The Response of New Zealand Firms to the Global Financial Crisis

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New Zealand and the GFC

The economy went into recession in 2008Q1, after almost ten years of sustained growth (albeit with the tradeables sector slowing from 2005)

- Recession was initially less severe than previous recessions, but was more prolonged
- Output declined by 3.1% over 4 quarters and employment declined by 2.8% over 5 quarters
- By 2010, unemployment rate had risen (3.5% to 6.5%) especially for youth (13.1% to 27.6%)

By international standards, the impact was mild, though still substantial

Labour market policy settings

By international standards, New Zealand has a relatively flexible labour market, with relatively light protections and less generous benefit levels

Employment protection

- Comparatively low levels of employment protection [Venn, 2009]
- Recent 90-day trial period, during which no appeal against unjustified dismissal

Benefit levels

- Continued emphasis on work incentives and in-work benefits

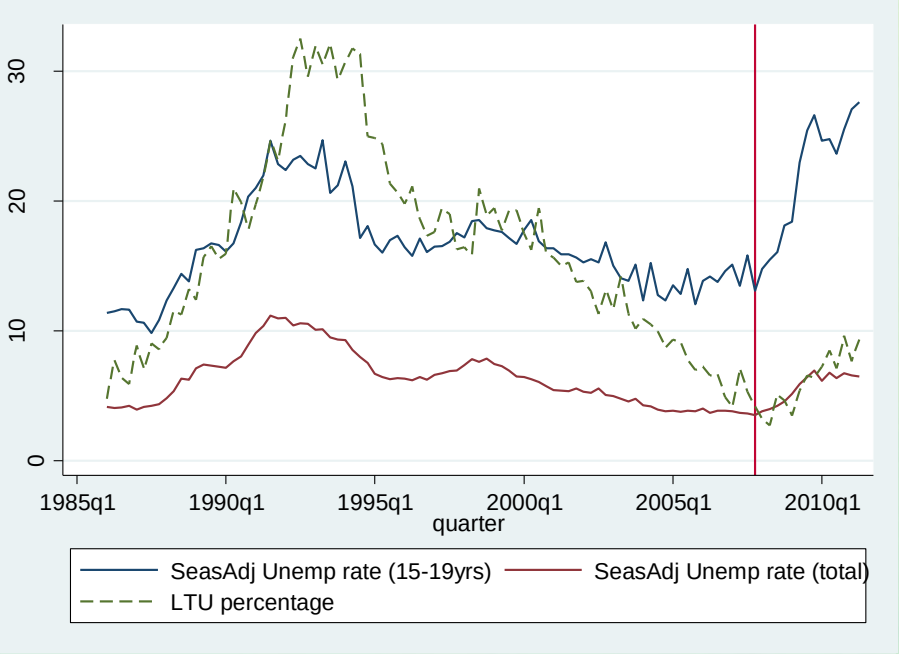
Regulation

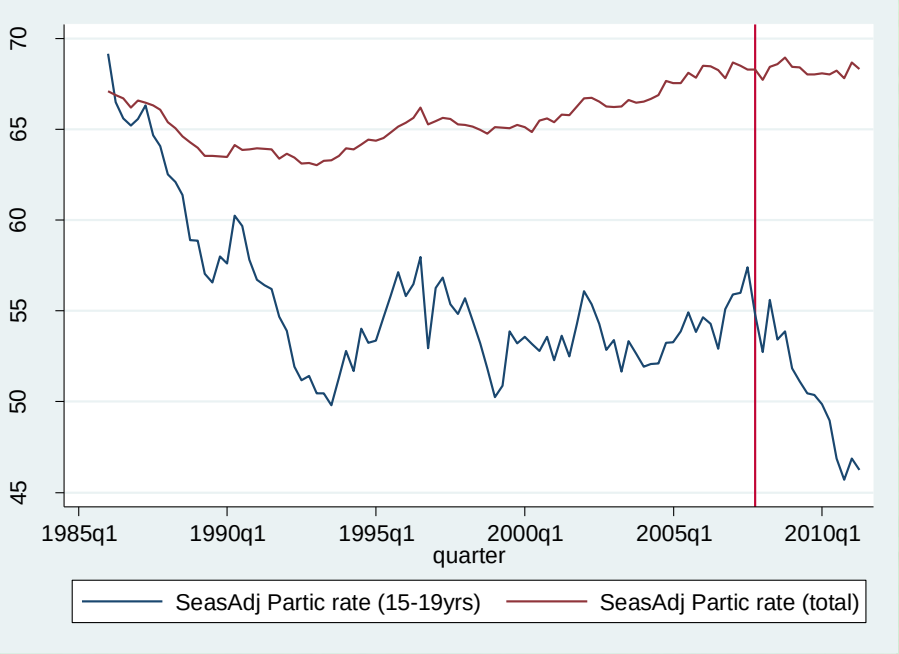
- Easiest country in the world to start a business; One of the easiest places in the world to do business [World Bank and IFC, (2012) "Doing Business"]

Possible Implications

- Expect labour demand to respond readily to output change, especially in upturn
- Low safety net may encourage hours and wage adjustment, in preference to job loss; and reduced worker turnover
- Firm entry and exit may be relatively responsive

Worsening unemployment and participation rates (especially for youth)





Unemployment rate

- rose from 3.5% to 6.5%
  - rose from 13.1% to 27.6% for 15-19 year olds:
  - LTU rose from 4.5% to 9.2%

Participation rate

- relatively stable for ‘all workers’
  - dropped from 65% to 45% for 15-19 year olds

Job and worker flows

Notation and definitions

$$g\ z_{it} = \frac{z_{it} - z_{it-1}}{\bar{z}_{it}} \text{ where } \bar{z}_{it} = z_{it} + z_{it-1}\ /2 \quad \left| g\ z_{it} \right. \text{ lies between -2 and 2}$$

$$G\ Z_t = \sum_i \left(\frac{\bar{z}_{it}}{\sum_i \bar{z}_{it}} \right) \frac{z_{it} - z_{it-1}}{\bar{z}_{it}} = \sum_i \lambda_i g\ z_{it}$$

Net Employment Growth: *G(Emp)*

Job Flows

$$\text{Job Creation rate} = \sum_{i \text{ expanding}} \lambda_i g\ z_{it}$$

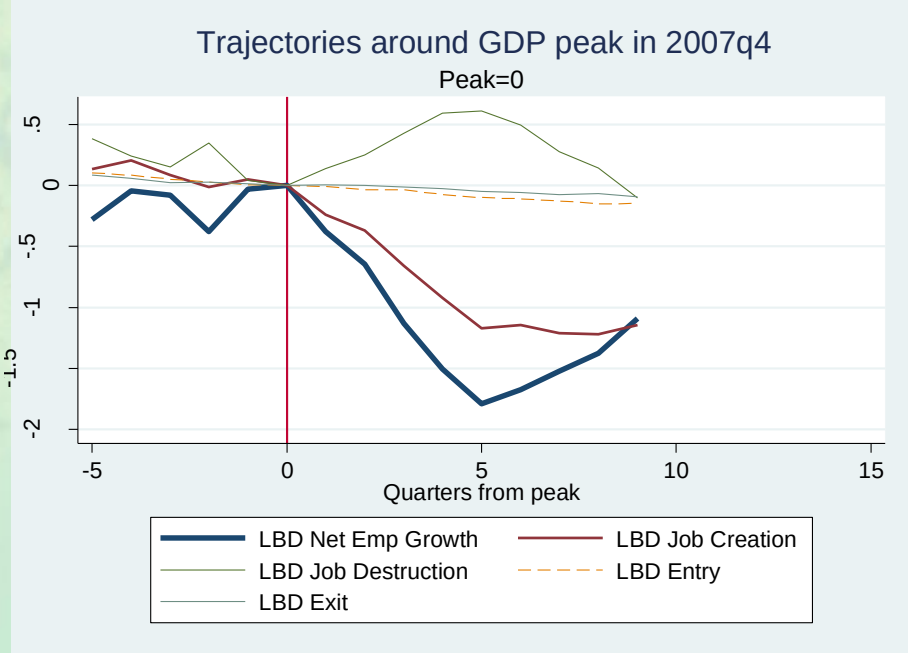
$$\text{Job Destruction rate} = \sum_{i \text{ contracting}} \lambda_i g\ z_{it}$$

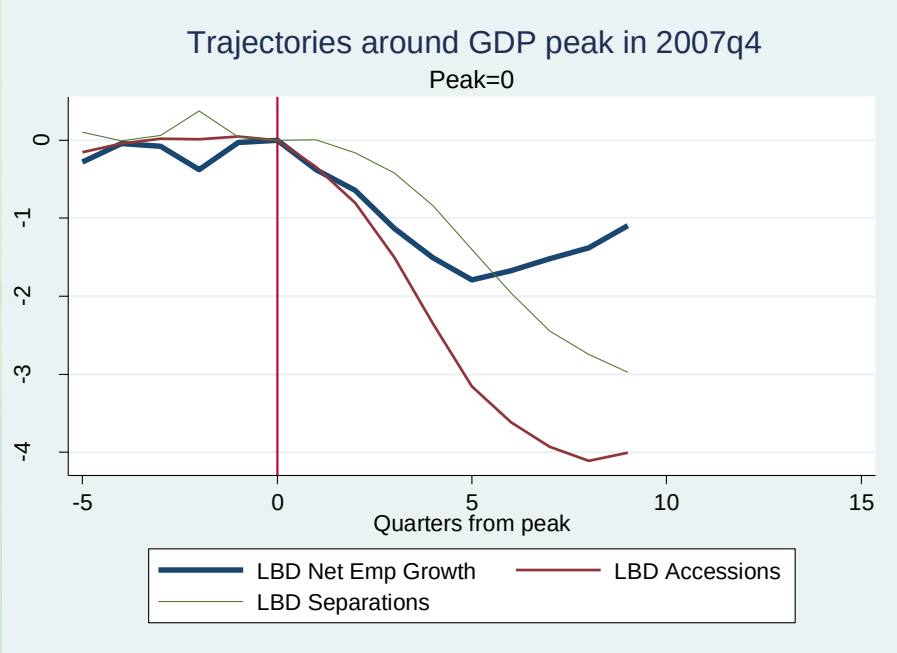
Worker Flows

$$\text{Accession rate} = \sum_i \lambda_i \frac{\text{New Hires}}{z_{it} + z_{it-1}\ /2}$$

$$\text{Separation rate} = \sum_i \lambda_i \frac{\text{Quits + Fires}}{z_{it} + z_{it-1}\ /2}$$

Evolution of labour flows





Job flows

- rise in job destruction
- (continued) drop in job creation
- small contribution of entry and exit (partly sample?)

Worker flows

* drop in accessions *and* separations

Focus of microdata analysis

Heterogeneity in:

- Size of output shocks that firms faced
- Firm-level responses to output shocks
  - Flows & Employment change | Output shock
- Firm-level distribution of employment change
  - Worker flows | Employment change

Contributions to employment change of:

- Δ(Distribution of shocks) vs Δ (Reaction to shocks)
- Regression modelling to control for firm attributes

Uneven incidence across workers

- Currently based on firm-level composition measures

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Longitudinal Business Database (LBD)

Longitudinal panel of enterprises covering 1999Q2 – 2010Q1

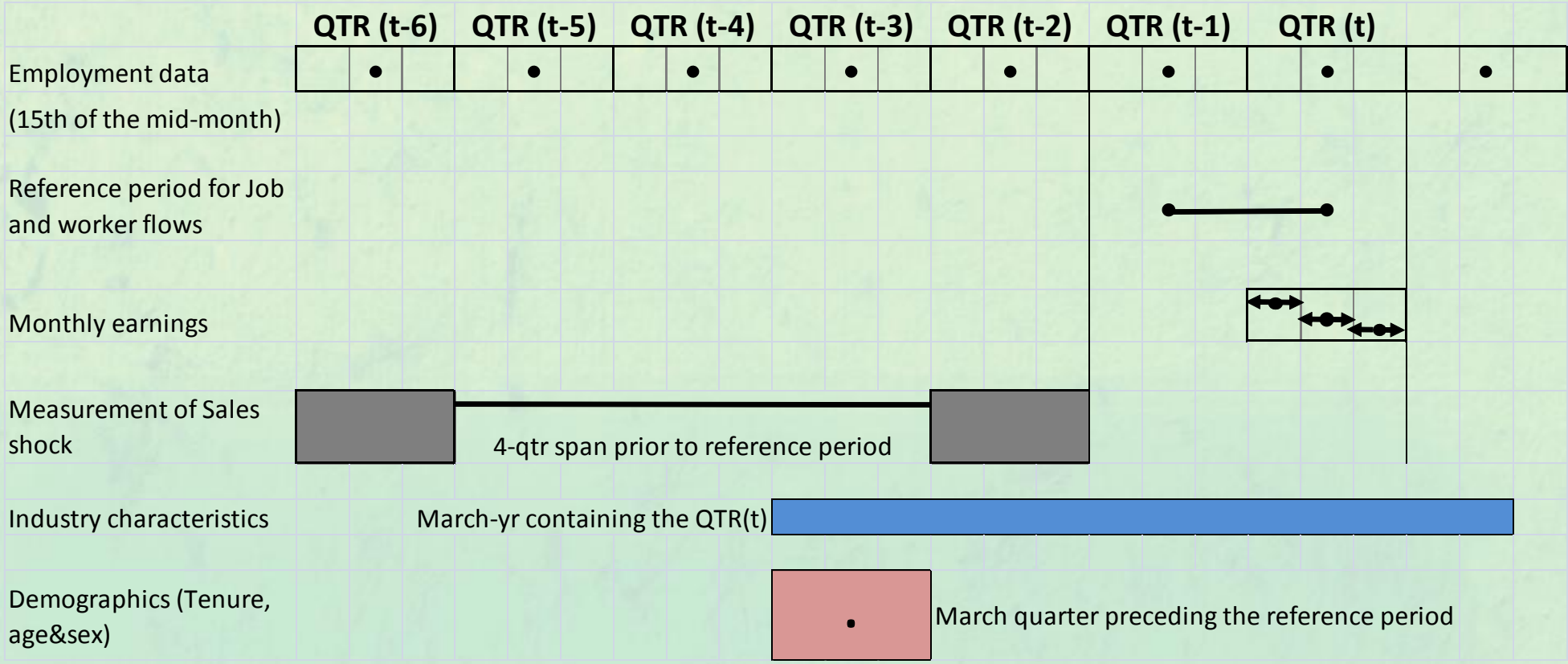
Includes all employing enterprises

- Restrict to private-for-profit, ever 3+ employment, L>0 in quarter

Linked to administrative and survey data, including data on:

- Monthly Employment, earnings, turnover, tenure *[from Linked Employer-Employee Data (LEED), which includes payroll tax returns, and limited worker demographic information]*
- Monthly sales *[from GST (goods and services tax) returns]*
- Annual firm financials and a range of firm characteristics *[from Business Operations Survey (BOS)]*
- Working proprietor and contractor counts *[from annual tax returns]*

Data timing



- Post-peak: 2008Q1 – 2010Q1
- Business Operations Survey: available from 2004Q2
- Tenure & demographics: not used prior to 2004Q3 (to deal with left-censoring)

Note potential sensitivity to lag structure

Changes in quarterly job and worker flows

	Pre-peak	*Post-peak*
	1999q3 - 2007q4	*2008q1-2010q1*
Net Employment growth (*100)	0.85	-0.64
Job Creation rate (*100)	7.58	6.02
Job Destruction rate (*100)	-6.73	-6.66
Accession rate (*100)	17.68	14.76
Separation rate (*100)	16.83	15.40

For analysing variation within expanding / contracting firms:

- Net employment growth/output shock divided into 181 bins, each with approximately equal employment
- All analyses weighted by total (average) employment in bin

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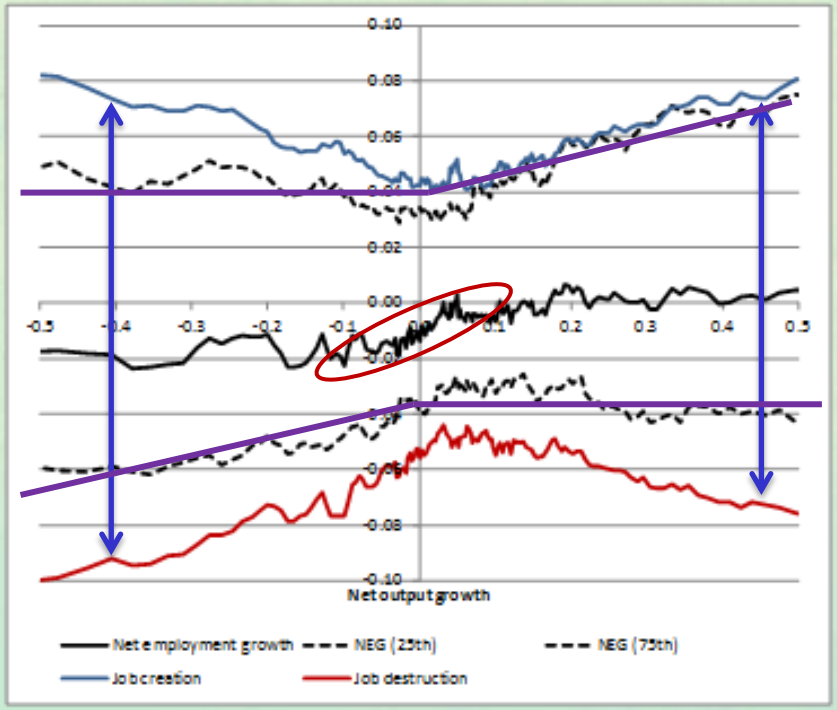
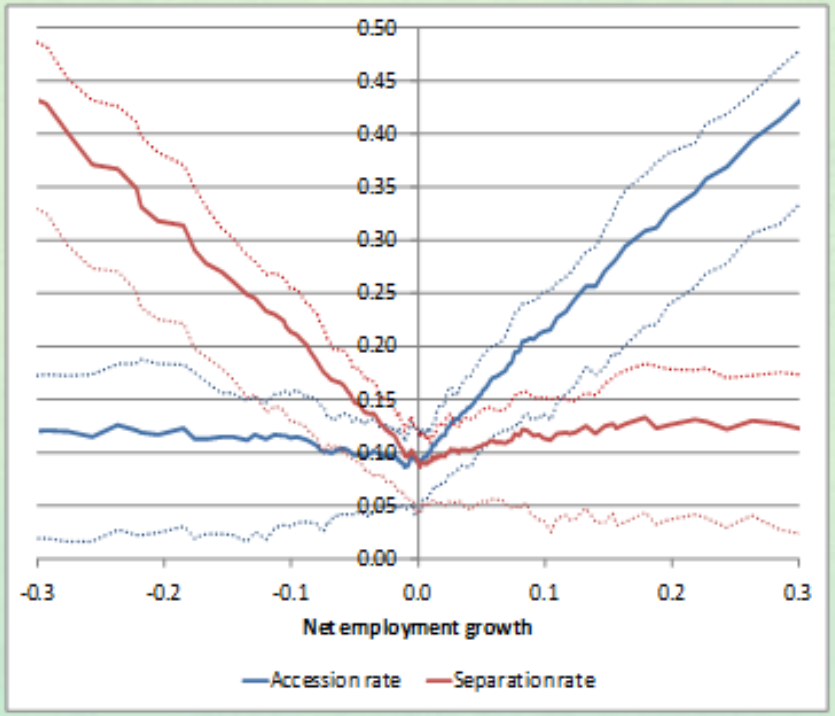
Heterogeneous adjustment (pre-peak)





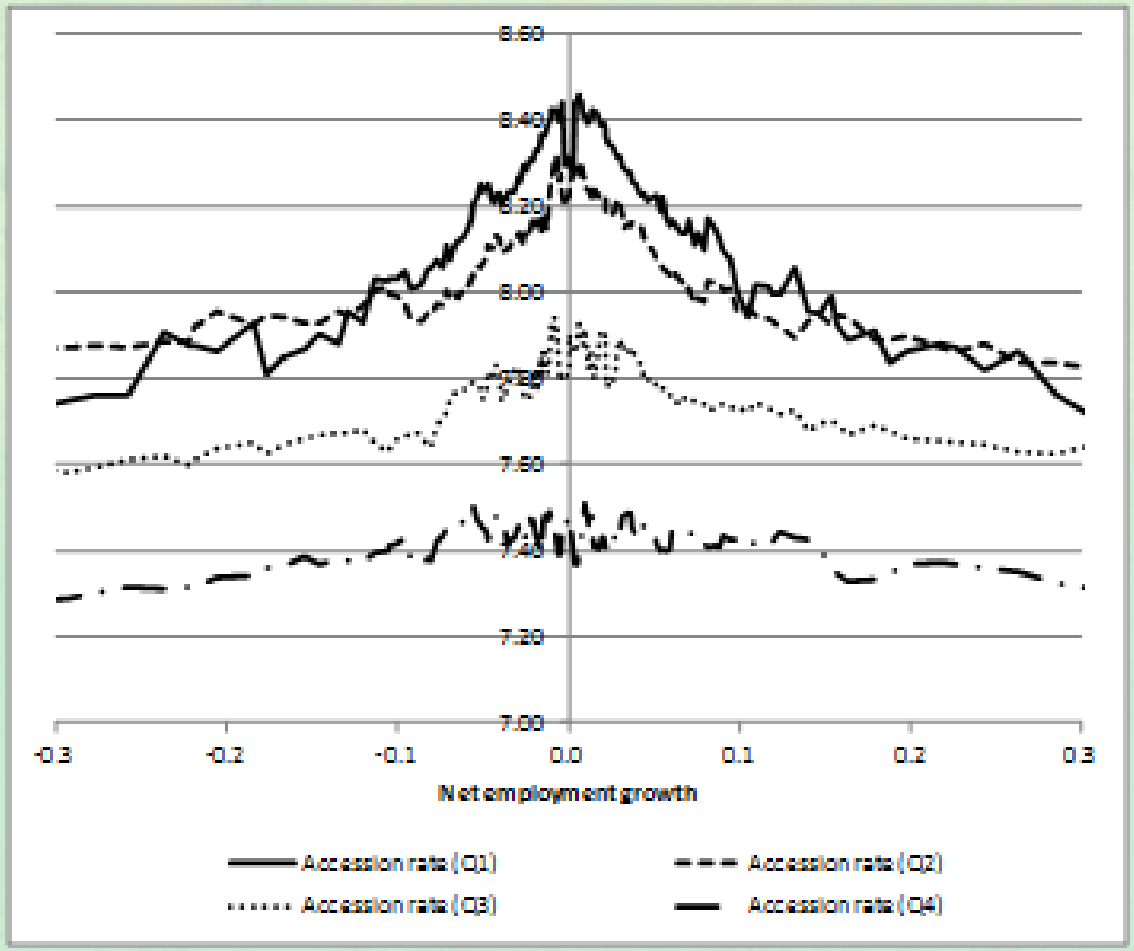
Job flows | Output shock

- Output and employment more strongly linked (ξ=0.2) for small output changes (output volatility for larger changes?)
- Upper and lower bounds are empirical 25th & 75th percentiles of net emplt growth
- Significant variation in employment growth for any given level of output shock

Worker flows | Net employment change

- Upper and lower bounds are empirical 25th & 75th percentiles
- There is significant variation in turnover for any given level of employment growth

High worker flows are correlated with low wages



- Graph shows mean (log) wages for each quartile of accessions
- High-accession-rate firms have wages that are half that of low-accession-rate firms
- Highest wages for small employment changes (only large firms with small changes)

Changes conditional on output shock

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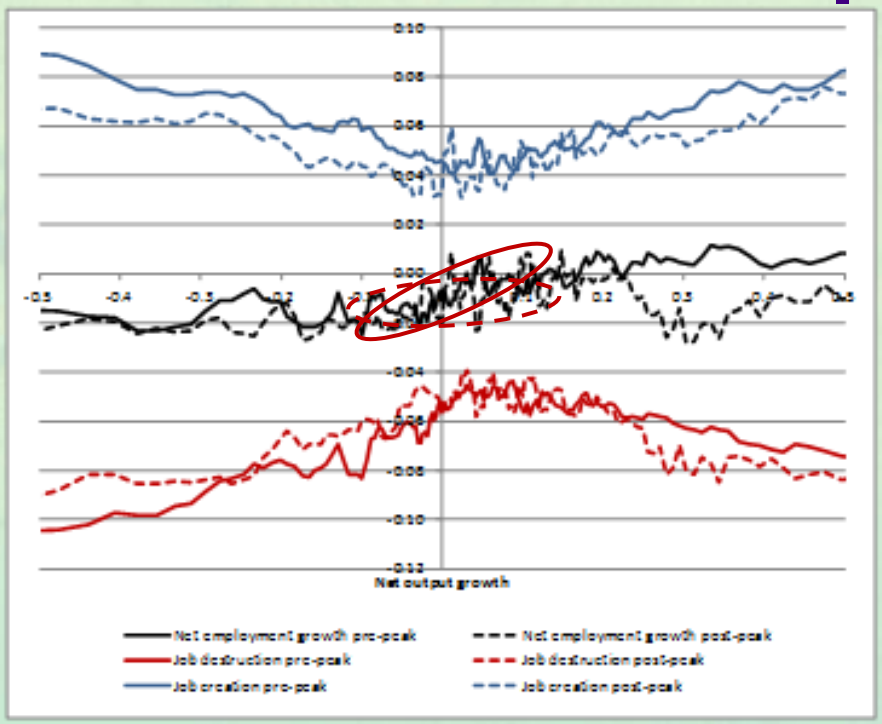
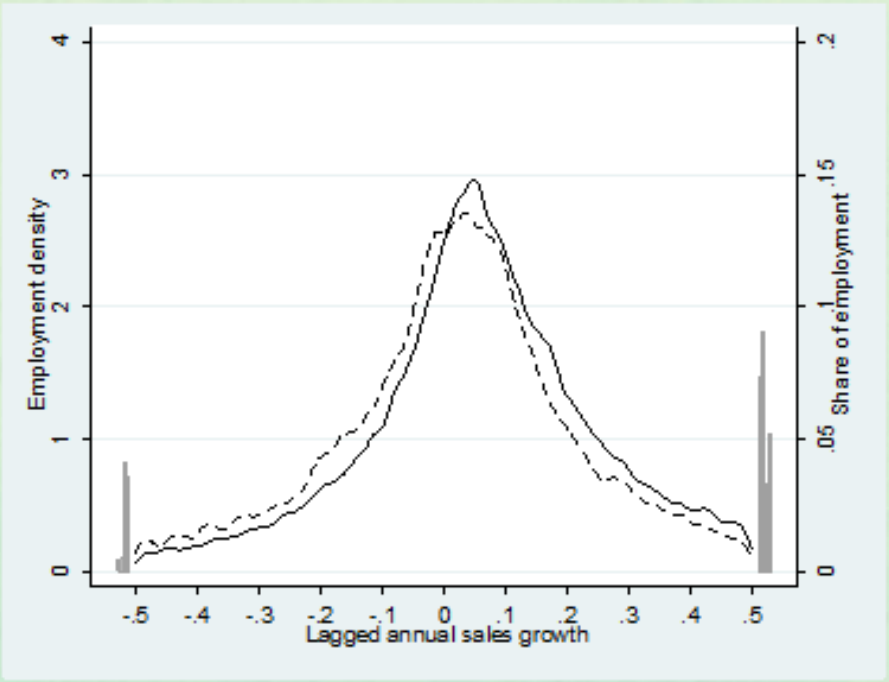
ΔJob flows | Output shocks





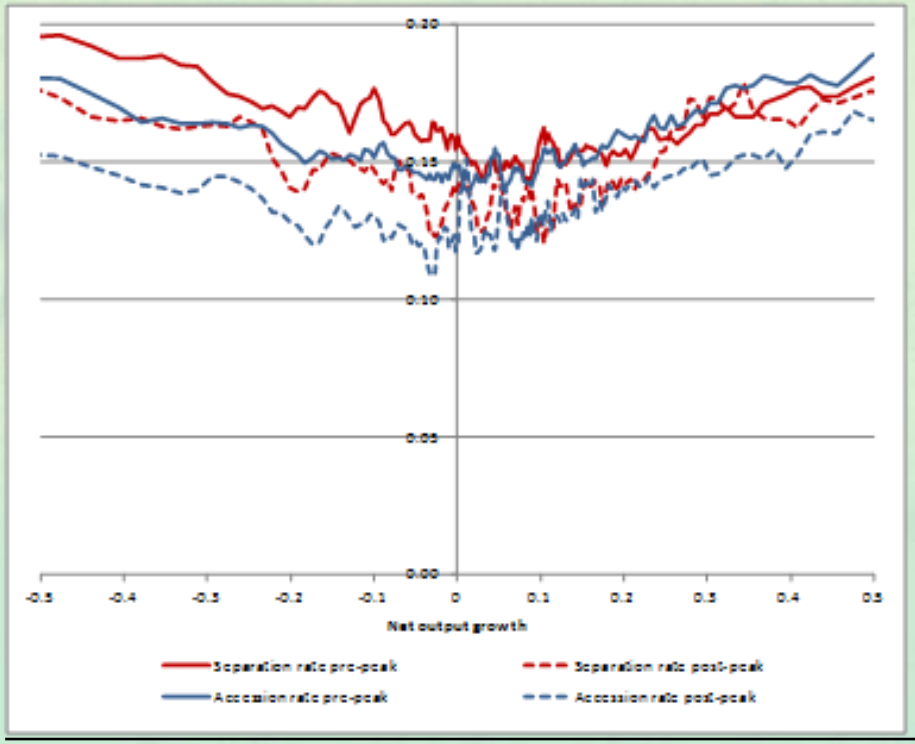
Job flows declined for firms experiencing negative output shocks

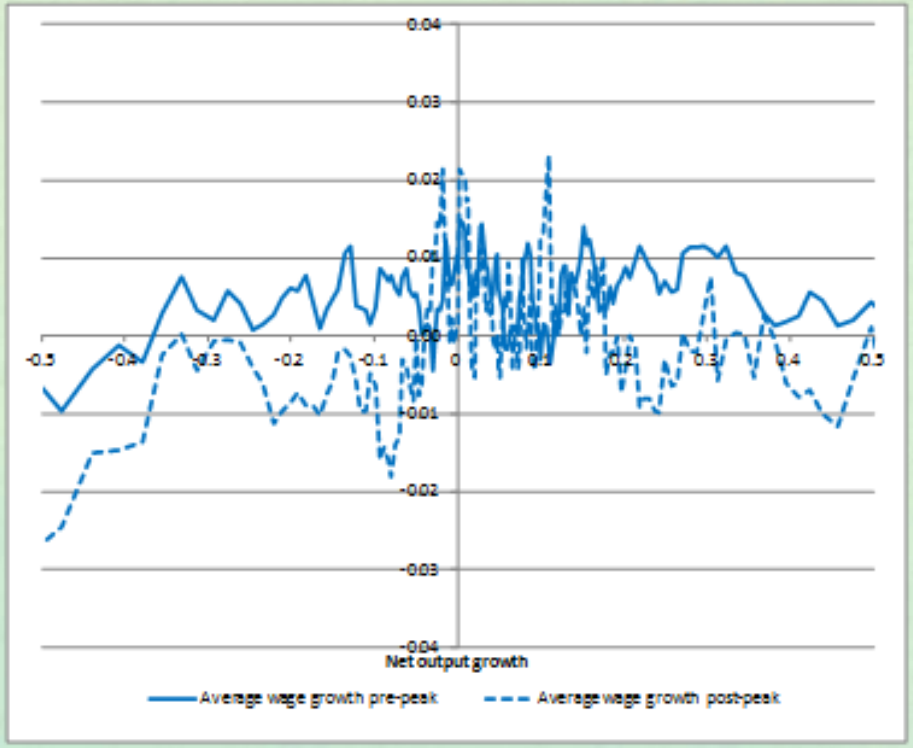
- Negative shocks associated with lower job creation *and* job destruction
- Positive shocks associated with *lower* job creation and *higher* job destruction
- Loss of gradient for small shocks

. . . *and* the distribution of output shocks shifted to the left

- Note lack of exits (firms unlikely to be employing in quarter)

Worker flows & ΔWage | Output shocks





Worker Flows

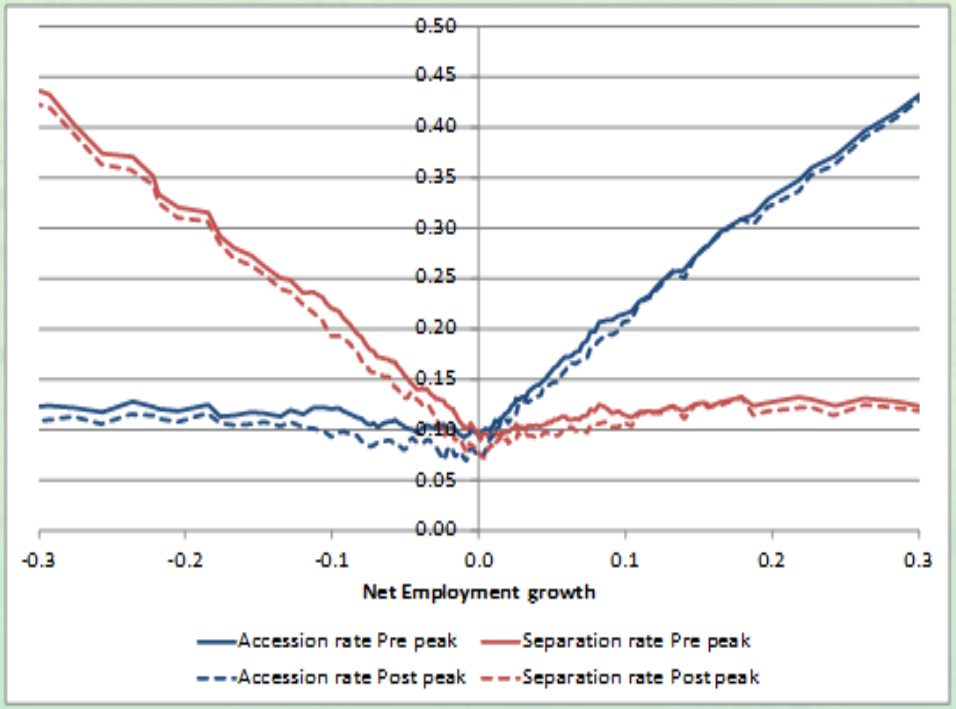
- Biggest reduction in flows for firms experiencing negative output shocks

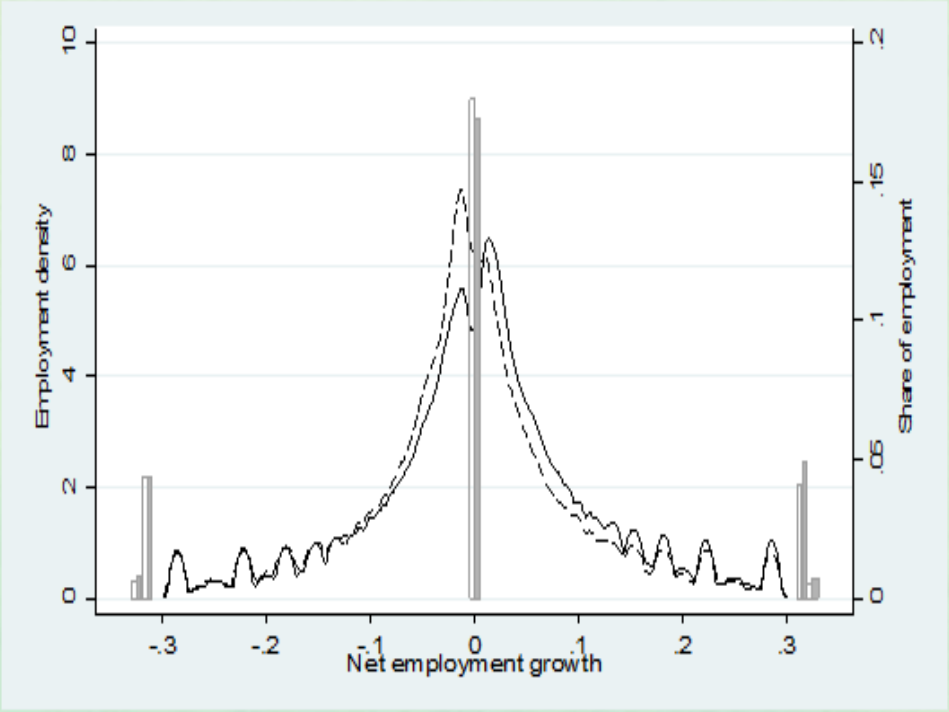
Monthly wage growth

- Wage growth is lower and less linked to output change after the crisis
- Declines could reflect change in hours/ skill composition

Changes conditional on employment growth

ΔWorker flows | Employment change



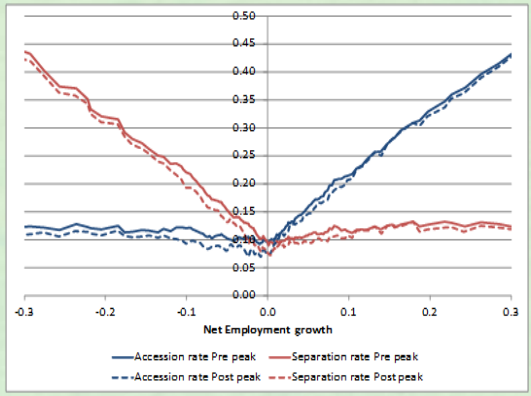


Worker flows declined

- possibly larger declines for firms experiencing small employment contractions

. . . *and* the distribution of employment growth shifted to the left

Modelling responses to output shocks



Regression equation

$$Flow_{gt} = \alpha_g + \beta_t X_{gt} + \left[1(t=1) * \begin{cases} \gamma^+ + \delta^+ G & \text{if G>0} \\ \gamma^0 & \text{if G=0} \\ \gamma^- + \delta^- G & \text{if G<0} \end{cases} \right] + e_{gt}$$

- g identifies a change bin (net employment change or output shock)
- α_g non-parametrically identifies the shape of the profile
- X_{gt} is a measure of bin composition (industry mix, worker composition)
- γ = rise or drop in flow rate post-crisis
  - separate shift for negative, positive, or zero bins
- δ = change in slope of profile post-crisis
  - separate slope effect for negative and positive bins
- (All regressions are employment-weighted)

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Modelling response to output shocks

	g=Sales shock bins					
	Net employment change	*Job destruction*	*Job creation*	*Accession rate*	*Separation rate*	*Monthly wage change*
shift if neg (γ-)	-0.0061	-0.0071	0.001	**-0.0254*** **	**-0.0193*** **	-0.0118
	[0.008]	[0.005]	[0.005]	**[0.005]**	**[0.005]**	[0.008]
shift if pos (γ+)	-0.0110**	-0.00719**	-0.0038	**-0.0236*** **	**-0.0126*** **	-0.0061
	[0.005]	[0.003]	[0.003]	**[0.003]**	**[0.003]**	[0.005]
Δslope if neg (δ-)	0.0093	0.0099	-0.0006	-0.0031	-0.0125	0.0007
	[0.012]	[0.007]	[0.007]	[0.008]	[0.008]	[0.012]
Δslope if pos (δ+)	0.0038	0.0013	0.0025	0.002	-0.0018	-0.008
	[0.008]	[0.005]	[0.005]	[0.005]	[0.005]	[0.008]
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Region effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm size effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	362	362	362	362	362	362
R-squared	0.722	0.921	0.895	0.956	0.929	0.738
p(equal slopes)	0.695	0.314	0.715	0.582	0.262	0.545
p(uniform level shif	0.463	0.981	0.232	0.671	0.132	0.389

Modelling Worker flows | employment change

	g = Employment change bins					
	Accession rate		*Separation rate*		*Monthly wage change*	
shift if neg (γ-)	**-0.0229*** **	**-0.0253*** **	**-0.0218*** **	**-0.0240*** **	**-0.0108*** **	-0.00864
	[0.00159]	**[0.00171]**	**[0.00161]**	**[0.00175]**	**[0.00362]**	[0.00577]
shift if zero (γ0)	**-0.0161*** **	**-0.0225*** **	**-0.0161*** **	**-0.0229*** **	**-0.0151*** **	-0.0133
	[0.00204]	**[0.00241]**	**[0.00206]**	**[0.00247]**	**[0.00465]**	[0.00815]
shift if pos (γ+)	**-0.0117*** **	**-0.0167*** **	**-0.0124*** **	**-0.0169*** **	**-0.0157*** **	**-0.0200*** **
	[0.00161]	**[0.00184]**	**[0.00163]**	**[0.00189]**	**[0.00367]**	**[0.00622]**
Δslope if neg (δ-)	**-0.0233*** **	**-0.0189*** **	-0.0128*	-0.00779	0.016	0.0172
	[0.00667]	**[0.00502]**	[0.00676]	[0.00514]	[0.0152]	[0.0169]
Δslope if pos (δ+)	0.00762	0.000035	0.0153**	0.00676	0.0308*	**0.0546*** **
	[0.00695]	[0.00587]	[0.00703]	[0.00602]	[0.0159]	**[0.0198]**
Industry effects	No	Yes	No	Yes	No	Yes
Region effects	No	Yes	No	Yes	No	Yes
Firm size effects	No	Yes	No	Yes	No	Yes
Observations	358	358	358	358	358	358
R-squared	0.999	1.000	0.999	0.999	0.745	0.839
p(equal slope effects)	0.002	0.015	0.005	0.068	0.501	0.154
p(uniform level shift)	0.000	0.000	0.000	0.002	0.599	0.257

Firm and industry characteristics

Characteristics of employment change or output shock *bands*

- Weighted average of firm-level characteristics
- Affect *P(shock)* [not examined] and/or *f(Adjustment|shock)*

Firm characteristics

- Worker tenure distribution
- % Working proprietors
- % contractors
- % female
- % young; % old
- Industry group
- Firm size
- Region

Industry characteristics

(Instead of industry dummies)

- Exporting
- FDI
- Collective agreement prevalence
- Subjective report of
  - High relative profitability
  - **Increased or stable profitability** **-8pp**
- Sought finance
  - Finance terms acceptable
  - **Finance terms unacceptable** **+8pp**

Impact of firm and industry characteristics

Main findings: Not many main findings!

Low tenure

- Low tenure associated with higher worker flow rates (not surprising)

Access to finance

- *Conditional on employment growth*, firms in industries seeking finance have higher wage growth post-peak
  - Though this effect is reversed where finance terms are reported as unacceptable

Exporting

- *Conditional on output shock*, job creation and accessions in export industries were higher pre-peak but not post-peak

FDI

- *Conditional on output shock*, job creation and accessions in industries with high FDI penetration were lower pre-peak but not post-peak

Summary of main results

Impact of Global Financial Crisis was relatively mild in NZ

Post-crisis:

- Job destruction rose and job creation dropped
  - Across most industries and locations
- Worker accessions and separations *both* dropped
  - Possibly more strongly in firms with small contractions
  - Consistent with workers wishing to retain employment (low reservation wage; perceived cost of job search)
- Wage growth dropped
- Incidence of employment losses fell on youth & low-waged (in paper and macro statistics, but not presentation)

Next steps

Distributional impacts

- Compare outcomes for workers who leave contracting vs expanding firms
  - Length of time out of work
  - Change in monthly earnings in new job compared with old
- Provides insights into:
  - Voluntary vs involuntary separations
  - Varying difficulty of re-entry when worker turnover is low

OECD standardised analysis

- To support *OECD Employment Outlook* chapter