GERALD R. FORD SCHOOL
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Unaccounted Migration: How Non-Filers Affect IRS-Based Estimates of Domestic Migration

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Motivation

- The City of Detroit vs. United States Department of Commerce
  - Morenoff is an expert witness for the City of Detroit
- Challenges the annual population estimates for Detroit
- Main issues
  - Treating demolition of vacant, uninhabitable housing as evidence of population loss
  - Census Bureau would not accept records of both permitted and non-permitted construction of new housing units
  - Application of the County Cap rule

Background on Population Estimates

- For subcounty areas (e.g., cities and towns), the Census bureau uses the distributive housing unit method
- Step 1. Produce uncontrolled subcounty household population estimate
  - Subcounty housing units are estimated by taking the 2020 housing unit base and accounting for new residential construction, new mobile homes, and housing units lost
  - The housing unit estimate is multiplied by the household per housing unit ratio
- Step 2. Produce controlled subcounty household population estimate
  - For each subcounty area, the Census Bureau computes a county proportional adjustment (i.e., a rake factor)
  - The proportional adjustment is multiplied by the uncontrolled population estimate
  - The "county cap rule": the sum of the controlled household population estimates for subcounty areas must equal the controlled county household population estimate

Potential Issue with County-Level Population Estimates

- For national, state, and county population estimates, the Census Bureau uses the cohort component method

- At issue is the estimate of net domestic migration

$$NDM\ Rate = \frac{In\ migrants - Out\ migrants}{Non\ migrants + Out\ migrants}$$

  - Based on IRS tax return data for ages 0 to 64
    - Includes only people who filed taxes in two consecutive years
  - Based on Medicare enrollment data for ages 65 and over

Research Questions

- Motivating question: Does the omission of non-filers from IRS data bias the Census Bureau's estimates of net domestic migration rates?
- Analytic questions
  - How different are expected tax-filers from non-filers in their likelihood of moving across counties in a given year?
  - How do differences in the movement patterns of expected tax filers and non-filers vary across lower- and higher-income counties?
  - What are the implications of these individual-level differences for estimating the county-level Net Domestic Migration Rate?
    - How does the NDM Rate change when expected non-filers are excluded?
    - How does the exclusion of non-filers change the NDM Rate in lower- vs. higher-income counties?

Measuring Residential Moves

- We use 2023 1-year ACS PUMS data to analyze residential mobility patterns of people under age 65
- We are interested in inter-county moves, but since the ACS PUMS data does not identify county in some rural areas, we use Migration Primary Use Microsample Areas (MIGPUMAs)
  - We measure moves involving a change in MIGPUMA between 2022 and 2023
  - We use logistic regression to estimate the likelihood of moving from one MIGPUMA to another

Analyzing Moves by Income Level of County/MIGPUMA

- We are interested in how the residential movement patterns of expected tax filers and non-filers differ depending on the income level of the MIGPUMA of origin and destination
- We categorize MIGPUMAs based on whether the median household income is above/below the average MIGPUMA median income for 2023 (~$80,500)
- Using multinomial logistic regression, we estimate the likelihood of moving
  - To a low- or high-income MIGPUMA (vs. not moving)
  - From a low- or high-income MIGPUMA (vs. not moving)
  - Having any of the following moves (vs. not moving)
    - Low-income MIGPUMA to low-income MIGPUMA
    - High-income MIGPUMA to low-income MIGPUMA
    - Low-income MIGPUMA to high-income MIGPUMA
    - High-income MIGPUMA to high-income MIGPUMA

Measuring Expected Tax Filing Status

- Since the ACS does not ask about filing taxes, we estimate whether individuals are likely/unlikely to have filed taxes by comparing their gross family income to the threshold for their expected filing status
  - Filing as single: single/divorced, no children in HH, income $13,850+,
  - Filing as head of household: single/divorced, has children in HH, income $20,800+
  - Filing as surviving spouse: widowed, income $27,700+
  - Married filing jointly: married (spouse present or absent), income $27,700+
  - Married filing separately: separated, income $5+
  - Dependents expected to file
    - Children age 18 or less living with parent, grandparent, and either (a) is related to someone in HH over 18 who is expected to file or (b) had personal income above threshold for filing single
    - People who (a) report incomes less than $5,500 and (b) live with relative who was expected to file and

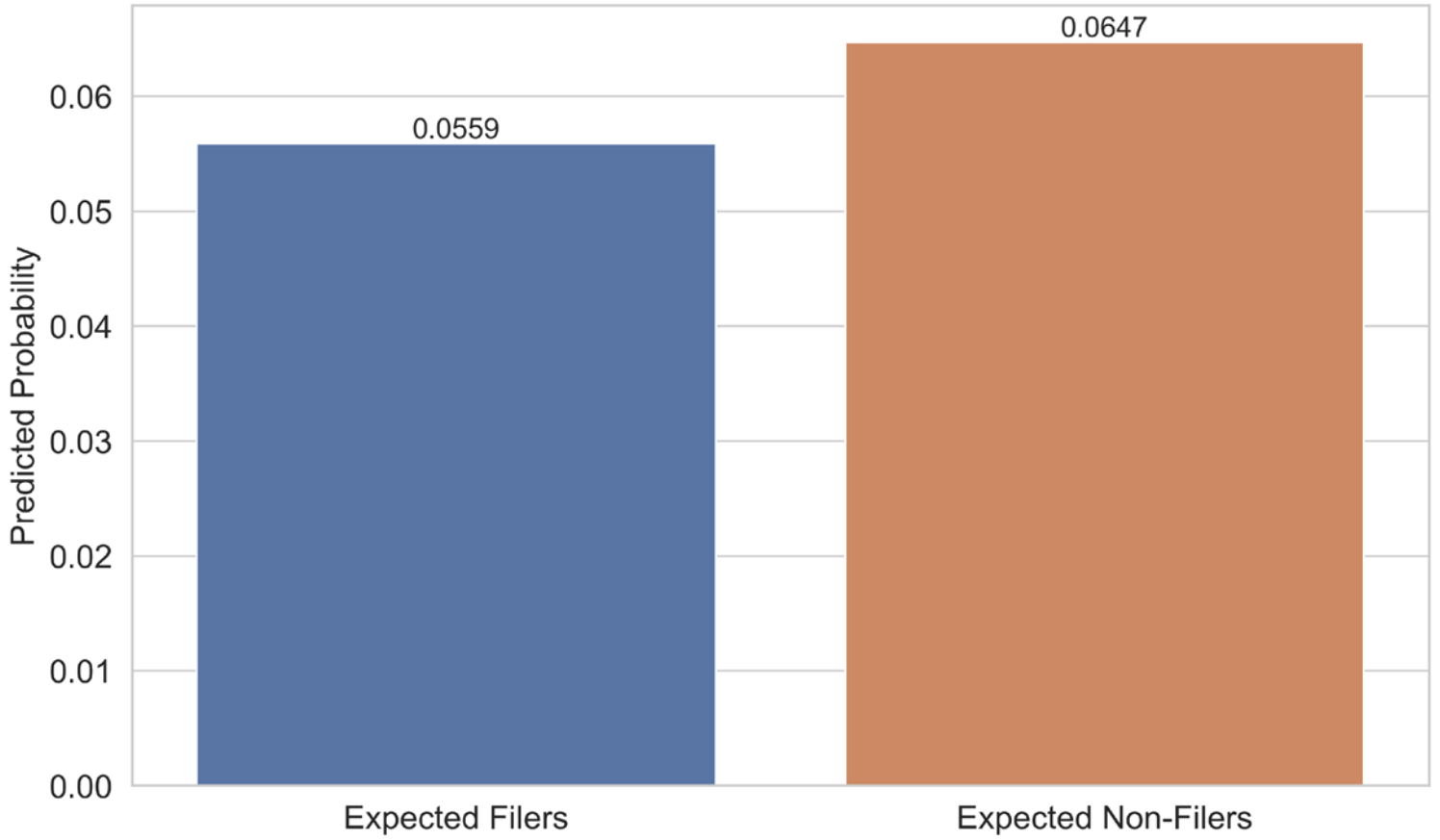
Analytic Strategy

- Individual-Level Analysis
  - Logistic regression to estimate difference between expected filers and non-filers in predicting moving to a new MIGPUMA
  - Multinomial logits to estimate differences between expected filers and non-filers in predicting moves to/from high- vs. low-income MIGPUMAS and our typology of moves (low-low, low-high, high-low, high-high)
  - All individual-level models estimated using ACS replicate weights
  - We ran models with/without controls for sex, age, race/ethnicity, nativity, education, marital status, presence of children, home ownership, urbanicity, region, population density
- County-Level Analysis
  - We estimate the Net Domestic Migration (NDM) Rate for counties with 500,000+ people under the age of 65 (n=103)
  - We compare estimates of the NDM Rate with and without non-tax-filers

Findings

1. People expected not to file taxes were more likely to move between MIGPUMAs than those expected to file taxes

Predicted Probabilities of Moving across MIGPUMAs



Findings

1. People expected not to file taxes were more likely to move between MIGPUMAs than those expected to file taxes
2. The difference between expected filers and non-filers was larger in predicting moves into lower-income MIGPUMAs

Predicted Probabilities of Moving to Low- and High-Income MIGPUMAs

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2. The difference between expected filers and non-filers was larger in predicting moves into lower-income MIGPUMAs
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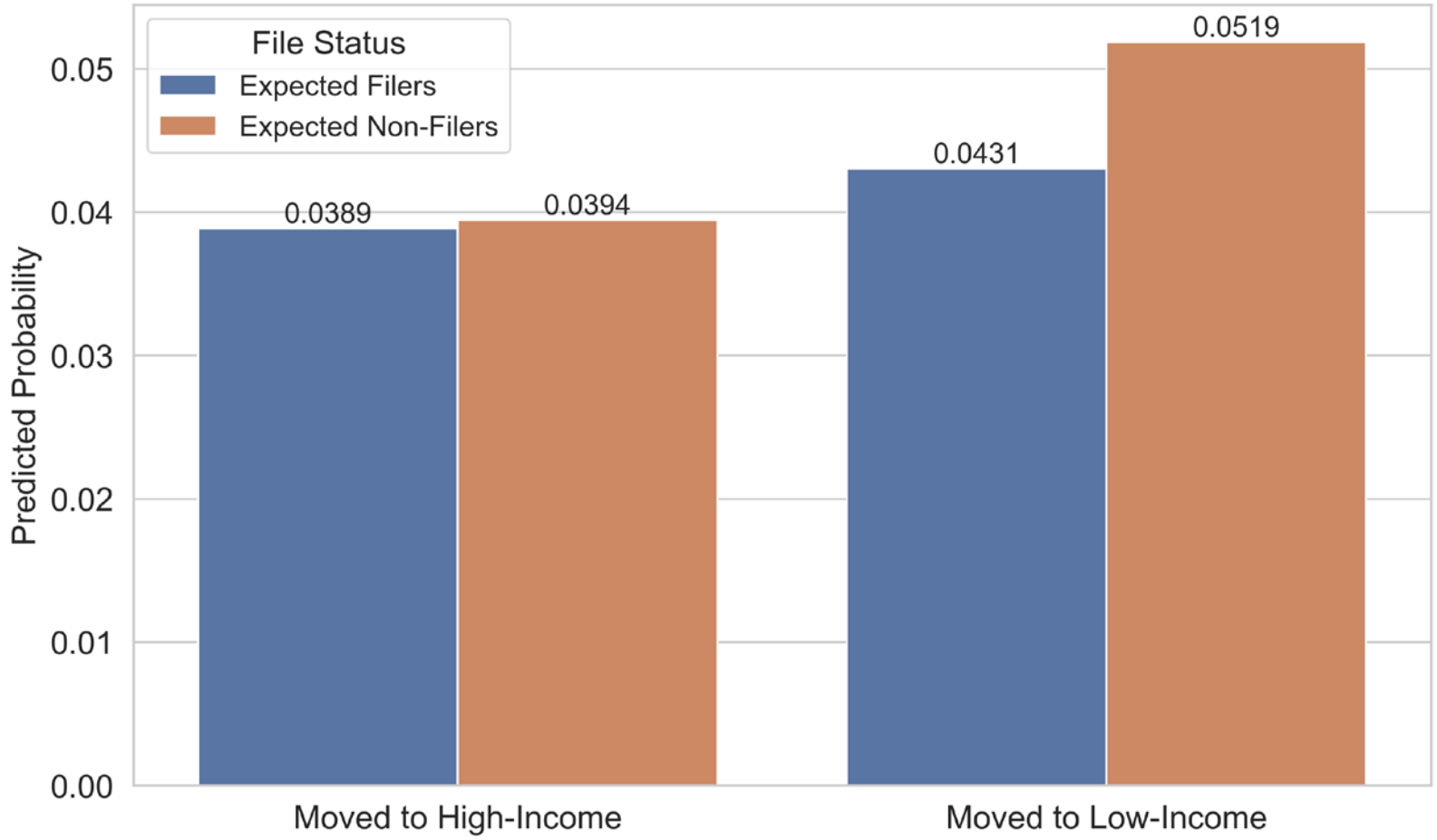

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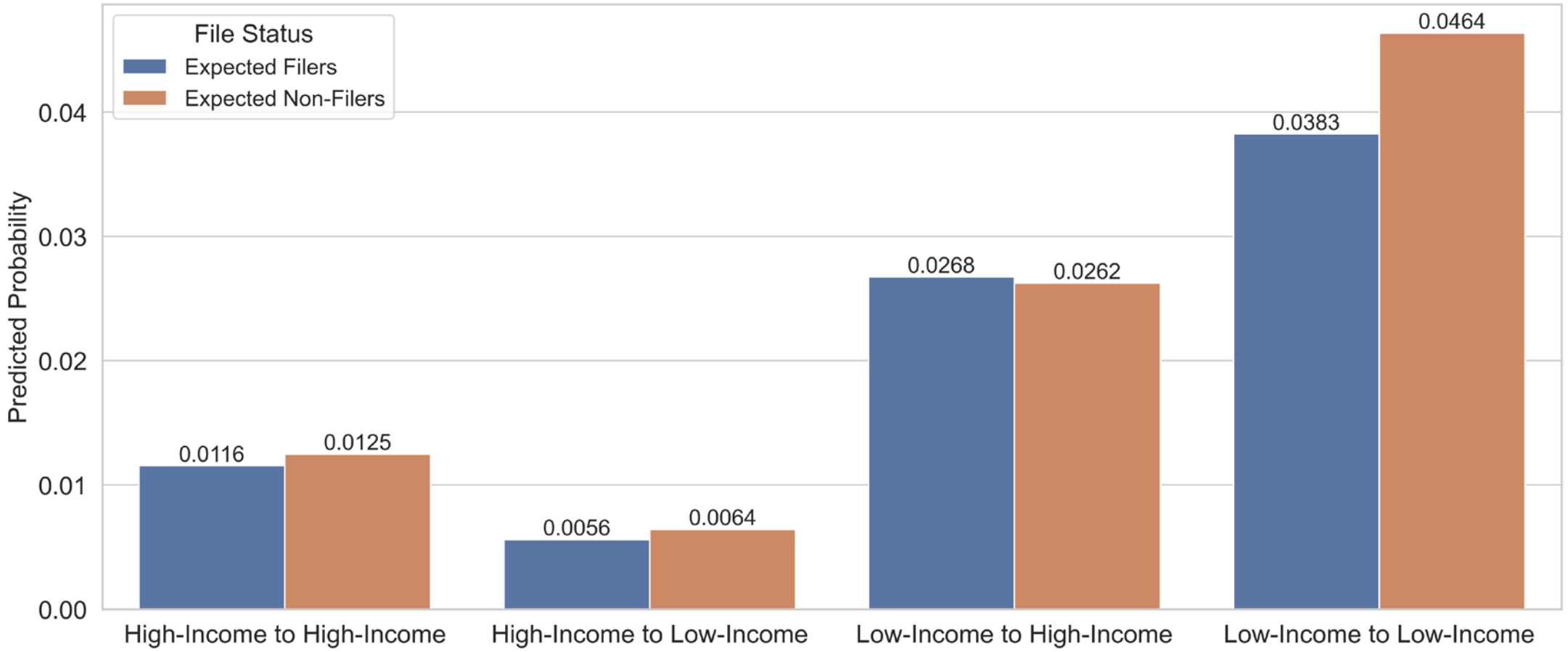
2. The difference between expected filers and non-filers was larger in predicting moves into lower-income MIGPUMAs
3. The difference between expected filers and non-filers was larger in predicting moves away from lower-income MIGPUMAs
4. Largest difference between expected filers and non-filers was in moves from one low-income MIGPUMA to another

Predicted Probabilities from Typology of Moves



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4. Largest difference between expected filers and non-filers was in moves from one low-income MIGPUMA to another
5. Estimates of county-level net domestic migration rates computed only on data from expected tax filers
   - Overstate population loss due to migration in low-income counties
   - Understate population loss due to migration in high-income counties

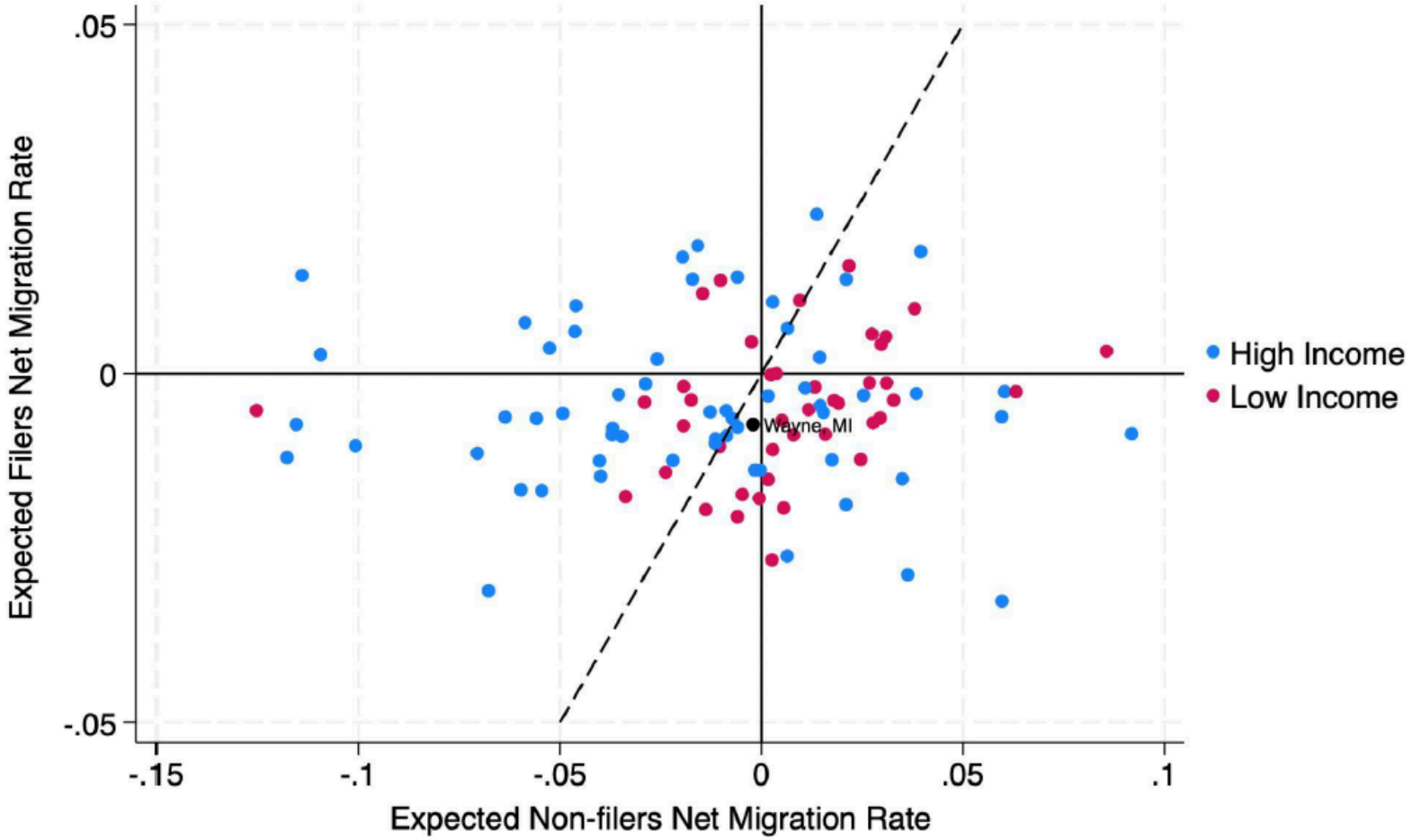
Net Domestic Migration Rates for Counties with 500,000+ people under Age 65

	All Counties (n=103)		Low Income (n=43)		High Income (n=60)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Data Unweighted						
ACS Total	-0.0047	(0.011)	-0.0040	(0.010)	-0.0051	(0.011)
Expected Filers	-0.0047	(0.011)	-0.0049	(0.010)	-0.0045	(0.012)
Expected Non-filers	-0.0097	(0.047)	0.0059	(0.031)	-0.0209	(0.053)
Data Weighted by Sample Pop Size						
ACS Total	-0.0050	(0.010)	-0.0045	(0.009)	-0.0055	(0.010)
Expected Filers	-0.0052	(0.010)	-0.0053	(0.010)	-0.0051	(0.010)
Expected Non-filers	-0.0025	(0.035)	0.0060	(0.022)	-0.0116	(0.042)

Low-income counties are losing expected filers and gaining expected non-filers

High-income counties are losing expected non-filers at more rapid rate than expected filers

County-Level Net Domestic Migration Rates Estimated for Expected Filers and Non-Filers



- In most low-income counties, NDM Rate for expected non-filers is more positive (to right of parity line)
- In most high-income counties, the NDM Rate for expected non-filers is more negative (to left of parity line)

Findings

1. People expected not to file taxes were more likely to move between MIGPUMAs than those expected to file taxes
2. The difference between expected filers and non-filers was larger in predicting moves into lower-income MIGPUMAs
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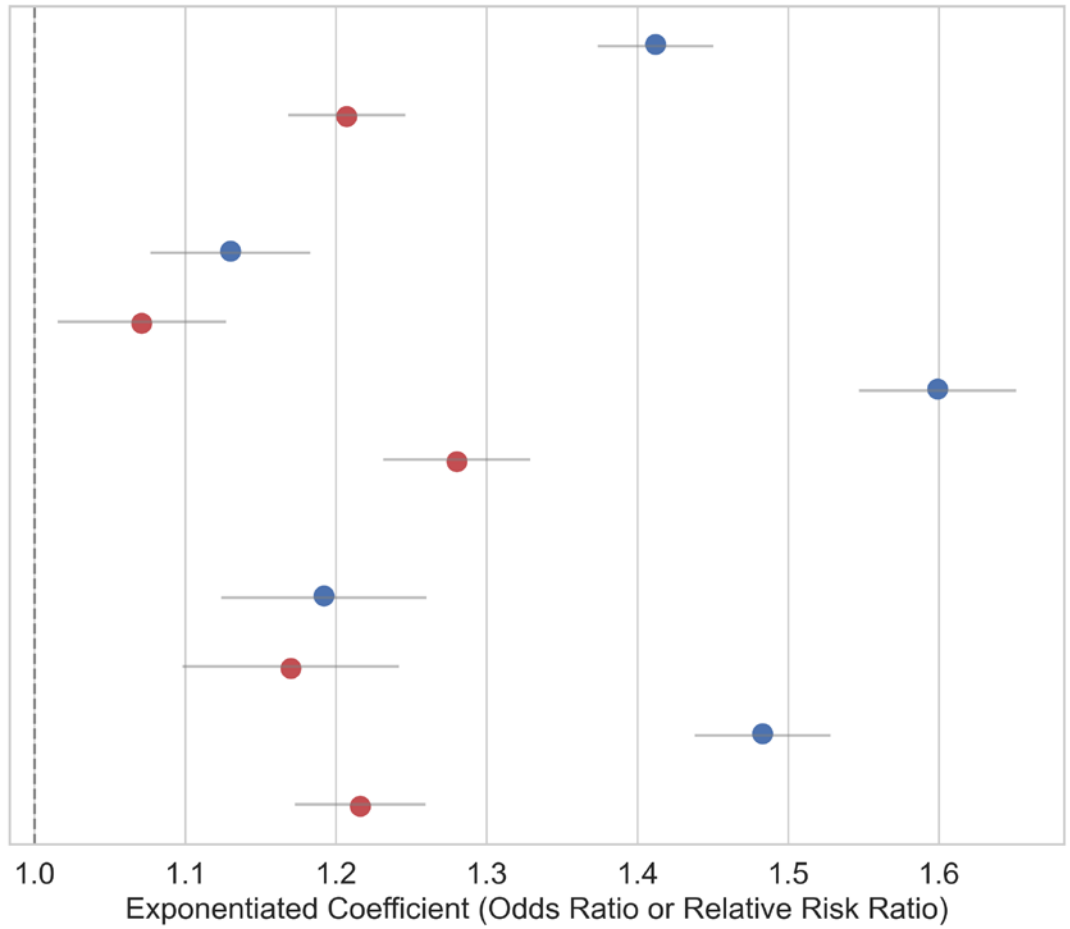
Supplemental Slides

Estimated Effects of Expected Tax Filing Status on Residential Mobility

Any Move

Moves into high- & low-income MIGPUMAs

Moves from high- & low-income MIGPUMAs



Estimated Effects of Expected Tax Filing Status on Typology of Residential Moves