Does the Sophistication of Use of Unemployment Insurance Evolve with Experience?

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Topic: repeat use of UI benefits

- Canadian regime heavily subsidizes part-year, fragmented, periodic employment patterns  
- Extensively documented since Corak’s work in the early 1990s  
- Subject of extensive lore since the 1970s  
  - ‘lotto 10-40’  
  - More so than any other country  
- Scientific literature has investigated numerous facets  
  - Kuhn and Riddell [2010] demonstrate that it has radically transformed the structure of the labour market of New Brunswick
Motivation

- There is a literature on the incidence of repeat use in North America
  - Anderson and Meyer [1997], Meyer and Rosenbaum [1996], McCall [2000] for the USA
- The event for this literature is whether or not the subject filed a claim for benefits during a given year
  - The choice variable is always binary

Motivation (cont.)

- There are many studies on other facets of the claim, such as the durations and the length of the qualifying period
- Particularly in the case of a seasonal, habitual user, an optimal EI claim actually has multiple facets
  - Some of these facets have not been analyzed very much
  - No study has treated how the attributes evolve over the course of an individual’s claims profile
Central foci

• How do repeat users of UI adjust the features of their claims over the course of their claims profile?
  – Is there evidence of any convergence to a certain configuration for a claim?
  – Do the use patterns become more sophisticated?

Central foci (cont.)

• If so, are any learning effects at work?
  – How do they learn information relevant to their choices?
    • ‘awareness’
  – How might they apply this information?
    • ‘learning by doing’
Central foci (cont.)

- Examples of claims’ attributes
  - The reserve ratio
  - The minimum qualifying period
  - The maximum length of the benefit period
  - The ceiling imposed on insurable earnings
  - The clawback applied to earnings while on claim
  - The determination of the typical pre-separation earnings

Antecedents

- Lemieux and Macleod (2000)
  - Demonstrate empirically the existence of strong persistence patterns in UI incidence, as well as an effect of occurrence dependence
    - Conditional on an initial claim for UI benefits, the probability of filing a subsequent claim is higher
  - That empirical pattern is being generated in part by individual learning effects
    - After initial exposure to the regime, workers learn how to access it and all about its provisions
Antecedents (cont.)

  - The provisions that apply to the habitual claimants with seasonal, part-year employment patterns are very arcane, complex, and intricate
    - ‘small weeks initiative’
    - ‘renewal provision’
    - ‘divisor rule’
    - ‘allowable earnings provision’
    - ‘best 14 weeks rule’
  - Those who access the regime the most often are those who have the best opportunity and the strongest incentive to learn about all of these rules

Summary of Findings

- The claims profiles of frequent users do tend to evolve through the course of multiple claims
  - On a statistical level, there does appear to be some convergence to an optimal claim in terms of benefiting from the regime
  - Some evidence of the presence of learning effects
    - individual learning effects – ‘learning the ropes’ through a trial-and-error process
Conceptual framework for within-worker claims histories

- In regards to the relationship between the number of claims filed and the attributes of a claim, we search for empirical regularities.
- The null hypothesis is the absence of empirical regularities
  - Neo-classical labour market in which the UI regime has a neutral impact
  - No effects on job start-dates, end dates, wages

Conceptual framework for within-worker claims histories (cont.)

- The alternative hypothesis is the presence of empirical regularities
  - Workers tend to adapt their claims and the concomitant employment patterns along several dimensions
  - ‘Tailoring’ their claims, ‘gaming the system’ with an eye toward a more valuable configuration – an ‘optimal’ claim
Underlying behavioral mechanism given an adjustment process?
  • Individual learning effects
    – Provisions and regulations of the UI regime
    – Recruitment and hiring practices in the local labour market, contacts and referrals, layoff procedures, job queuing
  • Social learning effects not dealt with
  • Firm learning effects not dealt with
  • Could be other frictions that hinder users from reaching their ‘optimal’ claim, i.e. adjustment lags

Green and Riddell (1995,1997) determine that the implicit contract framework applies to this segment of the Canadian labour market
Data Set

- Derived from the Status Vector / record of employment file of HRSDC
  - Randomly select a sample of 100,000 subjects who filed at least one claim for regular or fishing benefits between 1985 and 2003
  - Grab all of their other claims from 1980 to 2003
    - Exclude special benefits
  - Generates a longitudinal file whose unit of analysis is the person-claim
    - 96,000 subjects, 331,000 claims

Target population

- Workers with periodic employment patterns
  - Not all of whom are seasonal
- A challenge to ensure that estimating sample represents that population
Primary outcome variables

- # of weeks of work beyond the minimum entrance requirement for qualification (EXTRAWEEKS)
  - Can be as low as 12 weeks
  - There is some incentive to keep that as \textit{low} as possible, as beyond that point the returns to marginal work fall

- # of weeks of work beyond the level required to cover the working cycle (SLACKWEEKS)
  - ‘Max year’ point means that working weeks plus UI benefit weeks = 50
  - There is some incentive to keep that as \textit{low} as possible, as beyond that point the returns to marginal work are low

- # of weeks of zero benefit during the claim period (WEEKSZERO)
  - There is a strong incentive to keep that as \textit{high} as possible
  - By combining intermittent, sporadic work with UI benefits, i.e. being in an intermediate state between employment and dependence on benefits, the total income level is raised
    - Tied to the renewal clause and the allowable earnings provision
    - A small minority of workers exhibit this ‘carrousel pattern’ in perpetuity.
• The key explanatory variable is **claim sequence number (CSN)** for a given worker, which is indicator for prior exposure to regime
  – Strategy is to link that variable to the attributes of the claim

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**Descriptive results – all subjects**

<table>
<thead>
<tr>
<th>Claim #</th>
<th>Weeks beyond min qual.</th>
<th>Weeks beyond max year point</th>
<th>Zero benefit weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27.2</td>
<td>19.1</td>
<td>4.8</td>
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<tr>
<td>2</td>
<td>23.2</td>
<td>17.8</td>
<td>5.6</td>
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<tr>
<td>3</td>
<td>22.1</td>
<td>17.1</td>
<td>6.3</td>
</tr>
<tr>
<td>4</td>
<td>21.1</td>
<td>16.4</td>
<td>7.1</td>
</tr>
<tr>
<td>5</td>
<td>20.1</td>
<td>15.7</td>
<td>7.7</td>
</tr>
<tr>
<td>6</td>
<td>19.3</td>
<td>15.1</td>
<td>8.1</td>
</tr>
<tr>
<td>7</td>
<td>18.6</td>
<td>14.6</td>
<td>8.3</td>
</tr>
<tr>
<td>8</td>
<td>17.7</td>
<td>14.1</td>
<td>8.5</td>
</tr>
<tr>
<td>9</td>
<td>17.2</td>
<td>14.0</td>
<td>8.5</td>
</tr>
<tr>
<td>10+</td>
<td>17.1</td>
<td>13.4</td>
<td>8.7</td>
</tr>
</tbody>
</table>
Descriptive results – all subjects

- Those trends are problematic due to:
  - Compositional effects: Not just picking up variation within claimants, but confounding it with variation between occasional and frequent users
  - Purely mechanical effects
- Take selected sample of heaviest users only so that between effects are purged

Descriptive results – fixed sample – 10 or more claims

<table>
<thead>
<tr>
<th>CSN</th>
<th>Weeks beyond min</th>
<th>Weeks beyond min</th>
<th>Zero benefit weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21.2</td>
<td>15.0</td>
<td>7.0</td>
</tr>
<tr>
<td>2</td>
<td>16.7</td>
<td>13.1</td>
<td>8.0</td>
</tr>
<tr>
<td>3</td>
<td>16.5</td>
<td>12.7</td>
<td>8.8</td>
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<tr>
<td>4</td>
<td>16.7</td>
<td>13.1</td>
<td>9.6</td>
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<tr>
<td>5</td>
<td>16.9</td>
<td>13.3</td>
<td>9.9</td>
</tr>
<tr>
<td>6</td>
<td>16.6</td>
<td>13.1</td>
<td>10.1</td>
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<tr>
<td>7</td>
<td>16.5</td>
<td>13.2</td>
<td>9.8</td>
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<tr>
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<td>16.3</td>
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<td>9.8</td>
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</table>
Empirical strategy for discerning adjustment effects

- A separate linear regression for each outcome measure
- All dependent variables measured in weeks
- Include controls for age, province, UI program generosity, sector, calendar year, local unemployment rate
- Key exogenous variable is claim sequence #, specified as a set of 5 binary variables
  - Gives a flexible, non-parametric function for the estimates of claim # 1, 2, 3, 4, 5

Empirical strategy (cont.)

- First attempt to discern adjustment effects, which would appear as a step function for the claim sequence number variables
  - Look for decreasing pattern for claim sequence for EXTRaweeks and SLACKweeks
  - Look for increasing pattern for claim sequence for WEKsZERO
Empirical strategy (cont.)

- **Endogeneity issues**
  - The claim sequence number variable separates frequent from occasional users, which causes composition bias leading to over-estimates of true adjustment effects
    - We want frequent users in the sample
  - Hard to find instruments for intensity of UI use that are independent of outcome variables, especially with admin data
  - Simply omitting all occasional users might help, but constitutes choice based sampling

Empirical strategy (cont.)

- **Possible remedies for endogeneity**
  - All of the UI generosity variables do control to some extent for the intensity of UI use
    - The less generous they are, the less likely that one is a repeat user
  - Estimate fixed effect equations that condition out all individual heterogeneity
    - how inherent a user is he/she?
    - Member of a cohort?
    - Age at first UI claim?
    - Firm characteristics
Regression results

- Signs of control variables usually accord with expectations
- Do find convergence patterns as expected for all three attributes of UI claims
  - There appears to be an empirical effect of adjustment to the system in the form of a monotonic step function
    - We label this the ‘claims profile’
    - could be caused by a number of factors

Adjustment pattern – claim # 5 is omitted category

<table>
<thead>
<tr>
<th>Claim #</th>
<th>EXTRAWEEKS</th>
<th>SLACKWEEKS</th>
<th>WEEKSZERO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.1</td>
<td>8.3</td>
<td>-0.7</td>
</tr>
<tr>
<td>2</td>
<td>4.3</td>
<td>3.9</td>
<td>-0.4</td>
</tr>
<tr>
<td>3</td>
<td>2.6</td>
<td>2.4</td>
<td>-0.2</td>
</tr>
<tr>
<td>4</td>
<td>1.6</td>
<td>1.5</td>
<td>0.06 (insig.)</td>
</tr>
</tbody>
</table>
Empirical Strategy for discerning Individual Learning effects

- Were major changes in 1994 in 1996 to the provisions that all claimants had to learn about
  - Examine within-worker changes in claims outcomes surrounding those events
  - Set ‘before’ periods during which no major policy changes occurred
    • 1993 and 1995
  - Set ‘after’ periods during which recalibration might have occurred
  - Might expect to discern a setback for first claim filed in post-reform period, followed by a partial offsetting gain for the next post-reform claim

Empirical Strategy for discerning Individual Learning effects (cont.)

- Linear equations for each of the three outcome measures estimated in first-difference form
  - Include binary variables for pre-reform claim, first post-reform claim, and second post reform claim
  - Also include an intercept-shift indicator demarcating experienced versus inexperienced users
  - Robust estimation with clustering for the individual
Empirical Strategy for discerning Individual Learning effects (cont.)

– The constant term reflects value of the after claim minus value of the before claim
  • Under null hypothesis of no slippage, constant term is zero
– The coefficient of post-reform dummy gives the difference between the second and the first claims filed after the reform
– If the coefficient on heavy user is negative, there is evidence of a smaller setback effect for first two outcomes

Empirical Strategy for discerning Individual Learning effects (cont.)

– Based on restricted samples of frequent users who are observed to file claims during narrow windows of observation and who were observed to be using the system efficiently
### Results for individual learning effects – 1994 reform

<table>
<thead>
<tr>
<th>coefficient</th>
<th>EXTRAWEEKS</th>
<th>SLACKWEEKS</th>
<th>WEEKSZERO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>18.4</td>
<td>28.0</td>
<td>-7.7 (p-value 0.15)</td>
</tr>
<tr>
<td>Post-reform</td>
<td>- 9.9 (p-value 0.13)</td>
<td>- 4.4 (p-value 0.11)</td>
<td>4.9</td>
</tr>
<tr>
<td>Heavy user</td>
<td>- 4.2</td>
<td>-2.96</td>
<td>1.1</td>
</tr>
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### Results for individual learning effects – 1996 reform

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<td>- 4.8</td>
<td>1.4 (insig)</td>
</tr>
<tr>
<td>Heavy user</td>
<td>- 2.3 (p-value 0.12)</td>
<td>- 1.1 (p-value 0.12)</td>
<td>- 0.8 (insig)</td>
</tr>
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Results for individual learning effects

- Findings are consistent with claimants experiencing a post-reform setback, and subsequently making a partial recovery
- Results from the two different panels, based on separate events, are qualitatively similar and quantitatively somewhat similar

Research challenges

- Develop better ways for adjusting estimates for the inherent type of EI user the subject is, which is almost equivalent to the nature of the employment pattern
  - Instruments could perhaps be derived from obtaining more firm data
  - Restricted samples that control for initial conditions
- More studies of inter-temporal use patterns using longitudinal data
Lesson

UI claimants, likely in conjunction with firms, tend to internalize the regulations and the provisions of the regime into their employment patterns and their claims patterns.

– Most other studies in the literature find this based on between-worker variation
– Our findings based on within-worker variation