)	(0.326)	(0.0689)	(0.0682)	(0.0646)	(0.0690)
2020Q3	4.241***	4.180***	4.190***	4.243***	0.0503	0.0549	0.0631	0.0530
	(0.319)	(0.314)	(0.306)	(0.317)	(0.0640)	(0.0635)	(0.0650)	(0.0639)
Output gap			0.0216				0.0161*	
			(0.0258)				(0.00843)	
constant	0.972***	0.929***	0.416***	0.973***	0.606***	0.598***	0.338***	0.602***
	(0.202)	(0.208)	(0.0576)	(0.202)	(0.0720)	(0.0710)	(0.0195)	(0.0719)
R^2	0.244	0.246	0.323	0.244	0.793	0.802	0.796	0.793
AR(1) residual coefficient	−0.475	−0.482	−0.460	−0.474	0.146	0.111	0.146	0.144
Industry fixed-effects	No	Yes	No	No	No	Yes	No	No
Observations	1,602	1,602	1,602	1,602	1,476	1,476	1,476	1,476
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