

Reconsidering the Consequences of Worker Displacements: Survey versus Administrative Measurements

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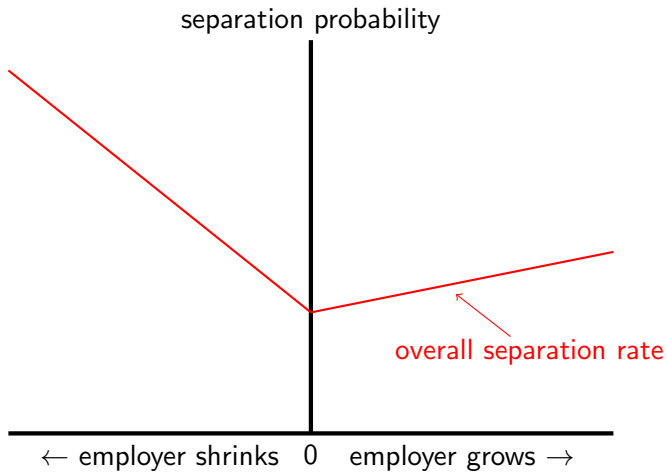
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Motivation

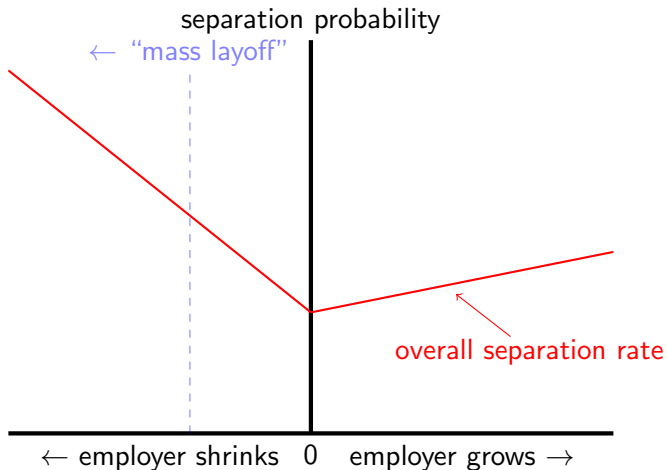
- ▶ Workers suffer persistent earnings losses
- ▶ Strongly established using mass layoffs
- ▶ But, even in mass layoffs, many reasons for separation
 - ▶ Retirement
 - ▶ Quit for different job
 - ▶ Other transitions (family care, schooling, etc)
- ▶ Linked survey-administrative data
 - ▶ Worker reported reason for separation
 - ▶ Subsequent non-participation vs unemployed

Traditional Measurement of Displaced Workers

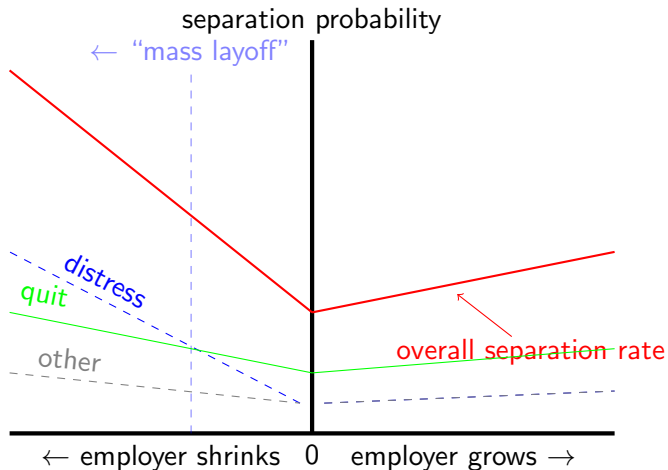
Traditional Measurement of Displaced Workers



Traditional Measurement of Displaced Workers



All Separations Are Influenced by Firm Conditions



Composition of separations

- ▶ Survey data: Reason for separation
- ▶ Administrative data: Firm growth at time of separation

Outline

- ▶ **Datasets and data linking;**
- ▶ Comparing indicators of displacement;
- ▶ Estimating earnings losses;
- ▶ Earnings histories with long stretches of zeros

Datasets

Survey of Income and Program Participation (SIPP):

- ▶ 2001 and 2004 panels;
- ▶ 4 month reference period.

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Longitudinal Employer Household Dynamics (LEHD):

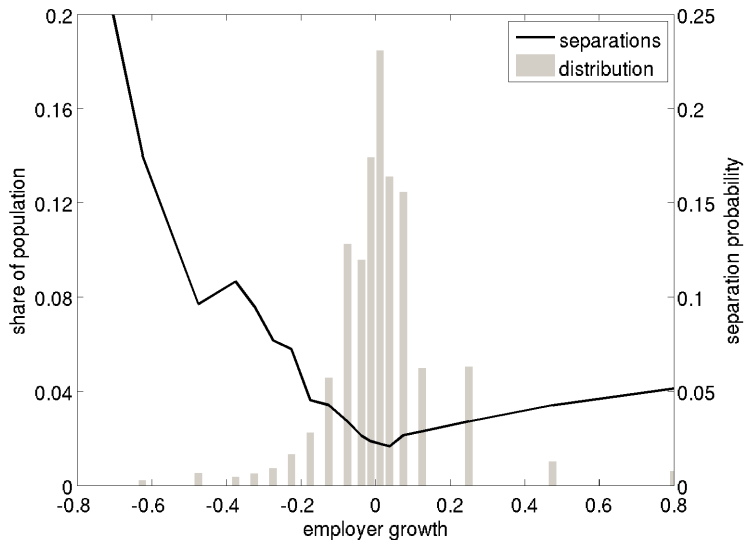
- ▶ Quarterly covered unemployment insurance (UI) earnings;
- ▶ Longitudinal employer and person linkages;
- ▶ Covers 90% or more of employers;
- ▶ All 50 States and through 2008:II.

Design

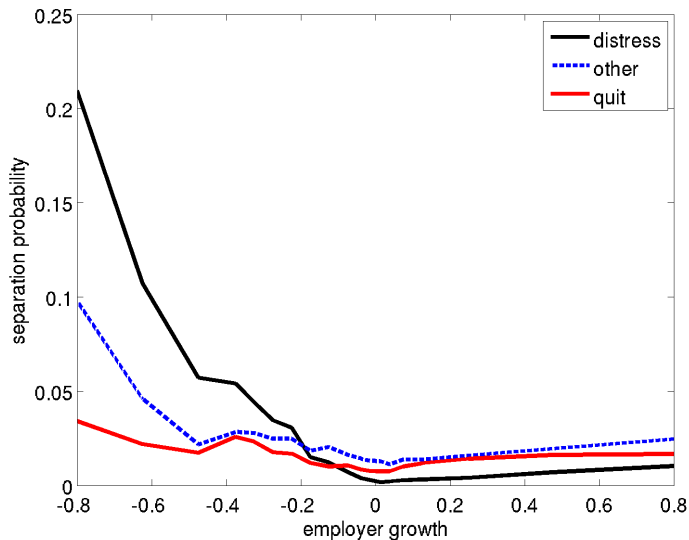
- ▶ Link SIPP and LEHD
 - ▶ Link exists at person level
 - ▶ Challenge: linking jobs
- ▶ Defining separation: survey and administrative data agree
- ▶ SIPP contributes a worker report of reason for separation
- ▶ LEHD contributes:
 - ▶ earnings (separators and controls)
 - ▶ firm performance (growth rates)

Survey reasons for separations	Share	ML Share
<i>Distress</i>		
On layoff	0.14	0.23
Employer bankrupt/sold business	0.03	0.62
Slack work or business conditions	0.03	0.18
Total Distress	0.20	0.28
<i>Quit</i>		
Quit to take another job	0.32	0.05
<i>Other</i>		
Quit for some other reasons	0.14	0.08
Retirement or old age	0.11	0.04
Unsatisfactory work arrangement	0.08	0.04
Discharged/fired	0.07	0.06
Other family/personal obligation	0.04	0.04
Own illness/injury	0.03	0.04
School/training	0.01	0.09
Job was temporary and ended	0.01	0.13
Total Other	0.49	0.06
Memo: Continuers	N/A	0.02
<i>Separations</i>	6500	N/A
<i>Continuers (Unique Persons)</i>	205,600 (28,000)	N/A

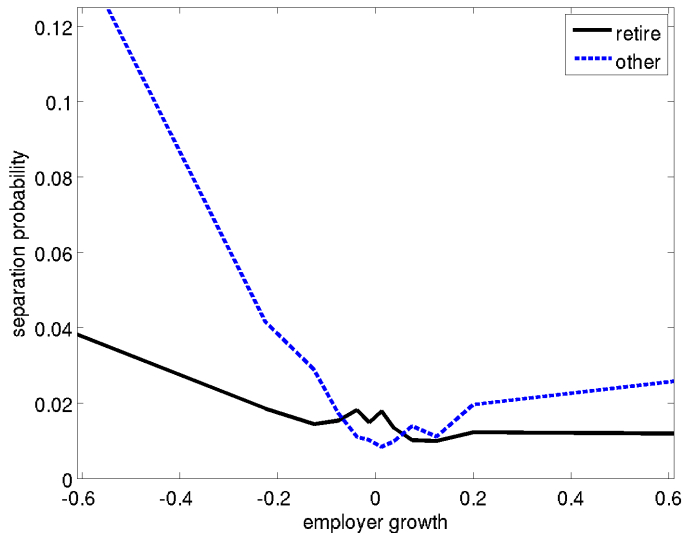
Separation Probabilities: All Separations



Separation Probabilities: Survey Reason



Separation Probabilities: Survey Reason, Older Workers

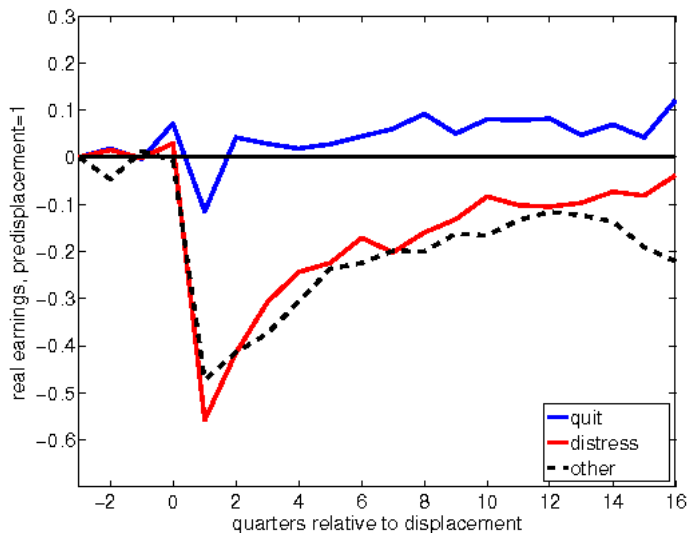


Event study specification for earnings losses

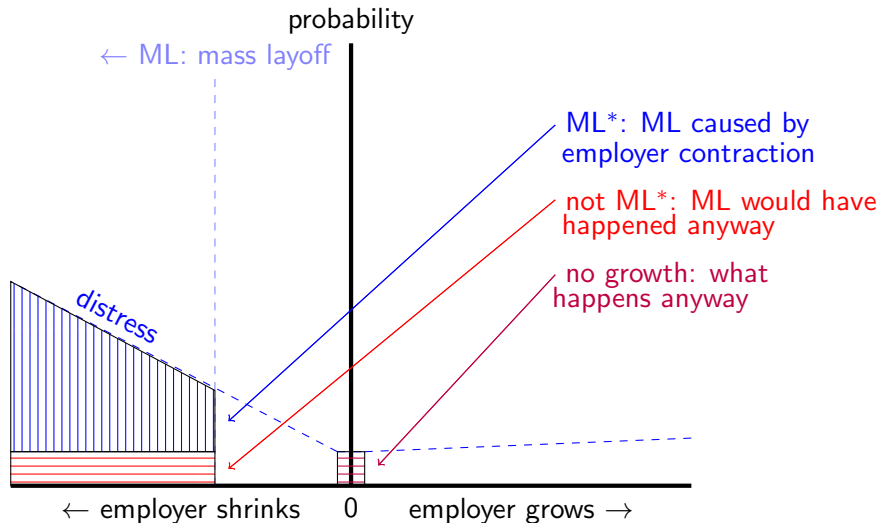
$$e_{ik}^y = \alpha_i^y + \gamma_t + \beta X_{ik}^y + \sum_{k=-3}^{16} \delta_k D_{ik}^y + \sum_{k=-3}^{16} \gamma_k E_{ik}^k + u_{ik}^y.$$

- ▶ e_{ik}^y : earnings of person i normalized to mean of pre displacement earnings in event time k , when they were matched in SIPP-LEHD in calendar time y ;
- ▶ α_i^y : fixed effect for a record matched in SIPP-LEHD (person - “quarter matched”);
- ▶ γ_t : calendar time dummy;
- ▶ X_{ik}^y : a quartic in age;
- ▶ D_{ik}^y : indicator for quarters relative to a displacement (or other class of separation);
- ▶ E_{ik}^y : indicator for quarters relative to a continuer.

Earnings Loss Following Mass Layoff, By Survey Reason



Recovering latent outcome



Recovering latent earnings losses

Conditioning separately on each of $s \in \{distress, quitandother\}$:

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$$\mathbb{E}[\Delta earn | ML_s] = \pi_s \mathbb{E}[\Delta earn | ML_s^*] + (1 - \pi_s) \mathbb{E}[\Delta earn | \text{not } ML_s^*]$$

▶ $\pi_s = \Pr(ML_s^* | ML_s)$

Recovering latent earnings losses

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Identifying assumptions:

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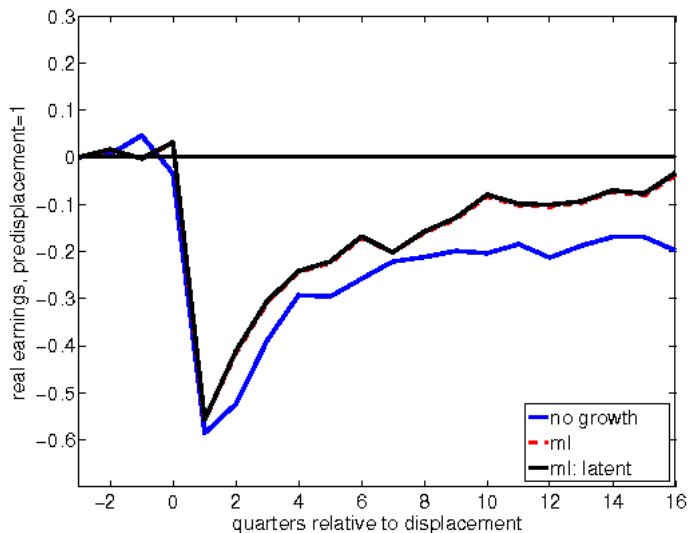
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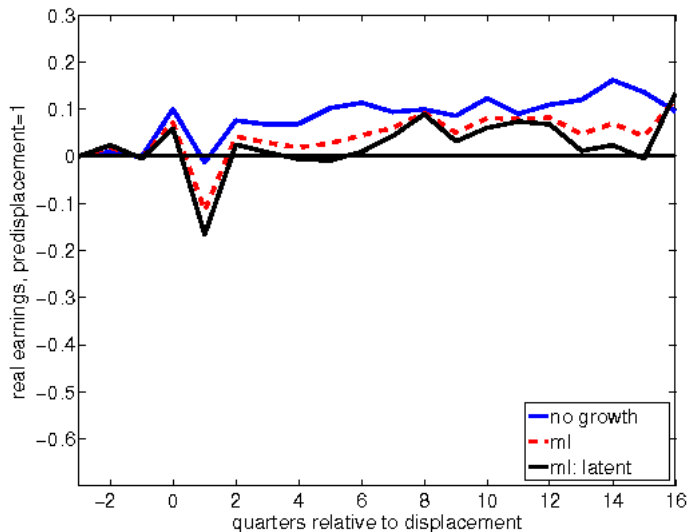
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$$\underbrace{\mathbb{E}[\Delta\text{earn}|\text{ML}_s^*]}_{\text{latent earnings losses}} = \frac{1}{\pi_s} \mathbb{E}[\Delta\text{earn}|\text{ML}_s] - \frac{(1-\pi_s)}{\pi_s} \mathbb{E}[\Delta\text{earn}|\text{no growth}_s]$$

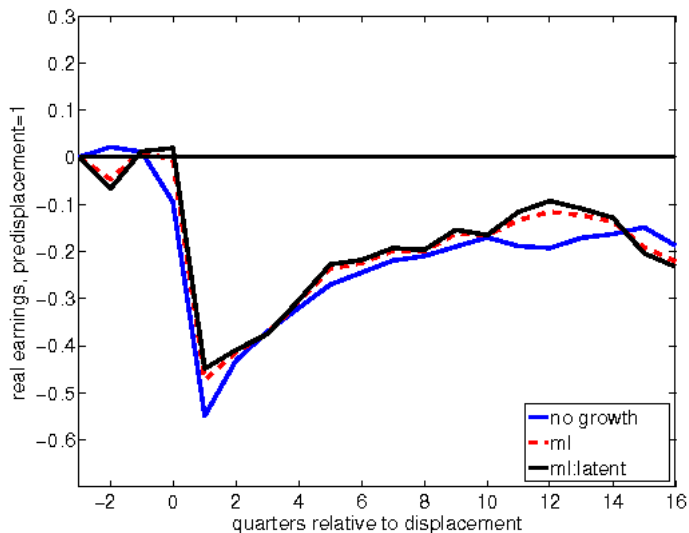
The Displacement Effect of Survey-Distress



The Displacement Effect of Survey-Quit



The Displacement Effect of Survey-Other



Weighting up Survey Responses

	Survey reason (s)		
	<i>Distress</i>	<i>Quit</i>	<i>Other</i>
$\Pr(\text{Separation}_s \mid \text{ML})$	0.055	0.021	0.026
$\Pr(\text{Separation}_s \mid \text{No growth})$	0.002	0.007	0.006

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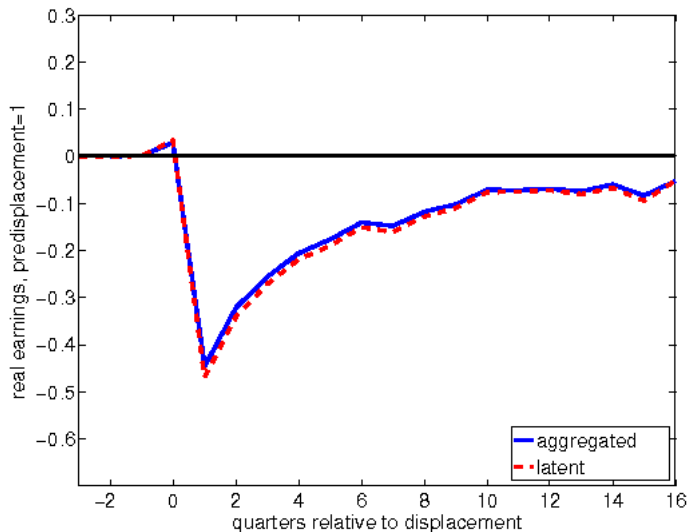
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$\text{Share}_s \mid \text{ML}$	0.542	0.204	0.254
$\text{Share}_s \mid \text{ML}^*$	0.612	0.159	0.229

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Share _{<i>s</i>} ML [*]	0.612	0.159	0.229

$$\mathbb{E}[\Delta \text{earn} | \text{ML}^*] = \sum_s (\text{Share}_s | \text{ML}_s^*) \mathbb{E}[\Delta \text{earn} | \text{ML}_s^*]$$

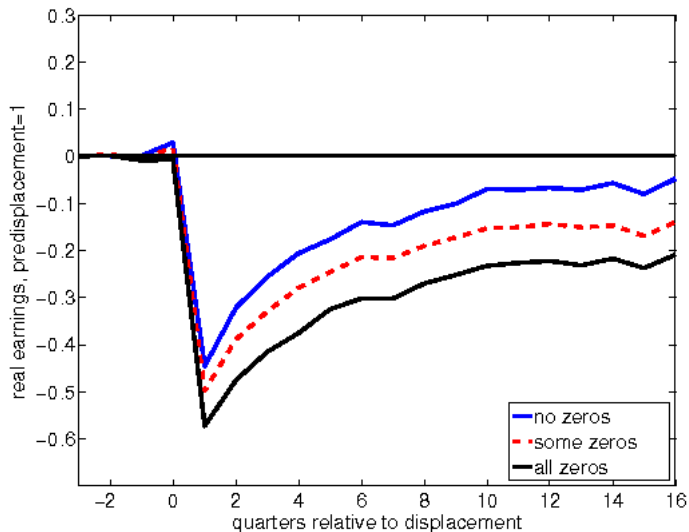
The Total Displacement Effect



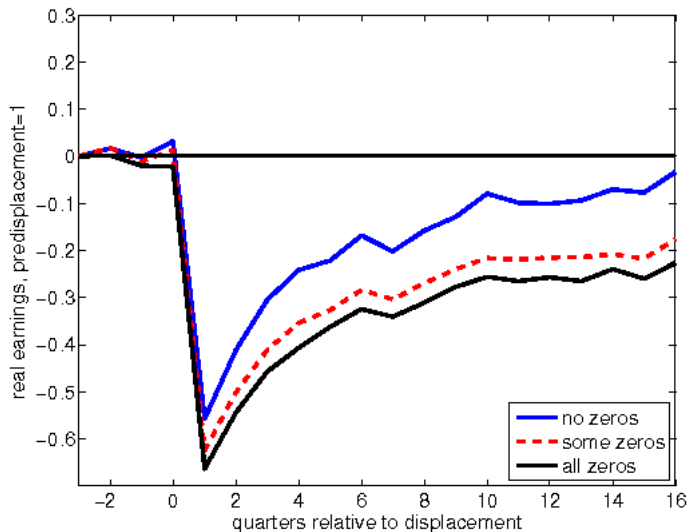
Zeros Earnings Post-Separation

- ▶ Standard treatment: omit earnings with a calendar year of zeros
- ▶ Use survey to incorporate some zeros: people who reported looking for work in the year after the separation

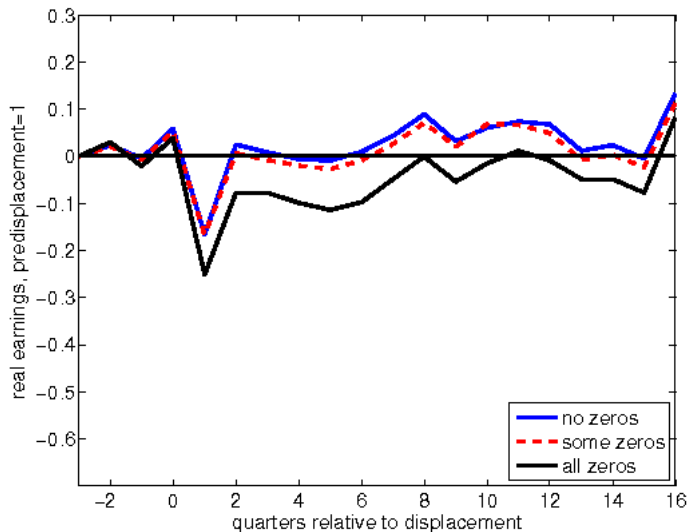
Admin-Based ML Definition: Zeros



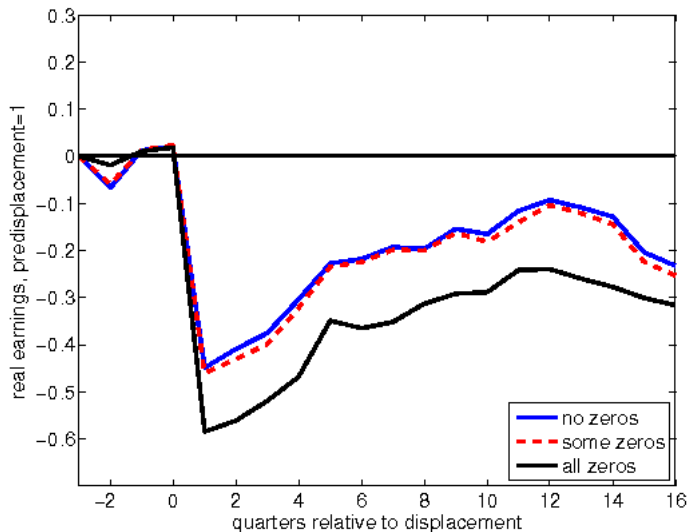
Incorporating "True" Zeros: Distress



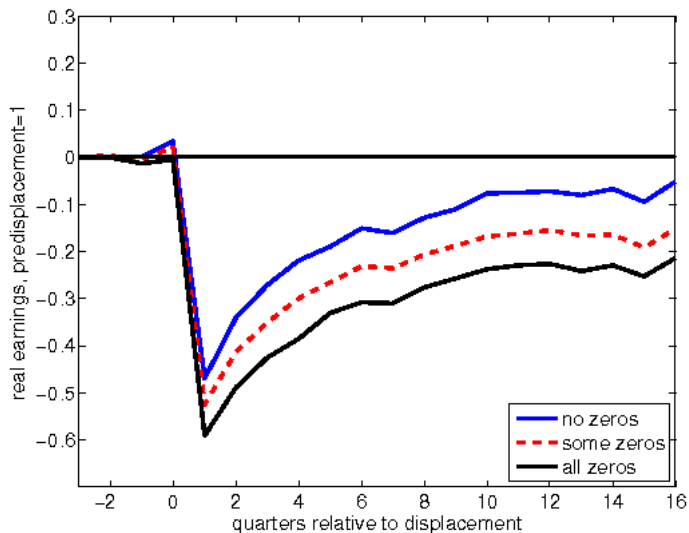
Incorporating "True" Zeros: Quit



Incorporating "True" Zeros: Other



Incorporating “True” Zeros: Latent ML



Conclusion

- ▶ Survey and administrative measures not perfectly correlated
 - ▶ *Quits* and *other* survey-reported reasons occur in ML
 - ▶ *Distress* occurs in no growth
 - ▶ Older workers: Both *retirement* and *other* increase in ML
- ▶ Survey and administrative reports uncover heterogeneity in earnings losses
- ▶ Administrative indicator of ML gives a reasonable indicator of earnings losses
 - ▶ *Distress* does better in in ML than no growth
 - ▶ *Quits* do worse in ML than in no growth
- ▶ Including persistent unemployed increases estimates of earnings loss

Match Quality: Person Quarter Counts

	SIPP Person Quarters	Positive LEHD Earnings	Matched
Continuers	525,900	499,800	348,100
Separate	22,700	22,000	10,100

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Standard errors

$E[u_{ik}^y u_{i'k'}^{y'}] \neq 0$ if $i = i'$ or $k + y = k' + y'$ ($k + y = t$, calendar time).

- ▶ Cluster two-ways: at person level, and calendar-time period [same issues and solution as Dube, Lester and Reich (2010)];
- ▶ Variance matrix:

$$V^{IT} = V^I + V^T - V^{I \cap T}$$

set of individuals I ; set of calendar-time periods T [Cameron, Gelbach and Miller (2011)].

Additional sample restriction: remove zeros

- ▶ If a calendar year in the event window (-3 to $+16$) around a person-quarter has zero earnings in the LEHD then drop record.

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Importance of (survey) non-distress separations in administrative mass layoffs

Survey Reason	Administrative indicator	
	Yes	No
Distress	54%	18%
No Distress	46%	82%
	100%	100%

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