

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

Ting Zhang

Jacob France Institute

University of Baltimore

# OVERVIEW

- Acknowledgement
  - Literature Review
  - Hypotheses
  - Special value of this research
  - Methodology
  - Descriptive results
  - Model results
  - Conclusion
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# LITERATURE REVIEW

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# 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 Boccoard, 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 =  $f(\text{distance}, \text{job opportunities})$ . 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 (Ihlanfeldt 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)
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# HYPOTHESES & VALUE OF THIS RESEARCH

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# 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
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# 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

# METHODOLOGY

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# 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
  - DLLR's Unemployment Insurance Wage Record file: Oct 2009—Dec 2012
  - Extracts from DLLR's Quarterly Census of Employment and Wages (QCEW) file: Oct 2009—Dec 2012
  
  - 3-12 months lag in jobs ← endogeneity issue
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# 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):  $Access_{ij} = \sum NewJob_{ij} * e^{-rD_{oij}D_{ij}}$ 
  - 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.
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# 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

$$d = 2 * r * \arcsin\left(\sqrt{\sin^2\left(\frac{X_{D_{ij}} - X_{O_{ij}}}{2}\right) + \cos(X_{D_{ij}}) \cos(X_{O_{ij}}) \sin^2\left(\frac{Y_{D_{ij}} - Y_{O_{ij}}}{2}\right)}\right)$$

- 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):

$$D = \sqrt{\sum d_{ij}^2 * p_{ij}}$$

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# THE MULTILEVEL MIXED-EFFECT LOGIT MODEL

- Logit model:

$$\text{Logit}(Y=1 | X_1, X_2, \dots, X_n) = \ln \frac{p}{1-p} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \rightarrow$$

$$P(Y=1 | X_1, X_2, \dots, X_n) = \frac{e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n}}{1 + e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n}}$$

$$\text{or } \frac{\exp(\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}{1 + \exp(\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}$$

- 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  $k$ ,  $k=1, \dots, K$ , the conditional distribution of  $Y_k$ , given a set of zipcode-level random efforts  $Z_k$ , is

$$f(Y_k | Z_k) = \exp(\sum\{Y_{ijk} \theta_{ijk} - T_{ijk} \log[1 + \exp(\theta_{ijk})] + \log \binom{T_{ijk}}{Y_{ijk}}\}),$$

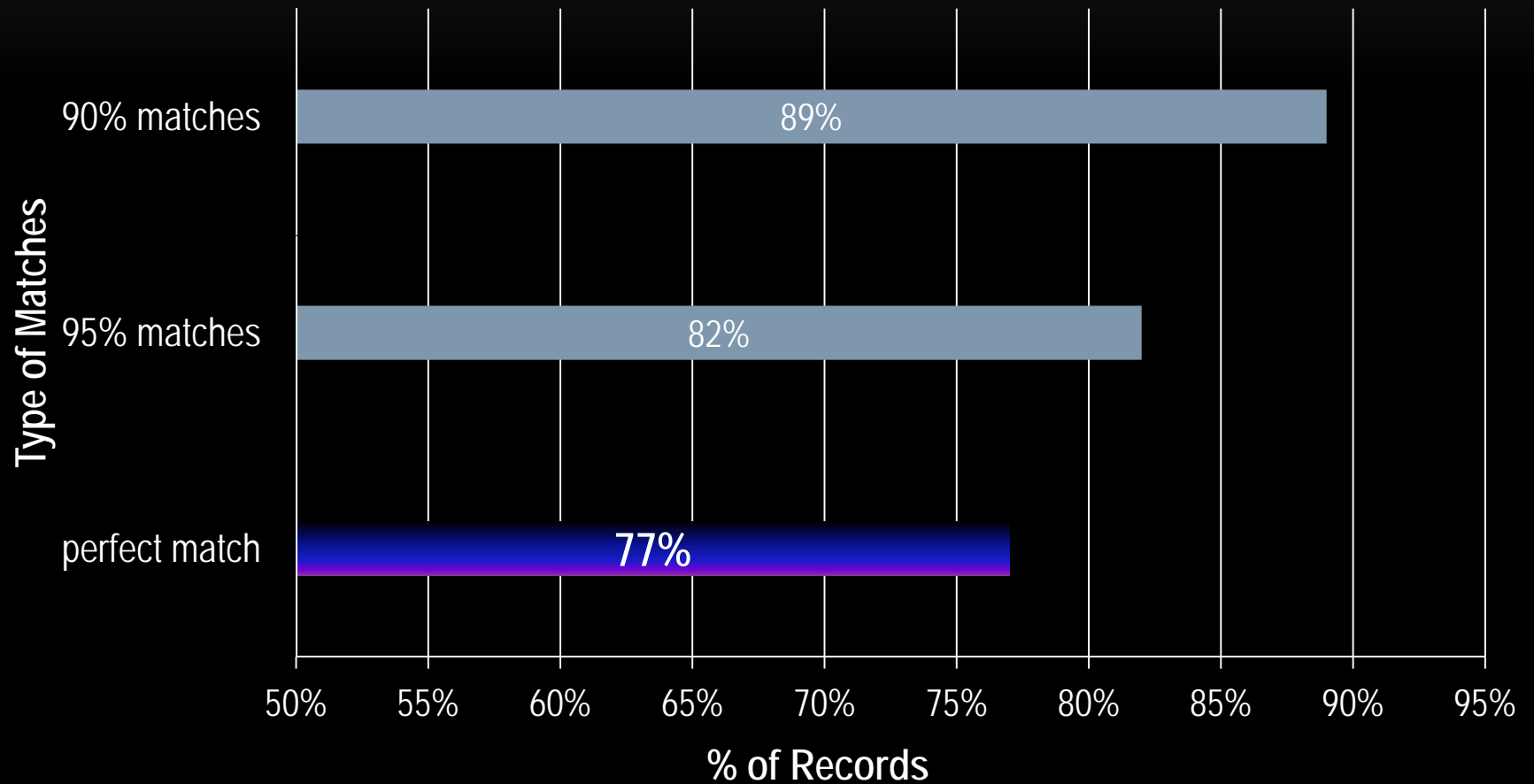
$$\text{where } \theta_{ijk} = \beta_1 X_{ijk} + \beta_2 Z_{ijk} + \varepsilon_{ijk}$$

- **Y:** Work within 1 year after TCA benefit started
- **X:** Demographics, Education, Marital, Health, Child responsibility, Unemployment.

# DESCRIPTIVE STATS & MODEL FINDINGS

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# RESIDENTIAL ADDRESS MATCH

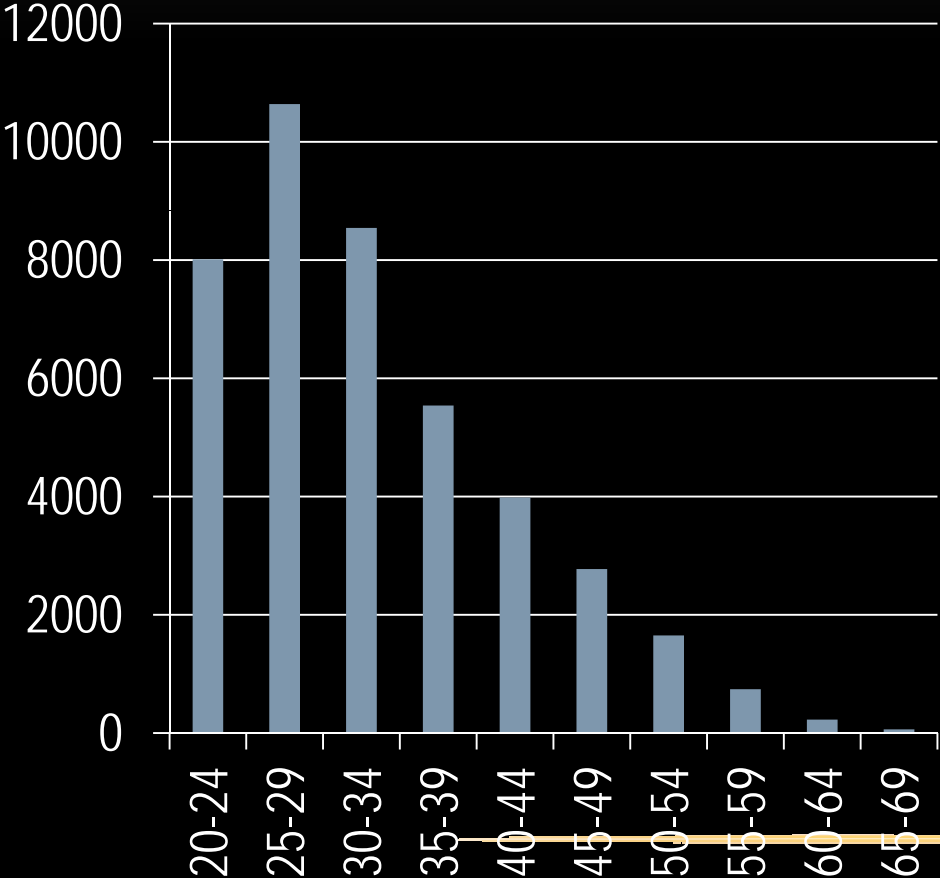


Later figures are all on perfect matches only

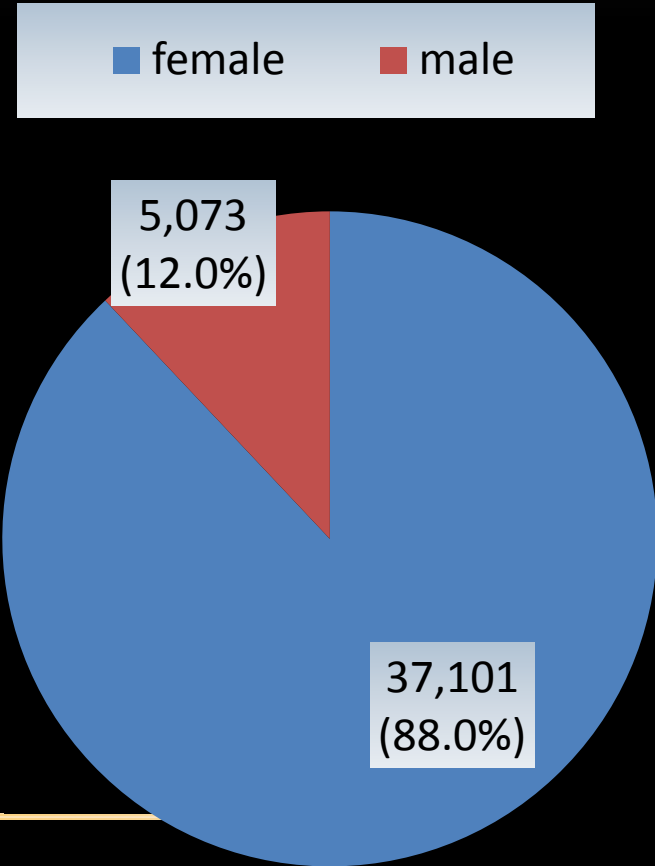


# AGE & GENDER

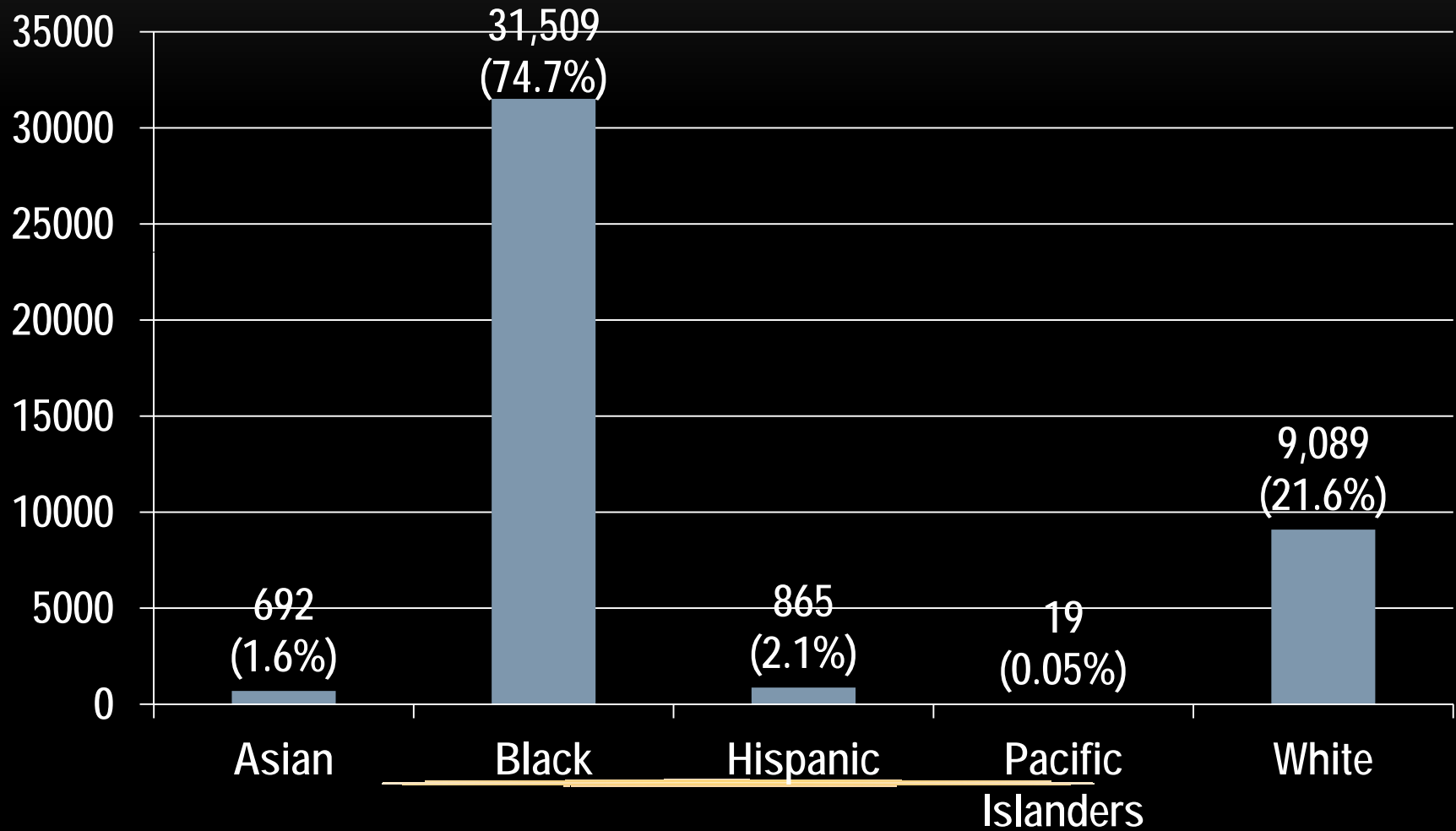
## Age in 2013



## Gender

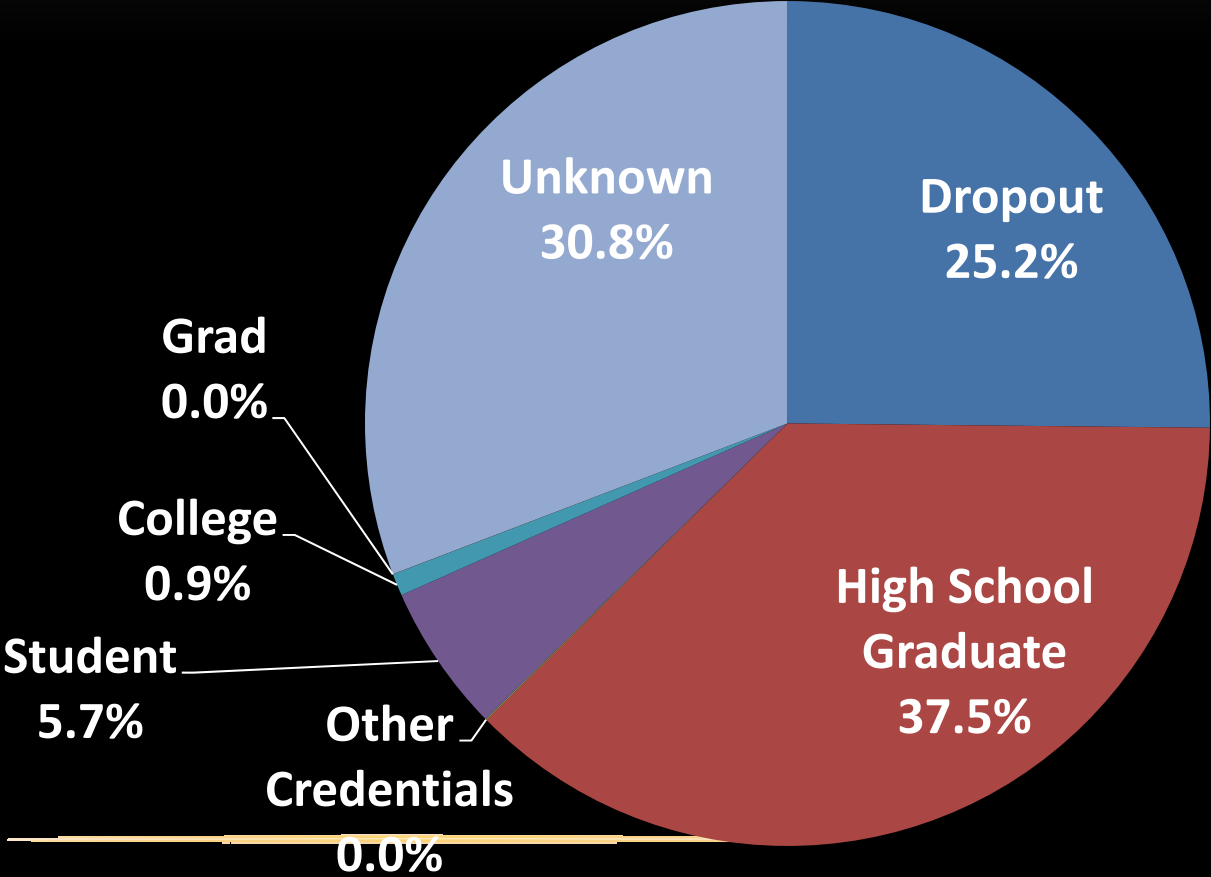


# RACE



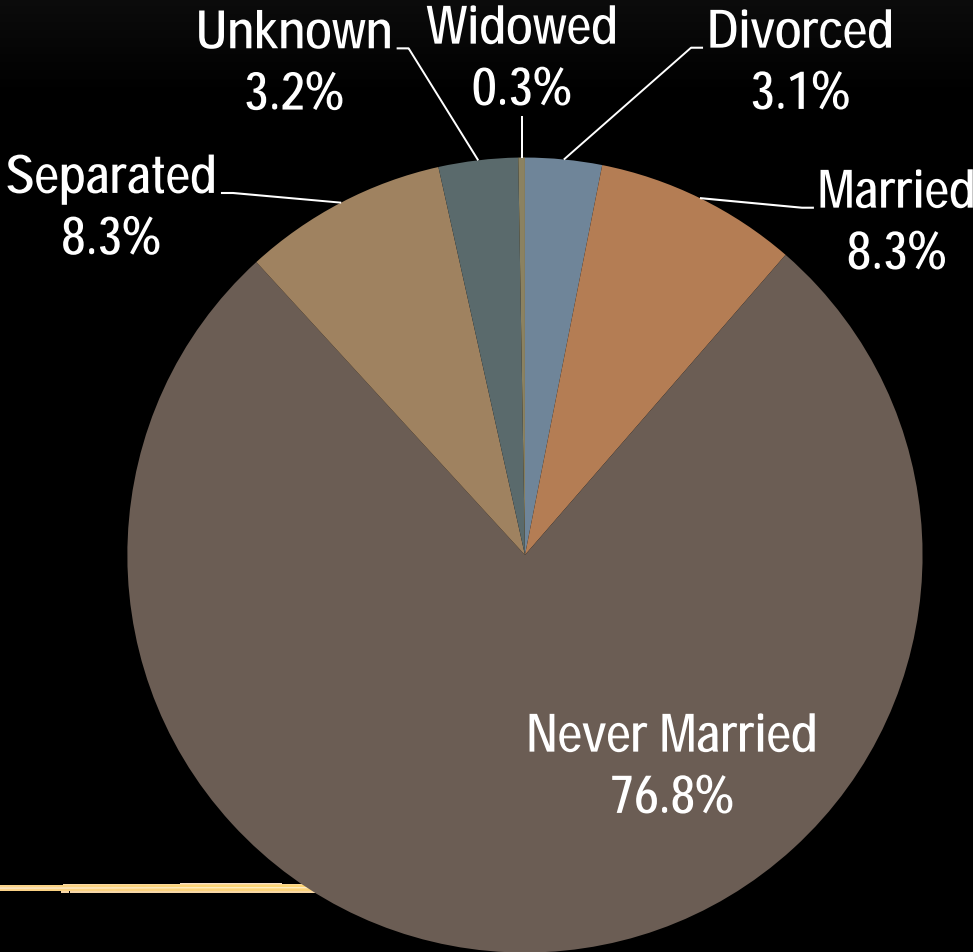
# EDUCATION, VARIATION WITH TIME

Educational Attainment

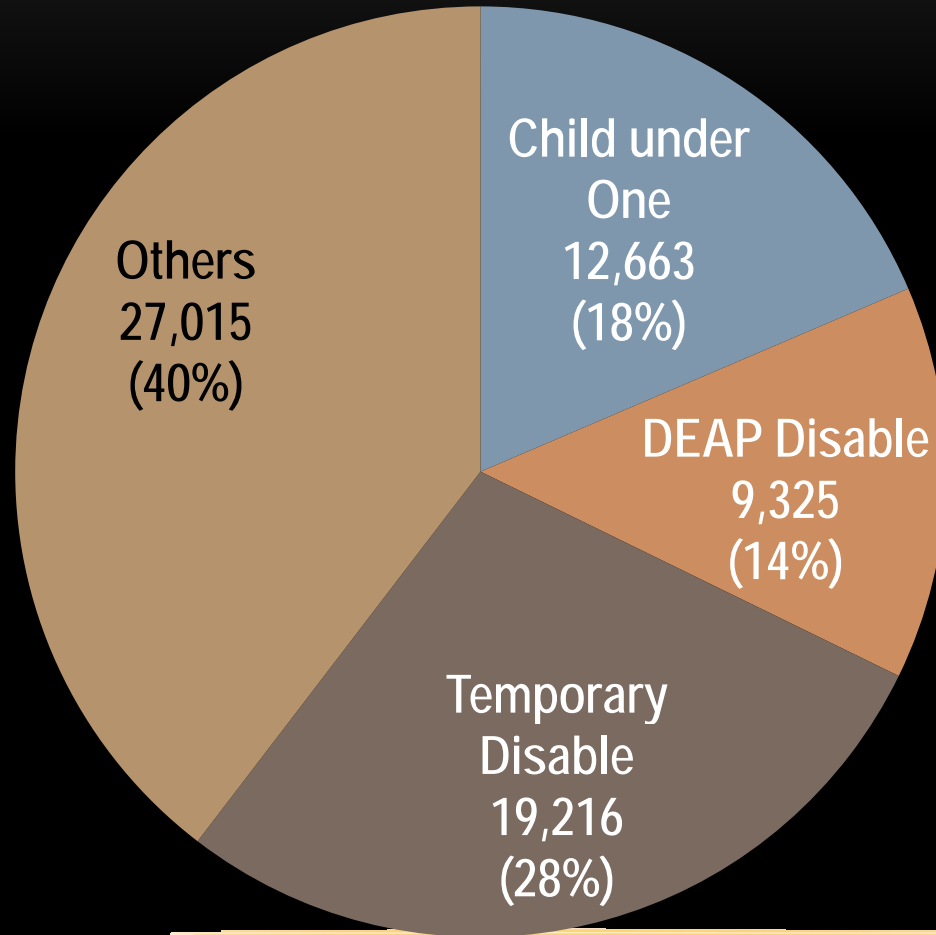


# MARITAL STATUS, VARIATION WITH TIME

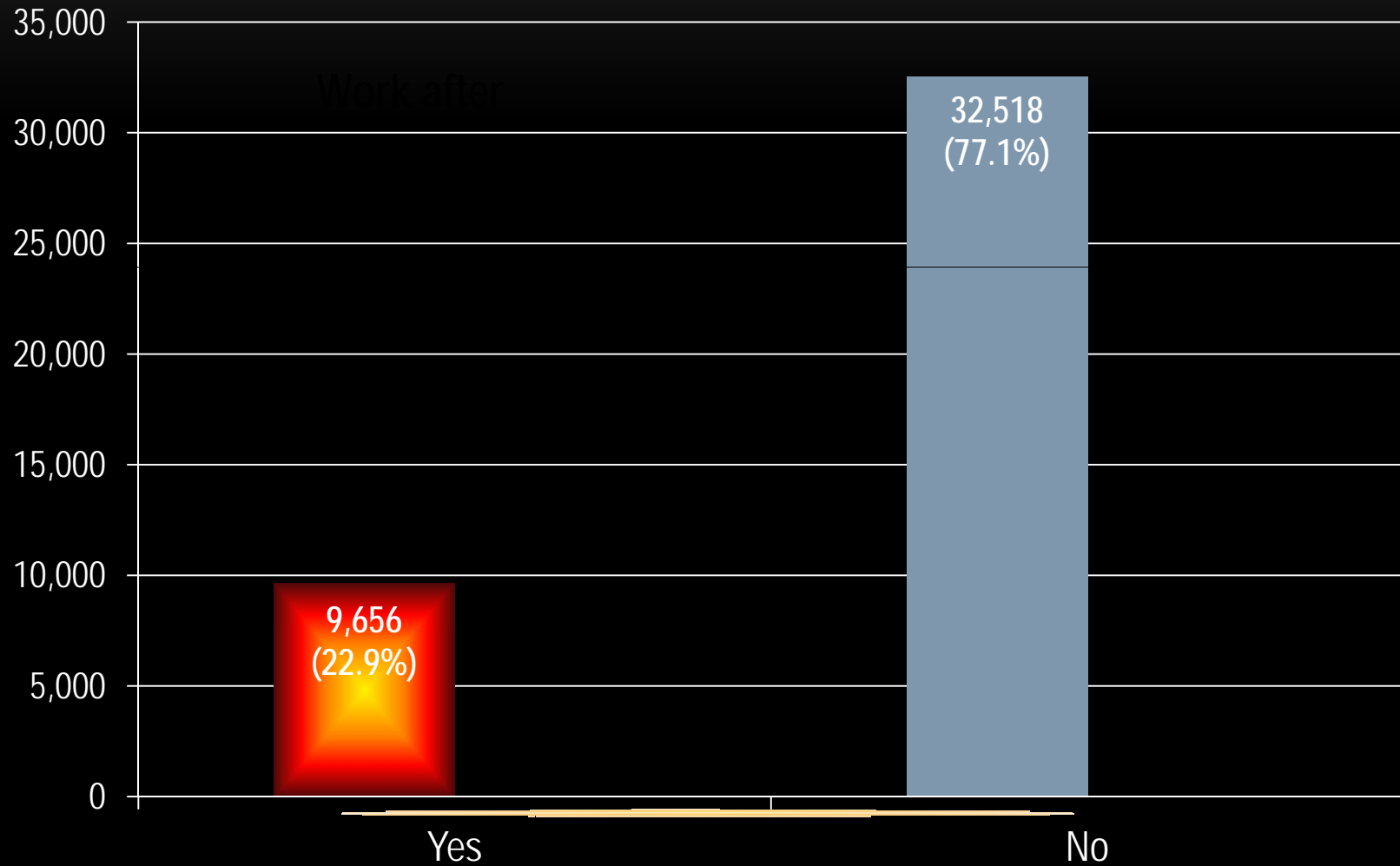
## Marital Status



# DISABILITY & CHILD RESPONSIBILITY, VARIATION WITH TIME

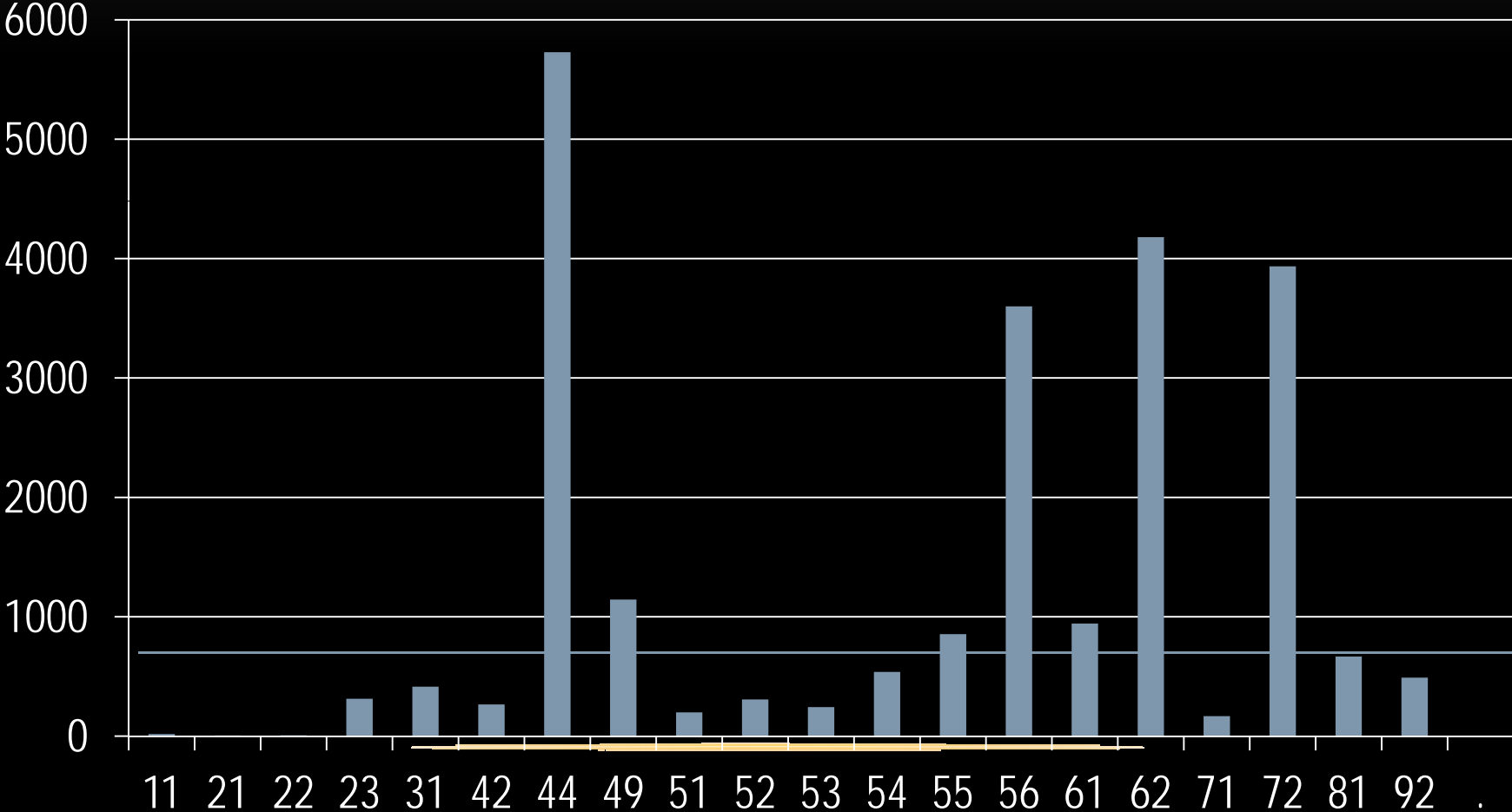


# WORKED WITHIN 1 YEAR AFTER TCA STARTED

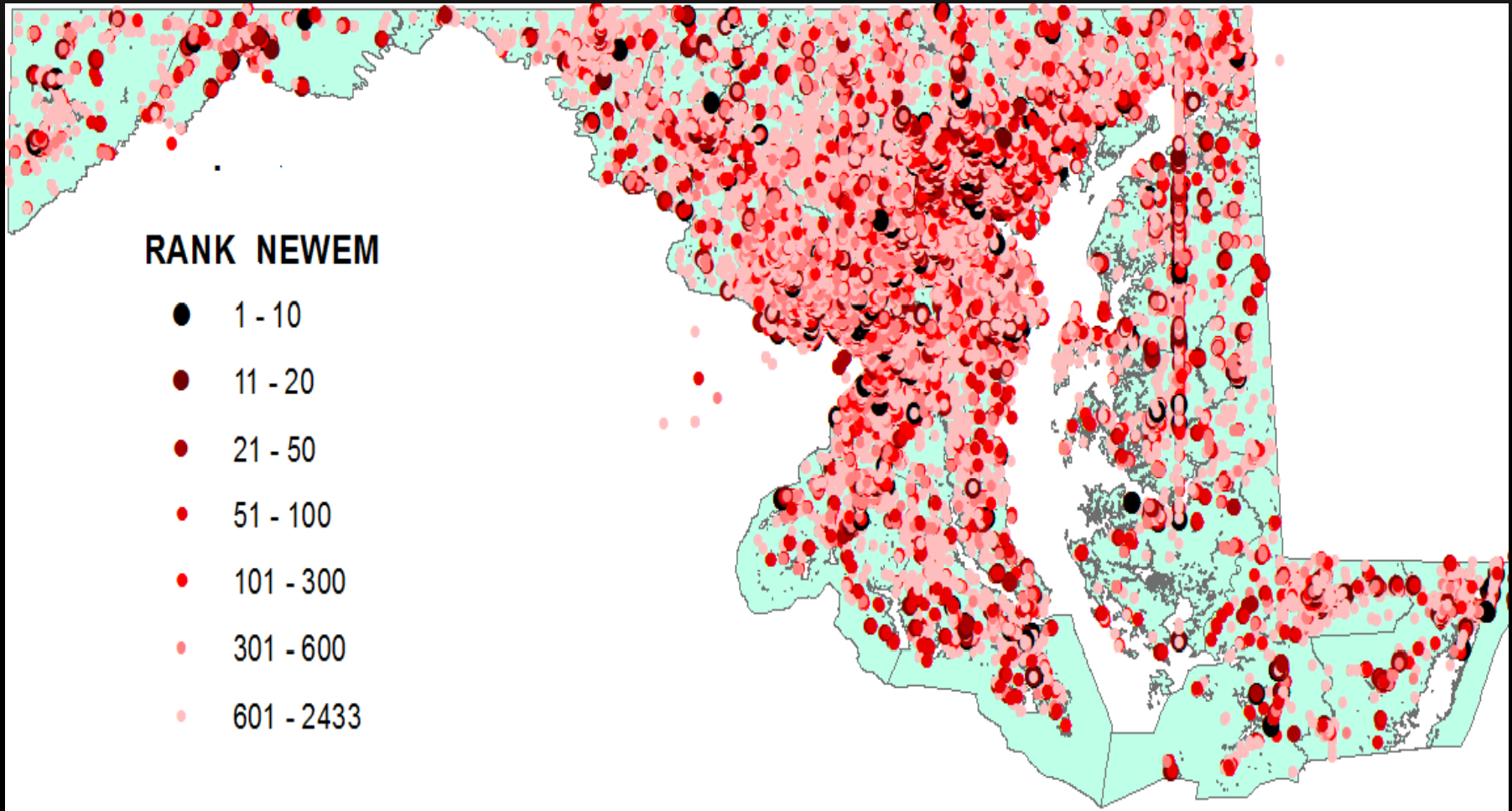


# BY INDUSTRY, WORKED WITHIN 1 YEAR AFTER TCA STARTED

Industries

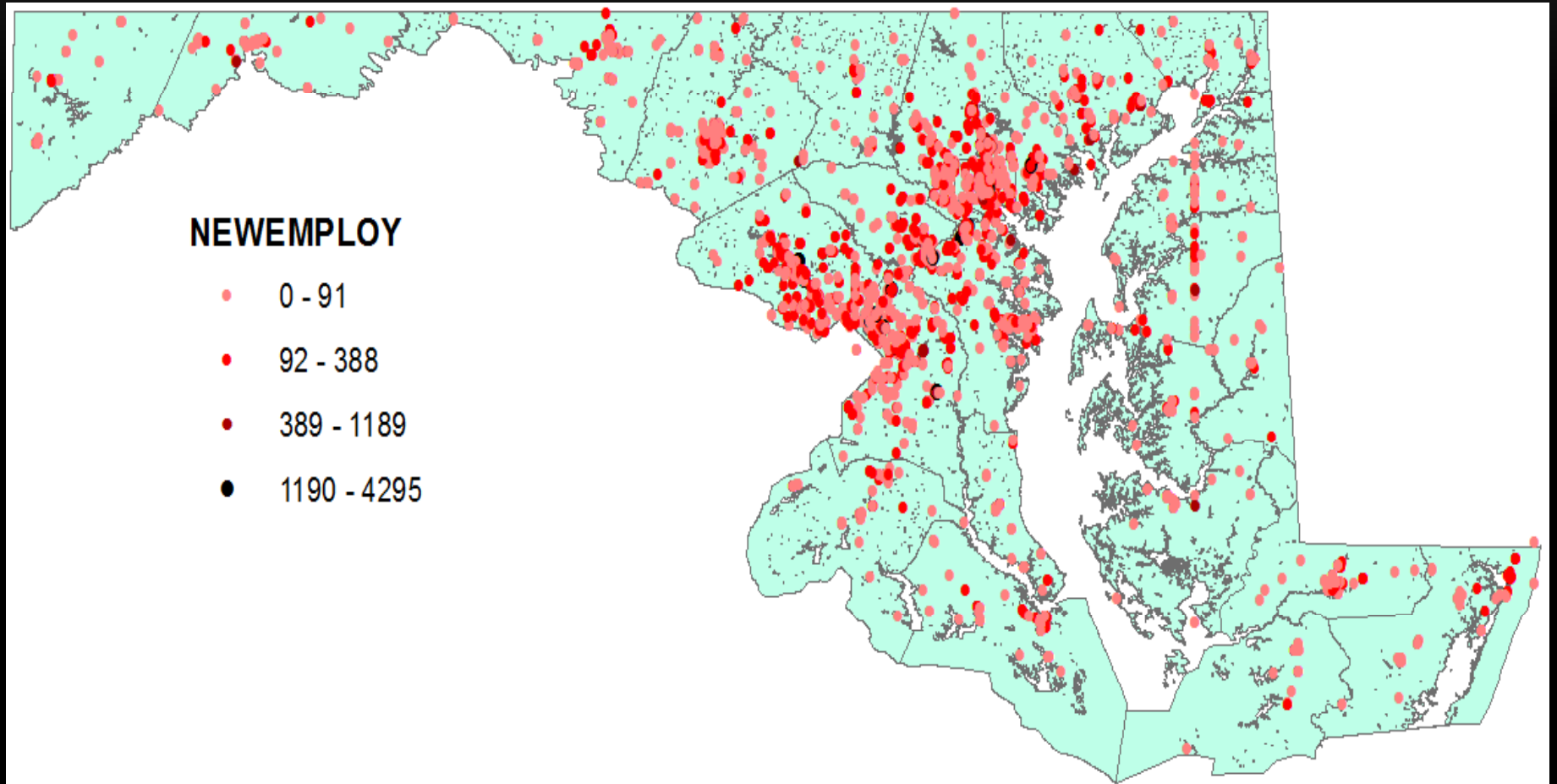


# TOP 3000 MARYLAND NEW JOB CREATORS, BY RANK

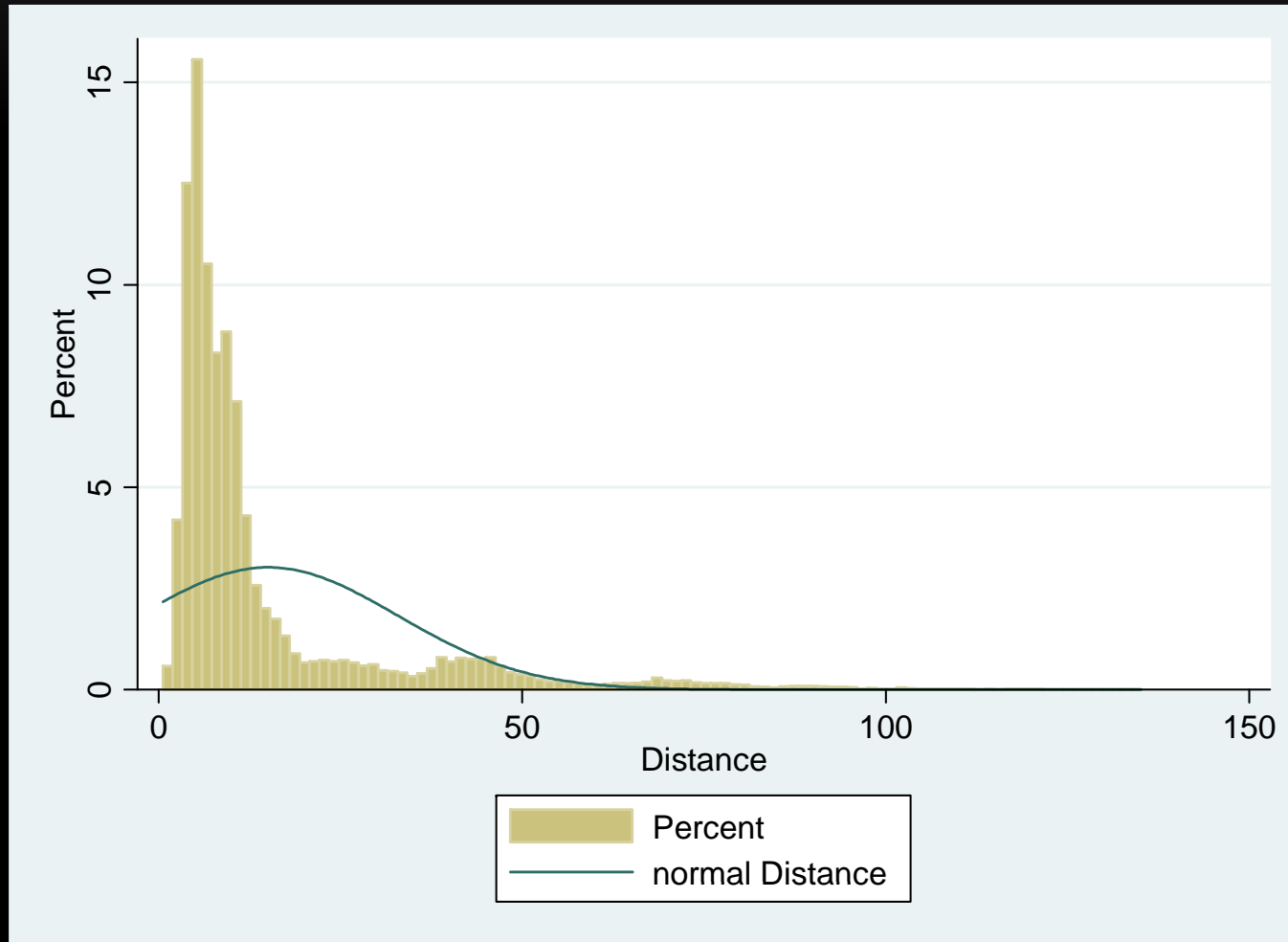




# TOP 30 MARYLAND NEW JOB CREATORS, BY NEW JOB CREATED

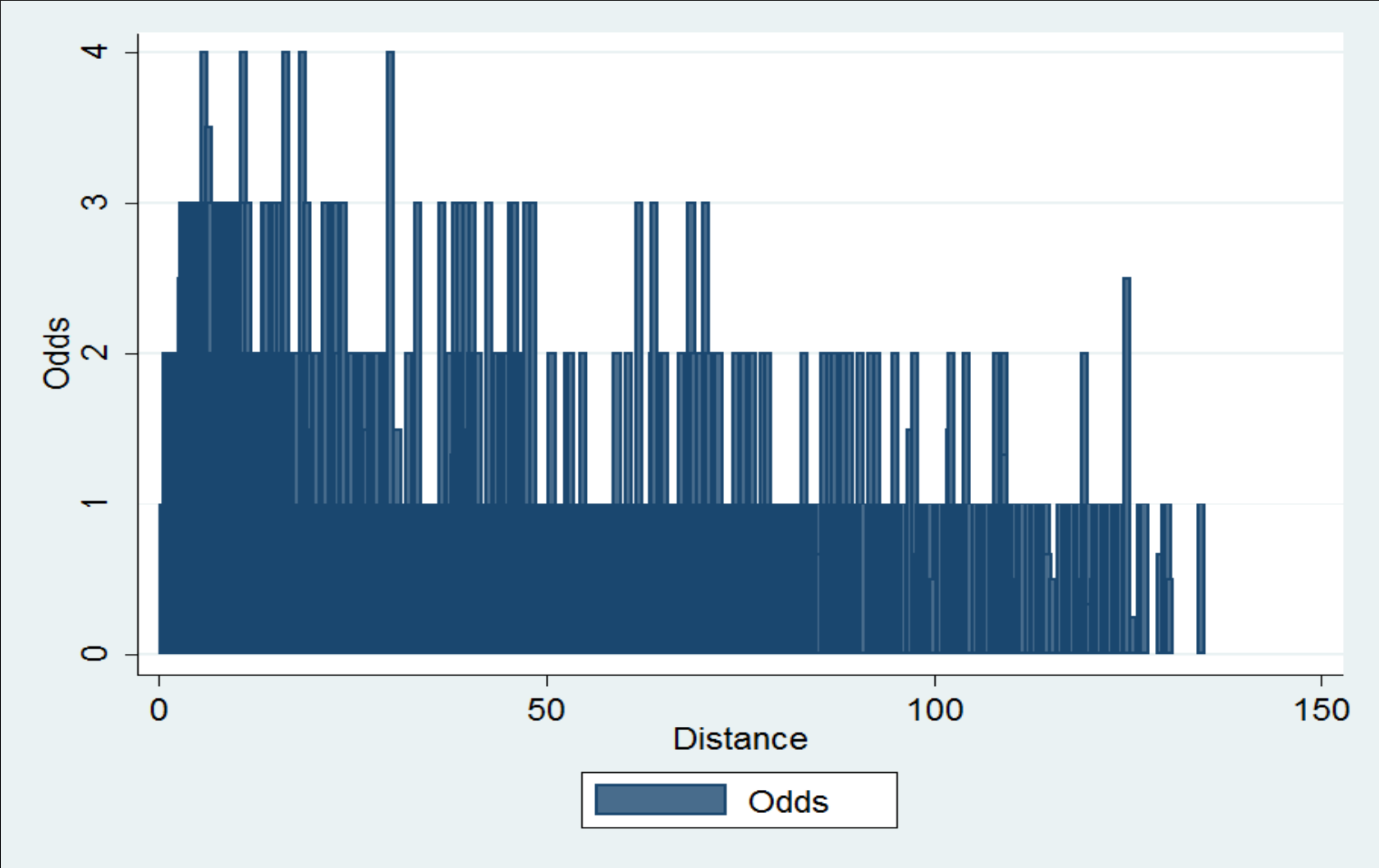


# WEIGHTED MEAN SQUARED DISTANCE TO NEW JOB HUBS (MILES)



Starting this slide, distance to job hub over 150 miles are eliminated.

# DISTANCE & JOB



# MULTILEVEL MIXED-EFFECTS LOGISTIC REGRESSION

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

Top Hire Industries	All	44-45 (Ret)	48-49 (TW)	55 (Man)	56 (Adm)	61 (Ed)	62 (Heal)	72 (Acc)
<b>Coefficient for Independent Variables</b>								
Distance	<b>-0.0041***</b>	-0.0041	<b>-0.0237***</b>	<b>-0.0244***</b>	-0.0028	-0.0093	-0.0035	<b>-0.0064**</b>
age2013	-0.0233***	0.0030*	0.0092**	0.0013	-0.0032**	-0.0247***	0.0085***	-0.0042**
Male	-0.1546***	0.1807***	-0.0124	-0.0309	-0.1740***	0.5574***	-0.2721***	-0.1662***
Married	0.0021	-0.3103***	-0.3172**	0.1413	0.2965***	0.1294	0.2336***	0.0699
Asian_Pac	0.5929***	0.0600	-0.9978***	5.5271***	0.8212***	4.6820***	0.5587*	1.0245***
Black	0.1869***	-0.1897***	-0.5162***	0.1522	0.4585***	0.3363**	-0.2099***	0.2653***
Hispanic	0.1630***	-0.0354	-0.4508	4.4294***	0.5627***	-1.2267***	0.0619	0.7473***
ed_dropout	-0.3521***	<b>-0.3562***</b>	<b>-0.6000***</b>	<b>-1.0404***</b>	<b>-0.2103***</b>	<b>-0.8592***</b>	<b>-0.1374***</b>	-0.3085***
ed_student	-0.2451***	-0.4671***	-0.2006*	-2.0521***	-0.0006	-0.8817***	-0.0007	-0.1029**
ed_HS & cred	-0.4145***	<b>-0.4165***</b>	<b>-0.5203***</b>	<b>-0.9214***</b>	<b>-0.5025***</b>	<b>-1.0623***</b>	<b>-0.3611***</b>	-0.8386***
ed_college+	-0.1656***	<b>-2.3280***</b>	<b>1.5438***</b>	<b>3.1323**</b>	<b>0.1946*</b>	<b>-1.7155***</b>	<b>0.2356*</b>	-0.1585
disable	<b>-0.4129***</b>	<b>0.4207***</b>	<b>0.3294***</b>	<b>0.7139***</b>	<b>-0.2017***</b>	<b>0.2151**</b>	<b>0.1069**</b>	<b>0.1246***</b>
Child under1	<b>-0.1410***</b>	0.0298	<b>-0.1401*</b>	<b>0.7129***</b>	<b>-0.1421***</b>	<b>-0.8455***</b>	<b>-0.2828***</b>	<b>0.0759**</b>
Unemploy rate	0.2551***	0.1736***	0.1775***	0.0942**	0.1646***	0.2175***	0.3128***	0.1266***
Unemploy trend	<b>-0.0911***</b>	-0.0454	-0.0440	-0.0263	-0.0124	-0.0274	-0.0733**	-0.0224
Constant	-3.3651***	-3.1283***	-3.2163***	-3.9737***	-2.9567***	-3.3677***	-4.2259***	-2.3272***
No. of Obs	471784	57004	10194	8482	36872	9261	37066	37745
No. of groups	779	361	199	198	267	189	306	315
Obs per group	[1,30212]	[1,3271]	[1,509]	[1,480]	[1,2989]	[1,596]	[1,2162]	[1,2233]
avg obs per group	605.6	157.9	51.2	42.8	138.1	49	121.1	119.8
Log likelihood	-243158	-27628	-4494	-2786	-21011	-4215	-16488	-19641

Random-effects Parameters, zip code: identity

# CONCLUSION

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# 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.
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# 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
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# FUTURE STUDY

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

**CONTACT INFORMATION:**

Ting Zhang

[tzhang@ubalt.edu](mailto:tzhang@ubalt.edu)

(410)-837-6551

For more information, please visit our website:

<http://www.jacob-france-institute.org/>

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