IMPACT OF AVAILABILITY OF POST-RECESSION LOCAL JOBS FOR WORK-ELIGIBLE TEMPORARY CASH ASSISTANCE (TCA) RECIPIENTS: A LOCATIONAL APPROACH FOR WELFARE-TO-WORK EXAMINATION

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OVERVIEW

- Acknowledgement
- Literature Review
- Hypotheses
- Special value of this research
- Methodology
- Descriptive results
- Model results
- Conclusion
LITERATURE REVIEW
WHY JOB LOCATION MATTERS

• **Welfare-to-work**
  • The ’96 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA)—work require. & time limits—job 2 yr & ben. 5 yr. → employ. prob.

• **Distance decay & cost of distance**
  • Job search efficiency: incentives to search intensively (Smith and Zenou, 2003)
  • little info on distant job opportunities (Ihlanfeldt, 1997; Wasmer and Zenou, 2002).
  • long commute: costly (Brueckner and Zenou, 2003; Coulson et al., 2001). productivity concern (Wilson, 1996; Zenou, 2002; Zenou and Boccard, 2000).
  • difficult to respond to HH crises (Ong & Blumenberg, 1997; Blumenberg & Ong, 2001)

• **Endogeneity problems**
  • Self-selected residential location: more productive workers may choose locations close to jobs. Tradeoff for larger amounts of housing at a lower price.
  • Neighborhood impact → jobs (Ihlanfeldt, 1992; Weinberg et al., 2004)

• **Reverse causality:** job → residence (Ihlanfeldt, 2006)
  • Less job density → better ‘residential amenities’
  • Low-skilled: transportation restrictions → live close to jobs
JOB ACCESS & DISTANCE MEASURE

• Job access = f(distance, job opportunities). Distance weighted job opportunities
  • Log of # of jobs or labor force within 5km radius from residence (Aslund, et al, 2010)
  • Job access weighted by a distance decay function (Gurmu, et al, 2008).

• Distance measure:
  • Residential tract – employment tract (Allard and Danziger, 2002).
  • Centroid

• Critiques on the measure
  • Aggregate level analysis:
    • census tracts are typically not defined to capture aspects of job access
    • Inaccurate centroid proxy
  • Micro level analysis:
    • neighborhood variables unavailable for reasons of confidentiality (Ihlanefeldt and Sjoquist 1998).
WELFARE RECIPIENTS’ EMPLOYMENT BARRIERS

- Demographics: race, gender, age,
- Human capital barrier: education, skill, experience, health (Danziger et al., 2000; Weaver 2008.), disability
- Structural barrier: transportation access (Danziger et al., 2000; Weaver 2008.), job access (Ong & Blumenberg, 1997)
- Household characteristics: number of children, marriage status,
- Neighborhood characteristics: percentage poor, racial grouping in community, percentage homeownership, public housing resident, availability of public transit
- Economic climate (Danziger et al., 2000), unemployment rate (Weaver 2008.), employment density, population density (Ong & Blumenberg, 1997)
HYPOTHESES & VALUE OF THIS RESEARCH
HYPOTHESIS

- Distance between home and potential job opportunities matters for TCA recipients to get a job
  - The longer the distance, the lower the odds for them to find a job
  - This distance impact varies by industry
- Human capital factors are important
  - Education: higher education attainment in general means more job opportunities
  - Health: better health is associated with higher odds to find a job
- Child responsibility matters to TCA recipients’ job accessibility
SPECIAL VALUE OF THIS RESEARCH

• Data: linked longitudinal administrative records
  • Extensive info
  • Quality (add match, distance, income, demo info, etc)
  • Accurate point location data for both residence and work, micro level

• Measure potential job opportunities
  • New jobs vs. job vacancy measure for job opportunities
  • New job hubs
  • Weighted mean square distance measure in mileages

• Industry details

• Multilevel mixed-effects logistic regression:
  • Micro level data with location accuracy
  • Multilevel to integrate community impact
DATA

- Inter-agency agreement with
  - Maryland Department of Human Resources (DHR)
  - Maryland Department of Labor, Licensing and Regulation (DLLR)
- Temporary Cash Assistance (TCA): July 2009-Dec 2011
- Extracts from DLLR’s Quarterly Census of Employment and Wages (QCEW) file: Oct 2009—Dec 2012

- 3-12 months lag in jobs ← endogeneity issue
MULTILEVEL MIXED-EFFECT LOGIT

Hierarchical modeling
- Individual level: both residential TCA and work information
- Aggregate community level:
  - Zipcode: hierarchical modeling control
  - County: unemployment rate & trend

Logit to measure job access odds
- $D$ measure differ from Gurmu, et al. (2008): $Access_{ij} = \sum NewJob_{ij} * e^{-D_{ij}}$
  - not centroid proxy of block group, but accurate point residence & work
  - distance b/w home and potentials jobs—closest top new job hubs
  - Weighted Mean Square

Mixed-effect model
- A statistical model containing both fixed effects and random effects.
- Particularly useful when repeated measurements on the same statistical units (longitudinal study), or measurements on clusters of related statistical units.
WEIGHTED MEAN SQUARE DISTANCE TO NEW JOB HUBS

1. new job hubs
2. pick top 30 in Maryland (at least 100 new jobs created in a month)
3. compute distance in miles using Haversine Formula
   \[ d = 2r \arcsin\left(\sqrt{\sin^2\left(\frac{X_{Dlj}-X_{Olj}}{2}\right) + \cos\left(X_{Dlj}\right)\cos\left(X_{Olj}\right)\sin^2\left(\frac{Y_{Dlj}-Y_{Olj}}{2}\right)}\right) \]
4. find the closest 10 (the mean of the 10 is about 15 miles—close to national mean commuting distance)
5. compute weighted mean square distance gravitated toward closer locations (or shorter distances):
   \[ D = \sqrt{\sum d_{ij}^2 \cdot p_{ij}} \]
THE MULTILEVEL MIXED-EFFECT LOGIT MODEL

- Logit model:
  \[ \text{Logit} (Y=1 \mid X_1, X_2, ..., X_n) = \ln \left( \frac{p}{1-p} \right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_n \]
  \[ P(Y=1 \mid X_1, X_2, ..., X_n) = \frac{e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_n}}{1 + e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_n}} \]
  or \[ \frac{\exp(\alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_n)}{1 + \exp(\alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_n)} \]

- Two-level binomial model: consider the response \( Y_{ijk} \) as the number of successes from a series of \( T_{ijk} \) Bernoulli trials (replications). For cluster \( k, k=1, ..., K \), the conditional distribution of \( Y_k \), given a set of zipcode-level random efforts \( Z_k \), is
  \[ f(Y_k \mid Z_k) = \exp(\Sigma\{Y_{ijk} \theta_{ijk} - T_{ijk} \log[1 + \exp(\theta_{ijk})] + \log\left(\frac{T_{ijk}}{Y_{ijk}}\right)\}) \]
  where \( \theta_{ijk} = \beta_1 X_{ijk} + \beta_2 Z_{ijk} + \varepsilon_{ijk} \)

- \( Y \): Work within 1 year after TCA benefit started
- \( X \): Demographics, Education, Marital, Health, Child responsibility, Unemployment.
DESCRIPTIVE STATS & MODEL FINDINGS
RESIDENTIAL ADDRESS MATCH

90% matches: 89%
95% matches: 82%
Perfect match: 77%

Later figures are all on perfect matches only.
Age in 2013:

- 20-24: 8,000 (12.0%)
- 25-29: 10,000 (15.0%)
- 30-34: 8,000 (12.0%)
- 35-39: 4,000 (6.0%)
- 40-44: 2,000 (3.0%)
- 45-49: 500 (0.8%)
- 50-54: 500 (0.8%)
- 55-59: 500 (0.8%)
- 60-64: 200 (0.3%)
- 65-69: 100 (0.2%)

Gender:

- Female: 37,101 (88.0%)
- Male: 5,073 (12.0%)
EDUCATION, VARIATION WITH TIME

Educational Attainment

- Unknown: 30.8%
- Dropout: 25.2%
- High School Graduate: 37.5%
- Other Credentials: 5.7%
- Grad: 0.0%
- College: 0.9%
- Student: 0.0%
MARITAL STATUS, VARIATION WITH TIME

Marital Status

- Never Married: 76.8%
- Married: 8.3%
- Separated: 8.3%
- Divorced: 3.1%
- Widowed: 0.3%
- Unknown: 3.2%
DISABILITY & CHILD RESPONSIBILITY, VARIATION WITH TIME

- Others: 27,015 (40%)
- Child under One: 12,663 (18%)
- DEAP Disable: 9,325 (14%)
- Temporary Disable: 19,216 (28%)
WORKED WITHIN 1 YEAR AFTER TCA STARTED

Yes

No

9,656

(22.9%)

32,518

(77.1%)
BY INDUSTRY, WORKED WITHIN 1 YEAR AFTER TCA STARTED

Industries

11 21 22 23 31 42 44 49 51 52 53 54 55 56 61 62 71 72 81 92
TOP 3000 MARYLAND NEW JOB CREATORS, BY RANK

RANK  NEWEMP
- 1 - 10
- 11 - 20
- 21 - 50
- 51 - 100
- 101 - 300
- 301 - 600
- 601 - 2433
TOP 30 MARYLAND NEW JOB CREATORS, BY NEW JOB CREATED

NEWEMPLOY
- 0 - 91
- 92 - 388
- 389 - 1189
- 1190 - 4295
WEIGHTED MEAN SQUARED DISTANCE TO NEW JOB HUBS (MILES)

Starting this slide, distance to job hub over 150 miles are eliminated.
MULTILEVEL MIXED-EFFECTS LOGISTIC REGRESSION

Dependent Variable: Work after TCA started
Group variable: zipcode; Integration points = 7

<table>
<thead>
<tr>
<th>Top Hire Industries</th>
<th>All</th>
<th>44-45 (Ret)</th>
<th>48-49 (TW)</th>
<th>55 (Man)</th>
<th>56 (Adm)</th>
<th>61 (Ed)</th>
<th>62 (Heal)</th>
<th>72 (Acc)</th>
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<tbody>
<tr>
<td>Distance</td>
<td>-0.0041***</td>
<td>-0.0041</td>
<td>-0.0237***</td>
<td>-0.0244***</td>
<td>-0.0028</td>
<td>-0.0093</td>
<td>-0.0035</td>
<td>-0.0064**</td>
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<td>age2013</td>
<td>-0.0233***</td>
<td>0.0030*</td>
<td>0.0092**</td>
<td>0.0013</td>
<td>-0.0032**</td>
<td>-0.0247***</td>
<td>0.0085***</td>
<td>-0.0042***</td>
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<td>Male</td>
<td>-0.1546***</td>
<td>0.1807***</td>
<td>-0.0124</td>
<td>-0.0309</td>
<td>-0.1740***</td>
<td>0.5574***</td>
<td>-0.2721***</td>
<td>-0.1662***</td>
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<tr>
<td>Married</td>
<td>0.0021</td>
<td>-0.3103***</td>
<td>-0.3172**</td>
<td>0.1413</td>
<td>0.2965***</td>
<td>0.1294</td>
<td>0.2336***</td>
<td>0.0699</td>
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<td>Asian_Pac</td>
<td>0.5929***</td>
<td>0.0600</td>
<td>-0.9978***</td>
<td>5.5271***</td>
<td>0.8212***</td>
<td>4.6820***</td>
<td>0.5587*</td>
<td>1.0245***</td>
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<td>Black</td>
<td>0.1869***</td>
<td>-0.1897***</td>
<td>0.5162***</td>
<td>0.1522</td>
<td>0.4585***</td>
<td>0.3363***</td>
<td>0.2099***</td>
<td>0.2653***</td>
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<td>Hispanic</td>
<td>0.1630***</td>
<td>-0.0354</td>
<td>-0.4508</td>
<td>4.4294***</td>
<td>0.5627***</td>
<td>-1.2267***</td>
<td>0.0619</td>
<td>0.7473***</td>
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<td>ed_dropout</td>
<td>-0.3521***</td>
<td>-0.3562***</td>
<td>-0.6000***</td>
<td>-1.0404***</td>
<td>-0.2103***</td>
<td>-0.8592***</td>
<td>-0.1374***</td>
<td>-0.3085***</td>
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<td>ed_student</td>
<td>-0.2451***</td>
<td>-0.4671***</td>
<td>-0.2006*</td>
<td>-2.0521***</td>
<td>-0.0006</td>
<td>-0.8817***</td>
<td>-0.0007</td>
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<td>ed_HS &amp; cred</td>
<td>-0.4145***</td>
<td>-0.4165***</td>
<td>-0.5203***</td>
<td>-0.9214***</td>
<td>-0.5025***</td>
<td>-1.0623***</td>
<td>-0.3611***</td>
<td>-0.8386***</td>
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<td>ed_college+</td>
<td>-0.1656***</td>
<td>-2.3280***</td>
<td>1.5438***</td>
<td>3.1323**</td>
<td>0.1946*</td>
<td>-1.7155***</td>
<td>0.2356*</td>
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<td>disable</td>
<td>-0.4129***</td>
<td>0.4207***</td>
<td>0.3294***</td>
<td>0.7139***</td>
<td>-0.2017***</td>
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<td>Child under1</td>
<td>-0.1410***</td>
<td>0.0298</td>
<td>-0.1401*</td>
<td>0.7129***</td>
<td>-0.1421***</td>
<td>-0.8455***</td>
<td>-0.2828***</td>
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<td>Unemploy rate</td>
<td>0.2551***</td>
<td>0.1736***</td>
<td>0.1775***</td>
<td>0.0942**</td>
<td>0.1646***</td>
<td>0.2175***</td>
<td>0.3128***</td>
<td>0.1266***</td>
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<td>Unemploy trend</td>
<td>-0.0911***</td>
<td>-0.0454</td>
<td>-0.0440</td>
<td>-0.0263</td>
<td>-0.0124</td>
<td>-0.0274</td>
<td>-0.0733**</td>
<td>-0.0224</td>
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<td>No. of Obs</td>
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<td>57004</td>
<td>10194</td>
<td>8482</td>
<td>36872</td>
<td>9261</td>
<td>37066</td>
<td>37745</td>
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<tr>
<td>No. of groups</td>
<td>779</td>
<td>361</td>
<td>199</td>
<td>198</td>
<td>267</td>
<td>189</td>
<td>306</td>
<td>315</td>
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<tr>
<td>Obs per group</td>
<td>[1,30212]</td>
<td>[1,3271]</td>
<td>[1,509]</td>
<td>[1,480]</td>
<td>[1,2989]</td>
<td>[1,596]</td>
<td>[1,2162]</td>
<td>[1,2233]</td>
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<td>avg obs per group</td>
<td>605.6</td>
<td>157.9</td>
<td>51.2</td>
<td>42.8</td>
<td>138.1</td>
<td>49</td>
<td>121.1</td>
<td>119.8</td>
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<td>Log likelihood</td>
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<td>-27628</td>
<td>-4494</td>
<td>-2786</td>
<td>-21011</td>
<td>-4215</td>
<td>-16488</td>
<td>-19641</td>
</tr>
</tbody>
</table>

Random-effects Parameters, zip code: identity
CONCLUSION
SUMMARY OF FINDINGS

Home Location

• Distance between home location and potential jobs matters to a TCA benefit recipient’s job access.

• Overall, living farther from potential new job hubs reduced a TCA benefit recipient’s odds to get a job.

• Particularly true in Transportation & Warehousing (48-49), Management (55), and Accommodation (72), Other Services (81).

Education

• HS and below show lower employment odds, and college + higher employment odds than unknown for Transportation & Warehousing (48-49), Management (55), Administration (56), Health (62).

• But for Retail (44-45) and Education (61), higher education attainment show lower employment odds → skill mismatch?
SUMMARY OF FINDINGS (CONT.)

Disability
• TCA recipients reporting disability overall have lower employment odds,
• But not necessarily for industries.

Child responsibility
• TCA recipients reporting to have child under one overall have lower job finding odds
• But not so for Management (55) and Accommodation (72) more flexible schedule.

Unemployment
• Unemployment trend vs. level explains better the employment environment.
POLICY IMPLICATIONS

- Transportation
- Homeless shelter location
- Child responsibility for most industries
- Human capital
  - Education
    - Better education better equipped in general
    - Skill match issue
- Health –disability job access support
FUTURE STUDY

- Job quality
  - earning level
- Job tenure
- Travel time
- Add neighborhood info
- Education and skill match issue
THANK YOU!

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