

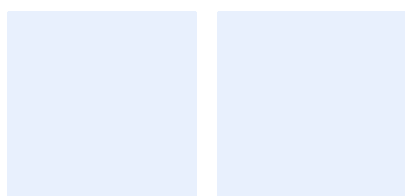
**Motu Working Paper 21-02**

# Covid-19 wage subsidy support and effects

**Motu** economic & public policy research

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## **Document information**

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### **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 purpose and is not related to the data's ability to support Inland Revenue's core operational requirements.

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**Abstract**

This note provides a brief preliminary analysis of the short run impact of COVID-19 and the government's Covid Wage Subsidy (CWS) response on labour market flows. We focus on two issues. First, to examine the selectivity of the CWS, we describe the characteristics of firms and of workers who did and did-not receive subsidy payments. Second, to gauge how the pandemic and the CWS affected the labour market, we describe two aspects of the adjustment process: the job-turnover rates for workers in subsidised and non-subsidised firms; and trends in the transition rates between non-employed in subsidised and non-subsidised employment. We find that there was a larger drop in job turnover rates in subsidised than non-subsidised firms, but the excess turnover in subsidised firms had return to pre-lockdown levels by September, while that in non-subsidised firms remained low.

**JEL codes**

H24; J01; J63

**Keywords**

Covid; wage subsidy; worker flows

**Summary haiku**

*Covid subsidies*

*were selectively drawn down*

*and worker flows changed*

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## **1 Introduction**

This note provides a brief preliminary analysis of the impact of COVID-19 and the government's response on labour market flows. It has been prepared as a foundation for possible further analysis and evaluation of the impact of Covid-related policies, and of Covid itself, on labour market outcomes. Evaluating the impact on individual workers and firms requires knowledge of who is affected, and the ability to link this to subsequent outcomes. The pandemic and policy responses may also have affected patterns of turnover and reallocation in the labour market. The evaluation of such impacts requires information on patterns of adjustment and how they have changed over time. This note analyses available microdata to gauge their ability to support the evaluation of impacts on individual outcomes and labour market adjustment.

The government's COVID-19 response included two substantial policy initiatives to help firms and workers cope with the economic impact of the pandemic. First, the 'Original' COVID Wage Subsidy (CWS), announced on 17 March, provided a 12-week lump sum subsidy payment to employers at \$585.80/week wage for fulltime (at least 20 hours) and \$350/week for parttime (less than 20 hours) workers in eligible firms (who applied before 10 June). The 'Extension' CWS was available as an 8-week lump sum payment for applications between 10 June and 1 September; and the 'Resurgence' CWS was available as a 2-week lump sum payment, available to firms not already getting a subsidy between 21 August and 3 September. In addition, there were various CWS 'Leave' subsidy payments. Second, the COVID-19 Income Relief Payment (CIRP) was available from 8 June to workers who lost their job between 1 March and 30 October 2020. Eligible workers (aged 16 and older) could receive payments of \$490/week (fulltime: previously working at least 30 hours/week) or \$250/week (parttime: previously working less than 30 hours) for up to 12 weeks.

In this note, we focus on two issues related to the CWS. First, in order to examine the selectivity of who received a wage subsidy payment, we provide a descriptive analysis of the characteristics of firms and of workers who did and did-not receive subsidy payments. Second, we describe two aspects of labour market dynamics, to gauge how the pandemic, and the availability of wage subsidy payments affected labour market adjustment processes: we compare the job-turnover rates for workers in subsidised and non-subsidised firms; and we describe trends in the transition rates between non-employed and subsidised and non-subsidised employment. A more complete analysis would also include consideration of the CIRP and how CIRP and CWS recipients compare, but we consider this beyond scope of the current note.

Both Treasury (Analytics & Insights, 2020; Brown & Templeton, 2020) and the Ministry of Social Development (2020) have conducted analyses that focus mainly on the characteristics of firms and workers receiving the CWS. For this reason, we will focus our analysis on the selectivity of who did and didn't receive CWS payments. Understanding the patterns of selectivity is necessary if we wish to identify the impact of Covid and related policies. The average change in outcomes reflects both the size of the impacts and whether assisted firms and workers would have had different average outcomes anyway.

In the next section we describe the data used in the analysis. We document our analysis in Section 3, and the note concludes with a summary discussion in section 4.

## **2 Data description**

The data we use are derived from administrative sources in the October 2020 refresh and Adhoc tables in the IDI.<sup>1</sup> First, earnings data are derived from IRD data from Payday filing (EIE) Adhoc tables. These tables contain information on PAYE tax withheld income payments over the 18 month period from April 2019 until September 2020. These data include wage and salary earnings, as well as other PAYE tax withheld payments (working-age tier-1 Benefits, NZS pensions, earnings related ACC payments, Paid Parental Leave payments, and Student Allowance payments). Each observation includes an "employer" identifier as the income "payer", and an "employee" identifier as the income "recipient".

We focus attention on wage and salary payments only, treating the employer identifier as a firm, the employee identifier as a worker, and treat each employer-employee combination as a "job". The EIE data are collected at the (Payday) frequency that payments are made: for our analysis we have aggregated employer-employee 'job' payments to calendar monthly frequency. To smooth out some of the lumpiness in monthly earnings, we have calculated an "adjusted-earnings" measure as the raw earnings scaled by the ratio of the modal to actual number of monthly payments for the job.<sup>2</sup>

Second, Covid-19 wage subsidy information is derived from MSD Covid-19 payment (CWS) Adhoc tables. These tables include an employer level observation table identifying the employers that received payments, and a matched employer-employee level observation table

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<sup>1</sup> The IDI is Statistics New Zealand's Integrated Data Infrastructure, which is a linked longitudinal dataset that combines administrative data from multiple sources. For more information about the IDI, see <https://www.stats.govt.nz/integrated-data/>.

<sup>2</sup> For example, workers paid fortnightly typically receive two payments per month, but receive a third payment every sixth month. As for most ongoing-jobs that are paid weekly or fortnightly, the adjusted earnings will measure a 4-week equivalent earnings rate, we expect the average adjusted earnings to be lower than average raw monthly earnings. Our method is an alternative to the modelling approach documented in Penny (2020).

that identifies the workers covered by a CWS claim. These tables identify whether the employer was a ‘sole trader’ or an ‘employer’; if an ‘employer’, the workers for whom they were claiming a CWS payment; and the type of CWS claim: the 12-week ‘Original’ CWS announcement in March, the 8-week “Extension’ CWS from June, the 2-week “Resurgence’ CWS associated with the Auckland August outbreak, and miscellaneous CWS ‘Leave’ payments.

The EIE employment and earnings data are matched to the CWS subsidy data, using the employer and employee identifiers. We treat all employers and employees observed in either the EIE or the CWS data as the universe of firms and workers respectively for our analysis. We then collect the worker’s age and sex from the “data.personal-detail” table in the IDI; and the firm’s industry from the “br\_clean.enterprise” table.

### 3 Analysis and results

#### 3.1 Selectivity of CWS supported firms and employees

We begin by describing the selectivity of both firms and employees that received CWS payments. First, Table 1 contains employer-level descriptive statistics of the data. Overall, there are approximately 520,000 firms (distinct ‘employers’) identified either in the EIE data or in the CWS data. Of these, about 213,000 (41%) are observed in the EIE data and 457,000 (88%) are observed in the CWS data. The average firm size (number of employees) is 12 employees among firms observed in the EIE data; and the average number of employees included in CWS claims is 3.9.<sup>3</sup> Although this reflects that smaller firms received CWS payments on average, the difference is largely explained by the high fraction of subsidy-receiving firms that were sole traders rather than employers: almost two-thirds (65%) were sole traders, compared to 46% employers.<sup>4</sup>

The first four columns in Table 1 summarise the characteristics of firms stratified by whether they are observed in the EIE tables (column 1); whether they are observed in the CWS tables (column 2); and for firms observed in the EIE tables whether they are received any CWS (i.e., observed in the CWS tables, column 3) or not (column 4). Of the 213,000 firms observed in the EIE data, 151,000 (71%) received some form of CWS.<sup>5</sup> Naturally, most (93%) of these CWS & EIE firms were employers, although 17% also appeared as sole traders in the CWS data. In line

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<sup>3</sup> Weighted by the (average) number of employees in the EIE, the average EIE firm size is about 5,200; similarly. Among firms that received CWS payments, the weighted average firm size is 633, and the weighted average number of workers covered in CWS claims is 357.

<sup>4</sup> Because firms can make multiple CWS claims, either for the same or different subsidy-types, the characterisation of sole trader versus employer is not mutually exclusive in this table.

<sup>5</sup> Conversely, the 151,000 firms that appear in the EIE data and received CWS, account for only one-third (33%) of the 457,000 CWS firms (column 2).

with this higher fraction of employers, the average CWS-size is much larger among firms that appear in the EIE data (9.2 compared to 3.9 overall).

In columns 3 and 4 of Table 1 we summarise the characteristics of EIE firms that do and don't receive any CWS. These confirm that firms that received a subsidy were smaller (11.1 employees on average) than those that didn't (14.1 employees). Also, firms that received a subsidy, on average, claimed a subsidy for about 83% of their employees (9.2 employees on average). Weighted by CWS-claim size, the vast majority (91%) of subsidy receiving firms received the original CWS, but nearly one-third (32%) received the CWS-extension subsidy, 18% received the CWS-resurgence subsidy, and 28% received some form of CWS-leave subsidy.

The final section of Table 1 summarises the industry classification of firms, weighted by firms' average EIE size over the period.<sup>6</sup> Comparing the industry distributions of firms that received a CWS subsidy (column 3) and those that didn't (column 4), reveals the subsidies were unevenly distributed across industries. For example, the incidence of Construction firms among CWS-firms was more than 8 times that among non-CWS firms; similarly, the incidence of Accommodation & Food Services firms was 7.4 times higher among subsidy than non-subsidy firms; and among firms in Manufacturing, Wholesale Trade, Transport, Post & Warehousing, Administration & Support Service, and Arts & Recreation Services, the relative incidence was 2-4 times higher among subsidy recipients. Conversely, the incidence of CWS-receiving firms in Public Administration & Safety was only 12% that of non-CWS firms; while the relative incidence of subsidy- to non-subsidy receiving firms was between one-third and 0.6 for firms in Agriculture, Forestry & Fishing, Electricity, Gas, Water & Waste, Information Media & Telecommunications, Education & Training, and Health Care & Social Assistance. The final column of Table 1 provides an alternative summary of these patterns, showing the proportion of (EIE) employees in each industry who worked in firms that received subsidies. Overall, this percentage is 66%, though it is over 90% in the Construction, Accommodation and Food Services, and as low as 18% in the Public Administration and Safety industry.

Table 2 contains an analogous summary of employee-level descriptive statistics. Column 1 summarises the full sample; columns 2 and 3 summarise the subsamples of those observed in the EIE- and CWS-tables respectively; and columns 4 and 5 summarise the subsamples of those observed in the EIE tables stratified by CWS receipt and non-receipt respectively.

In column 1, we see that about 3.83 million (m) distinct individuals were observed across the two (EIE and CWS) data sources. Of these, 3.74m (98%) were observed in the EIE tables; and

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<sup>6</sup> Industry information is missing for 7.7% of firms in EIE, mostly covering employees in firms that did not receive subsidies.



1.47m (38%) were observed in the CWS tables.<sup>7</sup> Some 2.82m (75%) of those observed in the EIE data received wage and salary earnings at some stage over the period, April 2019 – September 2020. Among those who appear in the EIE data, a comparison of columns 4 and 5 suggests that about half (48%) of wage and salary employees over the period were CWS-recipients.

Conversely, comparing the number of wage and salary earners in columns 3 and 4 implies that 6% of CWS-recipients did not appear in the EIE over the 18 month period, and 8% were not matched to any wage and salary earnings over the period.

As measured by the number of months observed with wage and salary earnings, CWS-recipients who appear in EIE appear to have a stronger employment attachment (15.2 months on average) than all employees in the EIE (13.4 months). This difference is more apparent when comparing EIE-employees who did and didn't receive CWS-payments in columns 4 and 5 respectively: the average number of months with earnings is 15.2 for subsidy recipients and 11.8 for non-recipients.<sup>8</sup> Also, the relative earnings of CWS-recipients and non-recipients is less clear, due to greater dispersion in (average) earnings of workers who did not receive CWS payments: the average monthly earnings of CWS-recipients is 6% lower than non-recipients, but their average log(average earnings) about 0.17 higher.

As with firms, the vast majority of subsidised employees received the Original CWS (95.5% in the column 4 matched sample), while 31% received the CWS-Extension, 17% received the CWS-Resurgence, and 7% received a CWS-Leave payment. CWS recipient employees were about 1 year younger than non-recipient employees on average (39.6 versus 40.5 years old), and were less likely to be female: 43% of recipients' were female compared to 54% of non-recipients.

### 3.2 Labour market transitions under CWS

The second focus of our analysis is the short run labour market transitions of employees who received CWS payments. In particular, we focus on two related labour market transitions. First, transitions into and out-of jobs, and we distinguish between CWS-receiving and non-CWS receiving firms. Second, transitions between alternative employment-states, which we

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<sup>7</sup> The nearly 88,000 individuals who appear only in the CWS-tables (about 2% of the total) are workers whose employee identifiers don't match those ever seen in the EIE data. These could be the result either of coding errors in the CWS claims or EIE tables, or fraudulent CWS-claims for non-existent workers.

<sup>8</sup> However, the average number of months with wage and salary earnings during the April 2019 – March 2020 year is almost the same (10.2 versus 10.1), which suggests the difference is largely due to differences over the six months since. We have not explored the explanation of these differences here, but they may be due to (possibly secular) firm survival differences of subsidised and non-subsidised firms. For example, Figure 1 below shows that annual employment growth in non-subsidised firms has been negative since April 2020, in contrast to largely positive employment growth in subsidised firms; in addition there was a large job-separation rate in non-subsidised firms in January 2020, which suggests these firms were perhaps in more seasonal employment industries.

characterise by whether or not a person was employed in a month and, if employed, whether or not they received a CWS-payment during the month.

Figure 1 plots trends in the monthly job-accession and job-separation rates in CWS-firms (panel (a)) and Non-CWS firms (panel (b)). We define a job-start as occurring in month- $t$  if there were earnings in month- $t$  but not in month- $(t-1)$ ; and a job-end as occurring in month- $(t-1)$  if there were earnings in month- $(t-1)$  but not month- $t$ .<sup>9</sup> We measure the job-accession rate in month- $t$  as the number of job-starts in month- $t$  relative to the average number of jobs in months- $t$  and  $(t-1)$ ; we similarly measure the job-separation rate as the number of job-ends in month- $(t-1)$  relative to the average number of jobs in months- $t$  and  $(t-1)$ . Both accession and separation rates are thus measured as an index that can take values from 0 to 2.

First, over the period before the CWS became available (May 2019 – March 2020), the average accession rate was somewhat higher among CWS-firms (8.3%) than among non-CWS firms (7.7%), while the average separation rate was about the same across the two groups (7.4%).<sup>10</sup> Second, except for relatively higher separation rates among both CWS- and non-CWS firms in April 2020, both the accession and separation rates of both groups were 1.5–2% lower over May – September 2020 than the corresponding months of 2019.

We have also plotted the monthly employment growth rates in CWS- and non-CWS firms over April 2019 – September 2020 in Figure 1 panels (a) and (b). These show quite different patterns, with there being generally positive employment growth in the CWS firms. In the year to April 2020, annual employment growth for CWS firms was 4.1%, whereas there was a small decline of 0.2% for non-CWS firms.<sup>11</sup> Monthly employment growth after April 2020 was slightly higher for non-CWS firms than for CWS firms, with monthly declines for CWS firms in July, August and September. Annual growth (decline) between September 2019 and September 2020 was similar for the two groups (-1.2% For CWS firms and -0.5% for non-CWS firms). It's unclear whether the higher monthly employment growth in CWS firms between April and September 2020 reflects the positive effects of the subsidy for maintaining employment rather than other secular differences between firms that did or did-not receive subsidy payments.

The first two panels of Figure 1 also show the size of 'excess turnover', defined as the amount of turnover (accessions plus separations) in excess of what was needed for new

<sup>9</sup> These definitions imply jobs with monthly gaps in earnings will have multiple starts and ends. Relaxing the definitions to allow for such gaps has relatively small effects on the resulting accession and separation rates: results available from the authors.

<sup>10</sup> For non-CWS firm, the average separation rate is boosted by an unusually high separation rate in January, which we believe is associated with a high number of education sector job-ends in December. Excluding January, the average separation rate among CWS-firms is also higher than among non-CWS firms (7.2% versus 6.5%).

<sup>11</sup> We suspect this partly reflects that exits among non-CWS firms: that is, non-CWS may not have been employing workers after March, whereas CWS-firms necessarily had to employing workers later in the analysis period.

employment growth.<sup>12</sup> This is a measure of the liquidity of the labour market. Excess turnover declined for both CWS and non-CWS firms in April 2020 and has remained low for non-CWS firms. In contrast, excess turnover in CWS firms has risen to around pre-lockdown levels.

In the third panel of Figure 1 we have plotted the average monthly earnings (both raw, and adjusted for each job's modal number of monthly pays) from jobs in CWS and non-CWS firms. This figure shows the average earnings of jobs in non-CWS firms was substantially higher (30-35%) than in CWS-firms. It also shows there was a drop in monthly earnings in CWS firms in April and May, before recovering from June. The simple difference-in-difference estimate of earnings in May – September 2020 compared to the same months in 2019, shows the growth in average earnings in CWS-firms was about \$280/month (5.5%) lower than average earnings in non-CWS firms (based on average adjusted earnings, the CWS-firm earnings growth was \$170/month, or 3.5%, lower).

An alternative view of labour market changes is provided by examining the flows of people between labour market states. Figure 2 shows the patterns over time in the number of people ever seen in the EIE or CWS data who were employees or not employees in each month.<sup>13</sup> For those who were employees, the figure also shows the number in subsidised (CWS) jobs and those in unsubsidised jobs. The number of employees remained relatively high throughout the period with the growth and subsequent decline of the number in subsidised jobs clearly visible in the figure.

Turning next to the monthly transitions between employment-states, Figure 3 summarises monthly transitions between these labour market states. Ignoring non-employment to non-employment, this leads to 8 transitions. We estimate the month-t transition rate between employment-state  $S^0$  in (t-1) to state  $S^1$  in t as the fraction of month-(t-1) employees in  $S^0$ , who are in  $S^1$  in month-t:  $\#(S_{t-1}^0, S_t^1) / \#S_{t-1}^0$ .

Because of the number of states and the scale of transitions, we present the various transitions in two panels and with different transition rate scales on each: panel (a) involves transitions between employed states (with or without a subsidy), with the transition rate scale being 0–1; while panel (b) involves transitions between non-employed and employed, with the scale being 0–0.2. As the CWS first appeared in March 2020, prior to this only non-subsidised employment and non-employment states were possible. Over this period, 3-4% of employed

<sup>12</sup> Excess turnover rate =  $2 * \min(\text{Accessions rate}, \text{Separation rate})$

<sup>13</sup> For any CWS-claim a worker is associated with, we have assumed they were supported from the 'date paid' associated with the CWS-claim for the duration of the subsidy term – e.g. for 12 weeks in the case of the Original CWS, 8 weeks for the Extension CWS, etc.

employees became non-employed in any month (except about 6% in January, associated with education employee job-ends), and 13-20% of non-employed employees became employed.

Panel (a) shows that the advent of the CWS led to 16% of non-subsidised employees becoming subsidised in March, and 30% in April, before these transitions fell to 3-6% over May – August. As expected, the month-to-month transitions for employees remaining in subsidised employment was high (around 95%) during the April – June Original-CWS period, and was then about 40-50% through July – September, when the Extension- and Resurgence-CWS were in force, after which our observation period ends. Closely mirroring these CWS-persistence rates, the transition rates from subsidised to non-subsidised employment increase from close to zero (<4%) until June to 50-60% over July – September.

The patterns in panel (b) also show there were small flows of non-employed workers into subsidised employment from March onwards (<3% monthly). Combined with the 5-10% drop in transition rate into non-subsidised employment, this implies there was a net fall in the flow of workers from non-employment after March. There were also relatively small flows from subsidised employment to non-employment from April onwards: around 2% monthly until June, and rising to nearly 4% from July, similar to the rate for non-subsidised employment to non-employment.

Although the current observation period to September means it is too early to observe the effect once the CWS has ended, the transition patterns presented here do not suggest there were dramatic effects on labour market dynamics over the short run.

## **4 Concluding discussion**

This note has provided a preliminary analysis of, first, the selectivity of firms and employees who received any Covid-19 Wage Subsidy (CWS) payments; and second, the short run labour market transitions of recipients compared to non-recipients. Comparing firms who did and did-not receive CWS payments shows the selection was clearly non-random, with industry and size being two dimensions of difference. Similarly, males and younger employees were more likely to receive CWS payments. Our analysis of labour market transitions demonstrates the way that labour market flows were disrupted by Covid and related policies. There was a greater drop in job turnover rates in subsidised than non-subsidised firms, but the excess turnover in subsidised firms has returned to around pre-lockdown levels, while that in non-subsidised firms has remained low. Our analysis has not taken account of the selective differences between recipient and non-recipient firms or employees.

The findings that we have presented provide a foundation for future analysis of subsidy impacts or the impacts of the pandemic and related policies on patterns of labour market adjustment and dynamics. In particular, we have demonstrated that the available microdata are informative about both individual outcomes and labour market flows, as well as the non-random incidence of subsidy support across employees and firms.

However, our work falls well short of a proper evaluation of impacts of CWS on employee outcomes, which would require considerably more work. The examination of labour flows could also be usefully extended to include consideration of firm birth and death rates, and also of job creation and job destruction rates. The analysis of state transitions could also distinguish WS-WS or NWS-NWS transitions that involved a change in employer from those that did not. Such extensions would provide evidence of how labour market flows are contributing to a reallocation of employment between firms, industries, and geographic areas, or to what extent we are returning to pre-Covid patterns of employment.

Furthermore, a more complete analysis could build on that provided here by incorporating administrative data on support provided by policies other than CWS. Such analyses could, first, include receipt of CIRP when unemployed; and second, take account of the selectivity between CWS-subsidised and unsubsidised employment, and unemployed receiving CIRP and unemployed on benefits. For example, this could involve developing a dynamic competing risks model with respect to different transitions for those initially employed pre-COVID.

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Table 1: Employer level descriptive statistics

	(1)	(2)	Observed in EIE &		(5)
	Observed in EIE	Observed in CWS	in CWS	Not in CWS	CWS employee share
No. of firms	212,826	456,912	151,374	61,452	
EIE Descriptive information					
Firm size (No. employees)	12.0		11.1	14.1	
Firm size (weighted)	5,205		633	14,053	
CWS Descriptive information					
SoleTrader		0.65	0.17		
Employer		0.46	0.93		
CWS claim size		3.9	9.2		
Weighted by EIE firm size:					
SoleTrader			0.09		
Employer			0.98		
CWS claim size			357		
CWS, Original			0.91		
CWS, Extension			0.32		
CWS, Resurgence			0.18		
CWS, Leave			0.28		
Industry (weighted by EIE firm size):					
A: Agr, Forestry & Fishing	0.049		0.036	0.075	48%
B: Mining	0.002		0.002	0.002	63%
C: Manufacturing	0.091		0.115	0.043	84%
D: Elec,Gas,Water&Waste	0.008		0.006	0.011	54%
E: Construction	0.081		0.115	0.014	94%
F: Wholesale Trade	0.047		0.059	0.024	82%
G: Retail Trade	0.089		0.102	0.064	75%
H:Acc & Food Services	0.069		0.098	0.013	93%
I: Trans, Post & Warehsng	0.040		0.053	0.015	87%
J: Inf Media & Telecomms	0.015		0.013	0.021	54%
K: Fin & Ins Services	0.028		0.027	0.029	64%
L: Rent, Hire & RE Services	0.019		0.022	0.014	76%
M: Prof, Sci & Tech Serv	0.077		0.073	0.083	63%
N: Admin & Support Serv	0.053		0.071	0.017	89%
O: Public Admin & Safety	0.062		0.017	0.150	18%
P: Educ & Training	0.043		0.027	0.074	41%
Q: Health & Social Assist	0.098		0.079	0.134	53%
R: Arts & Rec Services	0.018		0.023	0.009	83%
S: Other Services	0.034		0.039	0.023	77%
Missing	0.077		0.023	0.184	19%

Notes: All statistics are based on confidentialised (RR3) counts. EIE refers to the IRD's Payday filing data, and CWS refers to the MSD Covid-19 Wage Subsidy data, loaded in the IDI Adhoc environment. Where noted, statistics are weighted by either the EIE firm size (i.e. average number of Employees), or number of employees listed in the CWS claim. Total number of firms observed in either EIE or CWS is 518,364.

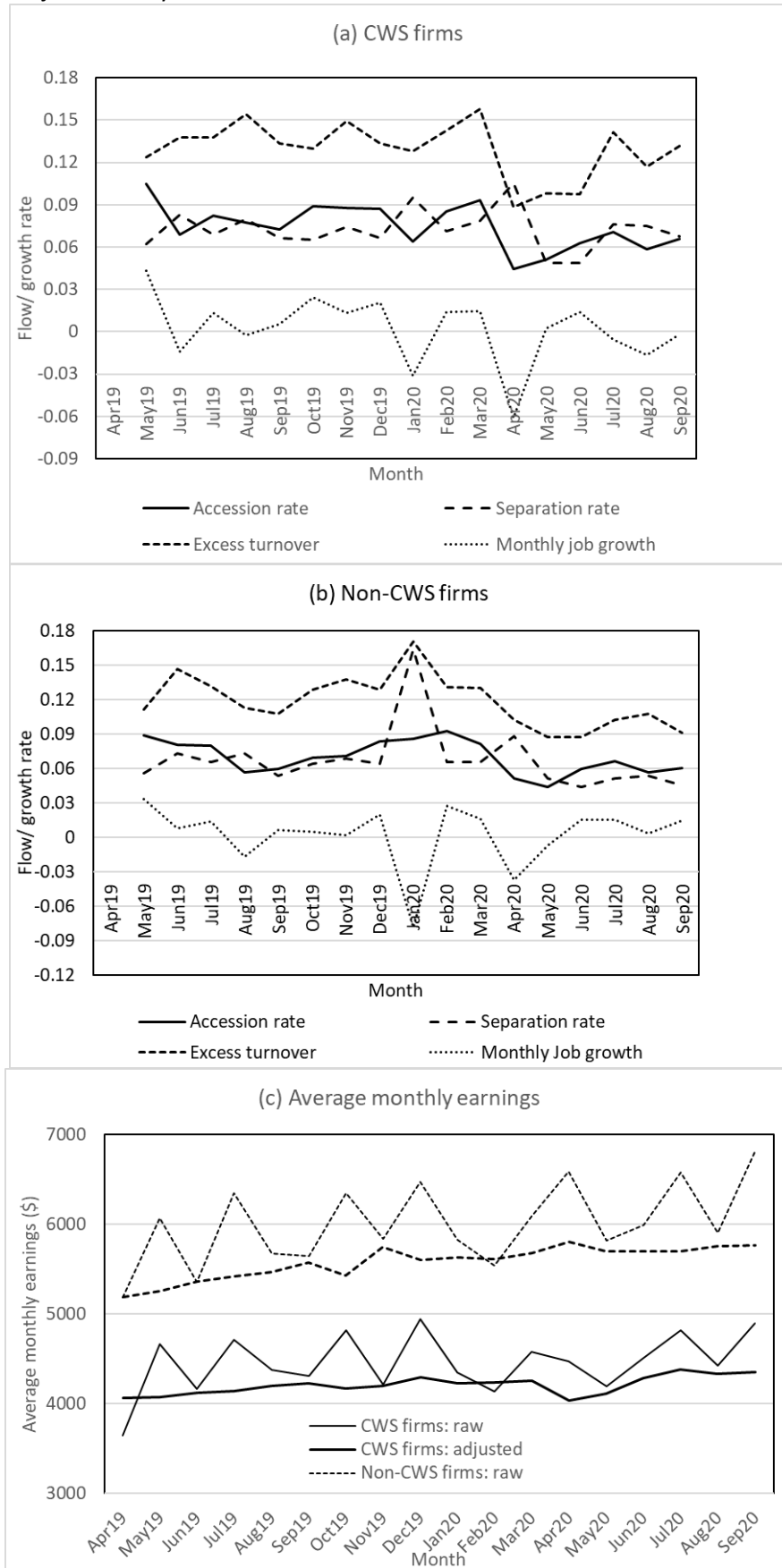
Table 2: Employee level descriptive statistics

	(1)	(2)	(3)	(4)	(5)
	All	Observed	Observed	Observed in EIE and	
	individuals	in EIE	in CWS	in	Not in
				CWS	CWS
No. distinct individuals	3,832,128	3,744,474	1,471,341	1,383,684	2,360,787
EIE Descriptive information					
No. W&S workers		2,823,180		1,360,908	1,462,272
Average (All months)					
No. W&S months		13.4		15.2	11.8
W&S earnings		4,916		4,750	5,071
log(Avg W&S earns)		8.14		8.23	8.06
Averages (Pre-April 2020)					
No. W&S months		10.2		10.2	10.1
W&S earnings		4,789		4,678	4,892
log(Avg W&S earns)		7.90		8.09	7.73
CWS Descriptive information					
No. employers (Always)			10,857	252	
No. employers (Ever)			27,147	15,768	
CWS, Original			0.950	0.955	
CWS, Extension			0.319	0.314	
CWS, Resurgence			0.174	0.173	
CWS, Leave			0.069	0.070	
Employee demographics					
Age	45.8	45.7	40.4	39.9	49.1
Age (W&S workers)	40.1	40.1	39.6	39.6	40.5
Female	0.500	0.503	0.428	0.431	0.545
Female (W&S workers)	0.489	0.489	0.433	0.433	0.541

Notes: All statistics are based on confidentialised (RR3) counts. EIE refers to the IRD's Payday filing data, observed over April 2019 – September 2020; and CWS refers to the MSD Covid-19 Wage Subsidy data. Adjusted earnings are estimated as the monthly earnings adjusted by the ratio of each job's mean number of monthly pays to the actual number in a month.



Figure 1: Job-to-job monthly transition rates



Note: Adjusted earnings standardise monthly earnings to a 4-week equivalent rate.

Figure 2: Labour market states

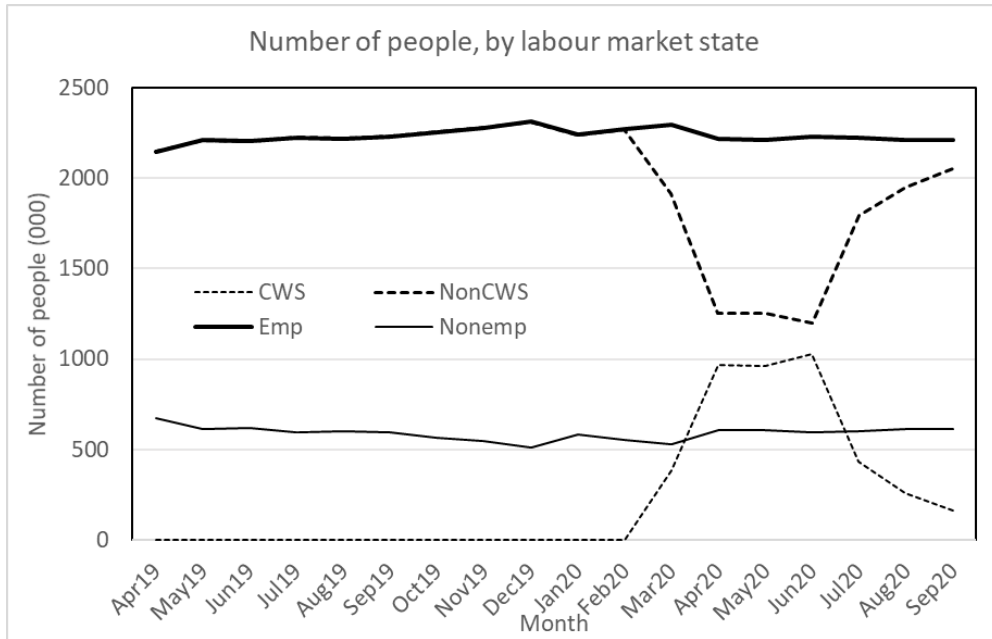
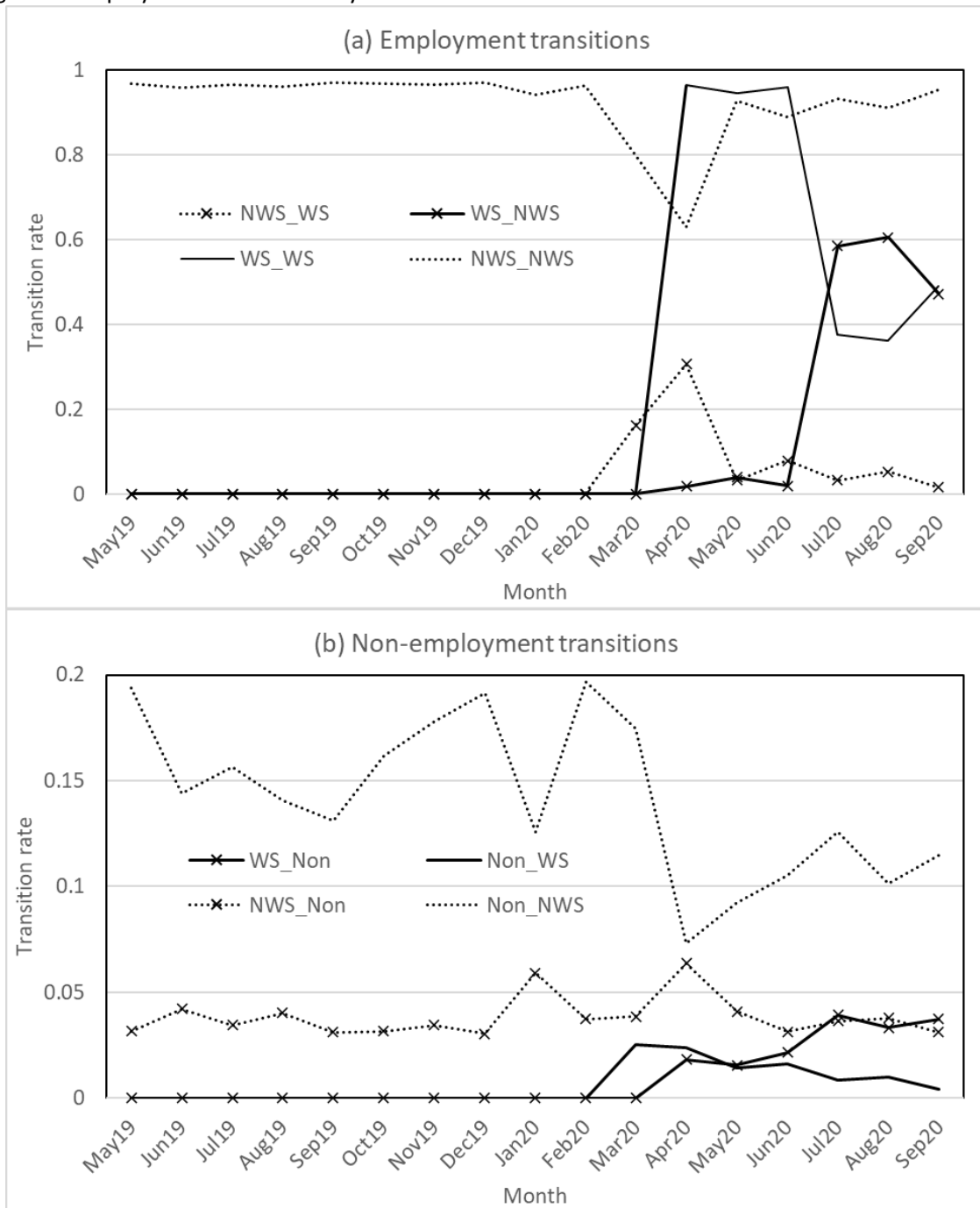


Figure 3: Employment-state monthly transition rates



Notes: The employment-state transitions are as follows:

- NWS\_WS: Non-CWS to CWS employed
- WS\_WS: CWS to CWS employed
- WS\_NWS: CWS to non-CWS employed
- WS\_Non: CWS employed to not-employed
- Non\_WS: Not employed to CWS-employed
- NWS\_NWS: Non-CWS to non-CWS employed
- NWS\_Non: Non-CWS employed to not-employed
- Non\_NWS: Not employed to non-CWS employed



