The Linked Employer Employee Database: A Research Perspective

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Presentation

• A. Description of LEED

• B. Research themes focused on:
  – 1. Worker outcomes
  – 2. Firm outcomes
  – 3. Worker / Firm link outcomes

• C. Future research prospects
A. Description of LEED

• IRD Employer Monthly Schedule (EMS)
  – Since April 1999
  – Lists all paid employees, their earnings and tax
  – Unique Worker and Employer IRD identifiers
  – Identifies WA Bft, ACC, PPL, SA, NZS payments

• SNZ Longitudinal Business Frame (LBF)
  – Identifies geographic units (PBN) as “firm”

• MSD Benefit data

• EOTE feasibility study of MoE/ITO data link

• Note: LBD development in parallel to LEED
Pros & Cons of LEED

- **Strengths:**
  - ~ population of PAYE empl and earnings
  - tracks workers longitudinally
  - tracks firms longitudinally
  - tracks worker/firm matches

- **Weaknesses:**
  - few worker/firm characteristics
  - few policy instruments
  - No hours
  - Uncertain “sampling” properties
B. Research Themes

- (1) Worker focused outcomes
- (2) Firm focused outcomes
- (3) Worker / Firm link focused outcomes
- Data development project research
  - Not discussed here
(1) Worker focused outcomes

• Impact of injury (ACC) on emp & earns

• Benefit to work transition analyses
  – Hyslop, Stillman & Crichton (2004); Dixon & Crichton (2006);
    Stillman & Hyslop (2006); Moore (2006)
  – See some highlights

• Paid Parental Leave analysis
  – Crichton (2008)

• Older workers / transitions to retirement
  – See some highlights
… Worker focused outcomes

- Firm closure effects on Emp & Earns
  - Dixon & Stillman (2008)

- Measuring job tenure
  - Papadopoulos (2008); Timmins (2008)

- Job mobility and earnings dynamics
  - Maloney* (2006); Hyslop & Mare (2009)

- Impact of IT / Educ on emp & earns
  - Crichton (in progress); Smith (in progress)

- Some highlights …
Employment rates pre/post Bft (HS&C, 2004)
Employment & bft receipt rates (D&C, 2006)

Percent in each state

Months before transition

Off-benefit employment

On-benefit employment

Benefit only, no employment

Months after transition
Transitions to *retirement* (D&H, 2008)
Transitions to retirement (D&H, 2008)
(2) Firm focused outcomes

- Measuring labour productivity
  - Dixon (2007)

- Minimum wage effects on employment
  - Hyslop, Mare, Stillman & Timmins (2008)

- Some highlights …
Min wages & firm employment (HMS&T, 2008)

- Since 2000: teen min wages have doubled, raising avg wages ~5-10% relative to adults
- Firm analysis of teen emp ... distribution & wage-bill impacts
- No robust effect on teen employment by Hi-teen firms

<table>
<thead>
<tr>
<th></th>
<th>Share of Teen-emp</th>
<th>Avg Firm Emp-share</th>
<th>MW impact on Wage-bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Inds</td>
<td>100%</td>
<td>7.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>4 main Inds</td>
<td>60%</td>
<td>15.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Hi-teen firms</td>
<td>20-25%</td>
<td>40+%</td>
<td>4-5%</td>
</tr>
</tbody>
</table>
(3) Worker / Firm matches

• Measuring worker / firm effects in earnings
  – Mare & Hyslop (2006)

• Employment intensity, matching, & earnings
  – Hyslop & Mare (2007)

• Composition change over business cycle
  – Mare & Hyslop (2008)

• Seasonal employment analysis
  – Timmins (in progress)

• Job mobility and earnings dynamics
  – Maloney* (2006); Hyslop & Mare (2009)

• Worker/firm match & firm productivity
  – Mare & Hyslop (in progress)
Selected highlights

• Consider earnings regression model:

\[ Y_{ijt} = X_{it}'\beta + \theta_i + \Psi_j + \varepsilon_{ijt} \]

- \( Y_{ijt} \) = log(earnings rate) worker-\( i \), firm-\( j \), year-\( t \)
- \( X_{it}'\beta \) = observed (demographic) component
- \( \theta_i \) = (unobserved) worker fixed effect
- \( \Psi_j \) = (unobserved) firm fixed effect
- \( \varepsilon_{ijt} \) = idiosyncratic component

• Mare & Hyslop (2006):
  - significant worker and firm components of earnings
  - worker and firm “effects” positively correlated
Figure 2 (M&H, 2006): Industry earnings differentials

- Worker and Firm effects
- Worker attributes (xb)
- log(earn)

Worker effects
Firm effects
Projects on worker-firm links

• Mare & Hyslop (2008):
  – 1999–2007 bus. cycle: Emp up 20+%; #firms up 10+%
  – Significant dilution of worker ‘skill’ & firm ‘quality’
  – Measured annual average earnings growth ~1.3%
  – Composition-adjusted growth ~2.0%: i.e. substantially greater!

• Hyslop & Mare (2007):
  – Characterises workers annual employment by FT/PT & FY/PY
  – Describes job matching along these dimensions
  – Raw PT wage penalty due to worker and/or firm chars not PT per se

• Hyslop & Mare (2009):
  – Job movers have slightly higher raw wage growth than stayers
  – On avg workers seem to move to better firms (0.3%), but lose accumulated firm-specific tenure (-1.6%)
  – Higher ability workers gain (lose) most moving to better (worse) firms
(H&M, 2009): Job-stayers’ Residual earnings change

Residual log(FTE earnings) change

- Continuers
- Entrance
- Exiters

Relative to first (or last) year employed

-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7

Relative log(FTE earnings) change
(H&M, 2009): Job-movers’ Residual earnings change

Residual log(FTE earnings) change
Continuers
Entrants
Exiters

Relative to year of job change

Residual log(FTE earnings) change
C. Future research prospects

• Criteria to consider:
  – LEED’s strengths: i.e. worker-firm links, dynamics
  – Well identified population groups (e.g. Retired people: 90+% receive NZS by 65)

• Plug for a survey-data link:
  – Consider a single sample (e.g. HLFS) link to LEED (c.f. US 1-off CPS / SSA merge)
    • Risks? Privacy/confidentiality assessments, consent from svy respondents may be low, minimal risk to svy response
Fertile research areas?

• Workers’ earnings & LM dynamics
• Tax & bft smoothing of income shocks
• Inequality measurement (only individuals!)
• Benefit dynamics, using MSD bft info
• Education (& Ind Train) impacts on worker empl, earns, and firm outcomes
• Analysis of worker selection into education & IT, and firm-interactions
• Business cycle effects on LM decisions
• Evaluation of policy on LM outcomes (e.g. Benefit policies / prgs; Education prgs; etc)