Eliminating Fares to Expand Opportunities: Experimental Evidence on the Impacts of Free Public Transportation on Economic Disparities

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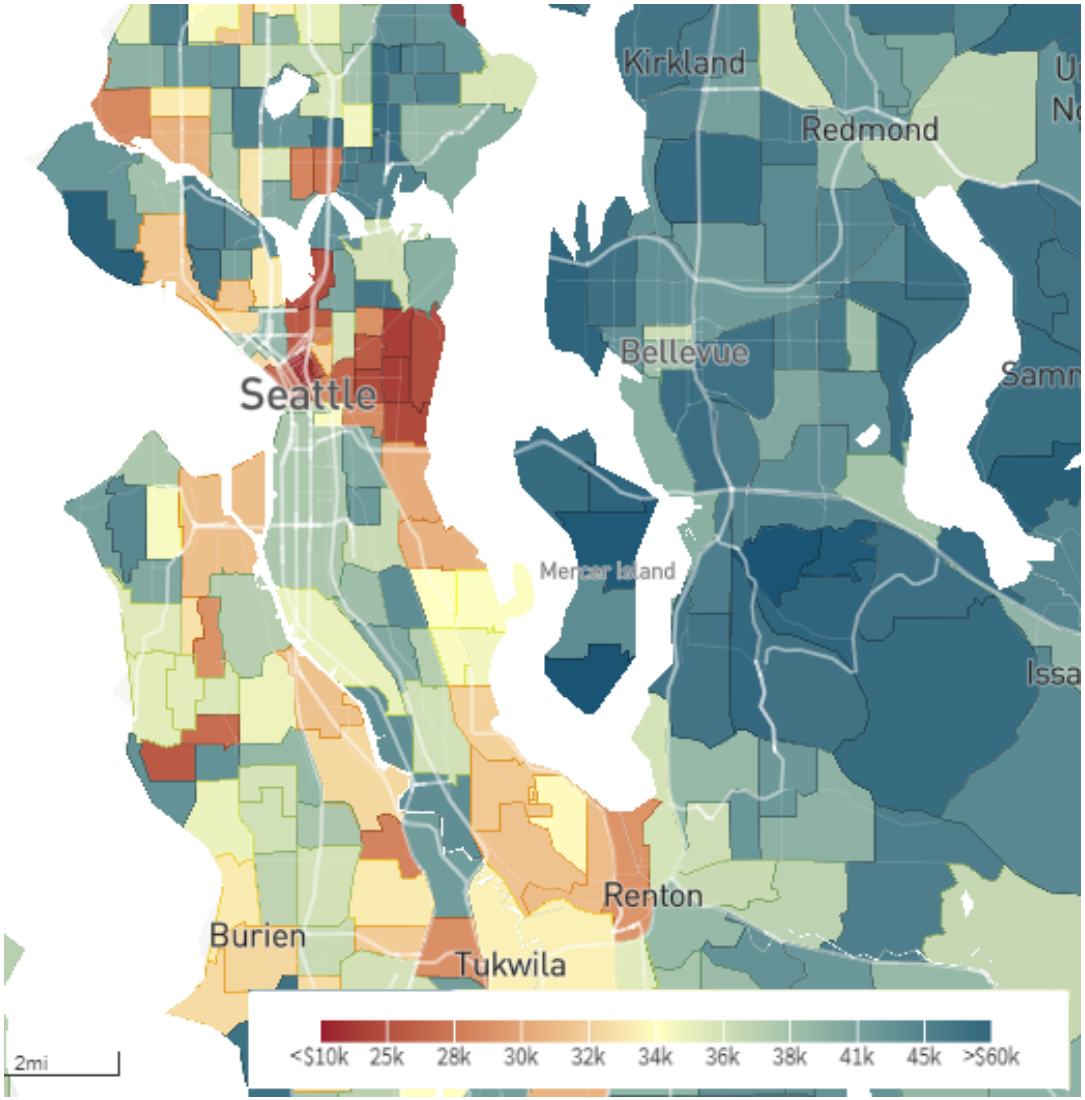
Neighborhoods and Opportunity



Source: Opportunity Atlas

Motivation

- "Place" matters for economic success (Chetty & Hendren 2016).
- Traditional policy dichotomy
  - Opportunity moves
  - Place-based interventions
- The transit alternative: income-based fares
  - Now: King County WA, New York City, San Francisco, Portland,...
  - Future(?): Denver, Salt Lake City, Boston, DC,...

What do income-based transit fares change?

- Transit use and travel
  - Total transit volume
  - Payment type
- Access to opportunity
  - Access to employment and benefits
  - Health and well-being
  - Residential location
- Equilibrium effects
  - Congestion/scale economies on transit
  - Congestion on other modes
  - Housing market

This project

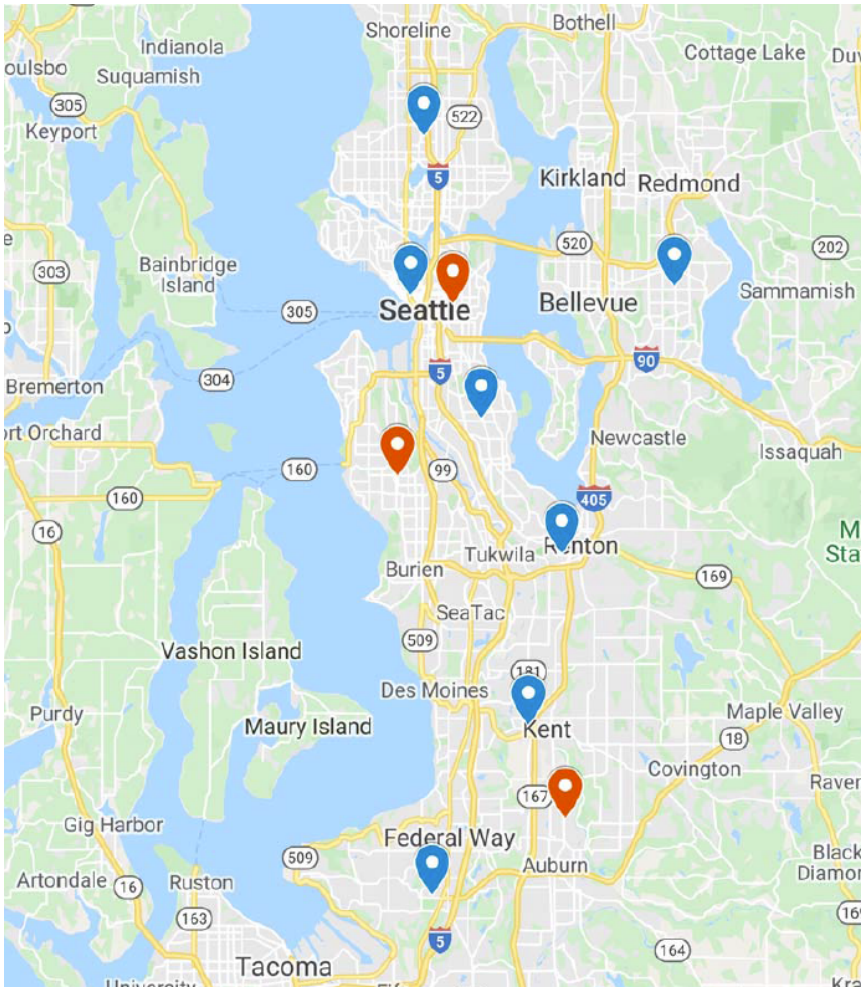
What are the effect of subsidized transit for public benefit recipients?

- Design
  - 1,797 public assistance recipients in King County, WA (incl. Seattle)
  - Random assignment: up to six months of free vs $1.50 per ride
  - Enrolled March 2019-June 2019; December 2019-March 2020
- Data
  - Travel: transit card use, travel survey
  - Downstream: public benefit use, healthcare use, arrests, credit reports, residential location, subjective well-being
  - In progress: employment
- Results
  - Travel
    - ★ Card use quadruples
    - ★ Transit use doubles
    - ★ Stops when subsidy ends
    - ★ Mostly off-peak
  - Downstream outcomes
    - ★ Improvements in credit score and healthcare use
    - ★ No observed effects on arrests or public benefit use

Contributions

- Demand elasticities literature
  - Long history (e.g., Webster & Bly 1980, Davis 2020).
  - Recent work on universal fare-free public transit (Cats et al. 2017).
  - Typically focused on efficiency implications.
- Habit formation
  - Theory (Becker and Murphy 1988)
  - Empirics (Lim, 2017)
- Urban location theory and spatial mismatch
  - Theory (Kain 1968; Wilson, 1997)
  - Large empirical literature (e.g., Holzer et al. 2003).
  - Randomized controlled trials are rare
    - ★ Small subsidies (Phillips 2014; Bull et al. 2020)
    - ★ Developing countries (Bryan et al 2014; Franklin 2018; Abebe et al, forthcoming)

DSHS study office locations



Enrollment

Eligibility for study (N = 1,797)

- Public benefit recipient (mostly SNAP/TANF)
- Already visiting benefits office
- March 13, 2019 and July 1, 2019 (cohort 1); December 6, 2019 and March 13, 2020 (cohort 2)
- Interested in transit pass
- Complete informed consent

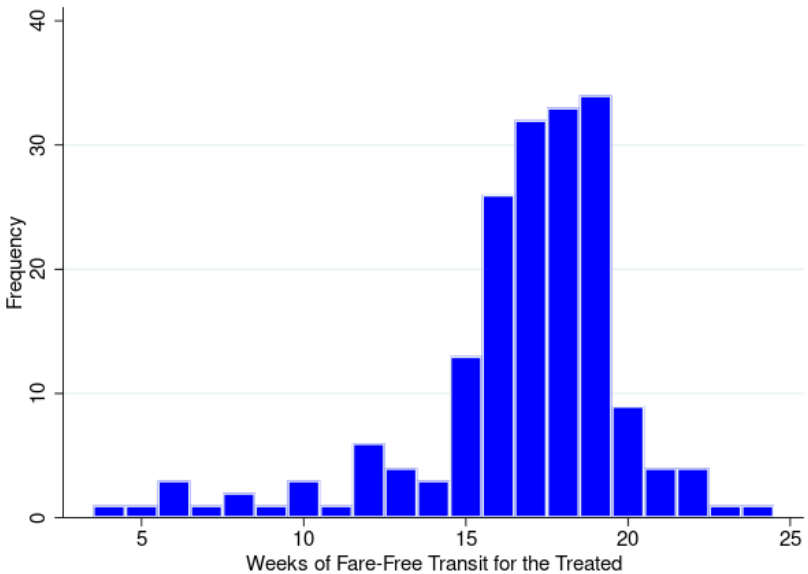
Intake with DSHS staff

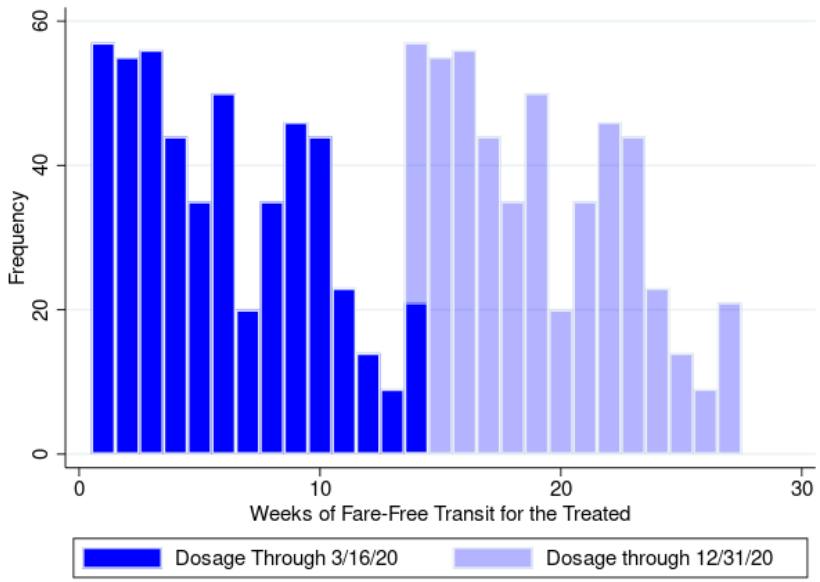
- Informed consent
- Short baseline survey
- Random assignment by computer, Pr[Treat]= 1/3 or 1/2
- Register and receive pass
- Enroll phone in chatbot or give contact info for phone survey

Treatment and control

- **Control**
  - Usual care
  - LIFT card ($1.50 per ride)
  - Pre-loaded with $10
- **Treatment**
  - Free transit on nearly all public Metro buses, commuter buses, light rail, commuter trains, streetcars, and water taxis
  - Converts to LIFT card at expiration
    - ★ Cohort 1: July 31 or August 31, 2019
    - ★ Cohort 2: December 31, 2020 (fares suspended mid-March to October 1, 2020)
  - Implies variation in dosage

Treatment dosage





Data

- Travel Behavior
  - Baseline survey: past travel
  - Metro records: boardings with card
  - Sub-sample survey: payment type, mode, trip purpose
- Downstream Outcomes
  - State administrative records
    - ★ Public benefits (SNAP, TANF, etc.)
    - ★ Employment (UI earnings)
    - ★ Health (Medicaid claims)
    - ★ Arrests (State Patrol)
  - Financial well-being (Experian)
  - Residential location (Infutor)
  - Subjective well-being (Survey)

Baseline characteristics

	Control	Treatment	Adj. Diff.
Female	0.42	0.40	-0.024
			(0.026)
More than 12 Years of Education	0.37	0.38	0.014
			(0.026)
White	0.42	0.42	-0.0056
			(0.026)
Any food or cash benefits	0.66	0.67	0.00038
			(0.025)
Any arrest, cumulative	0.069	0.050	-0.017
			(0.012)
Any Medicaid visit, cumulative	0.49	0.46	-0.035
			(0.027)

Notes: Adj difference includes control for randomization regime

Organizing Results

Travel Behavior

- Transit card taps
- Implications for transit system
- Mode and payment type switching

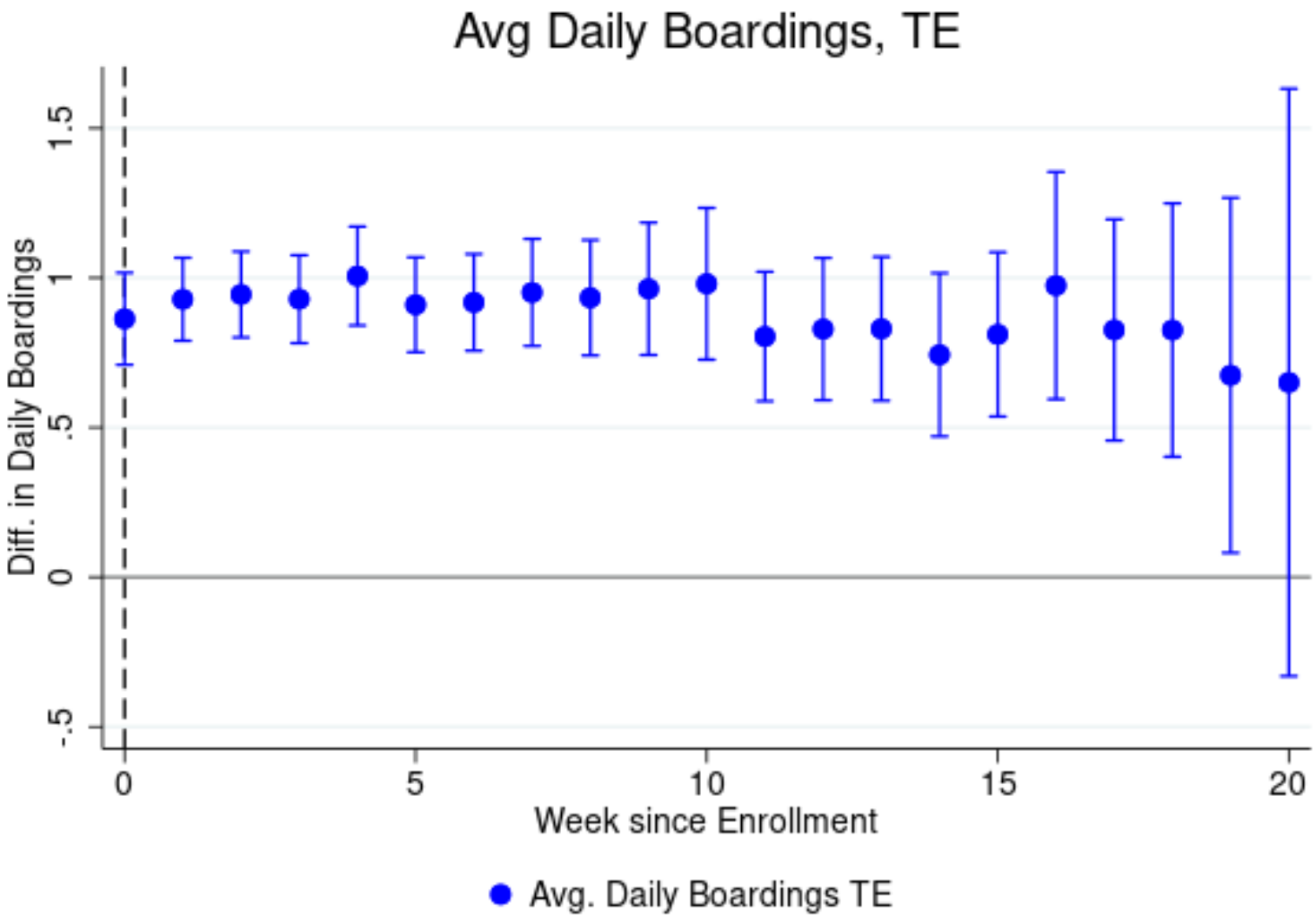
Well-Being

- Subjective well-being
- Healthcare use
- Criminal justice system contact

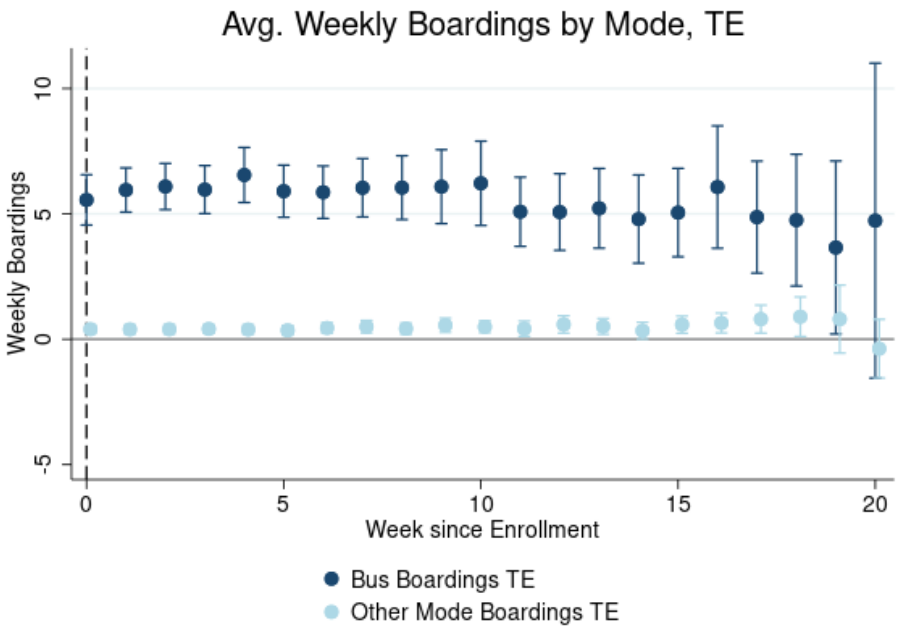
Mechanisms

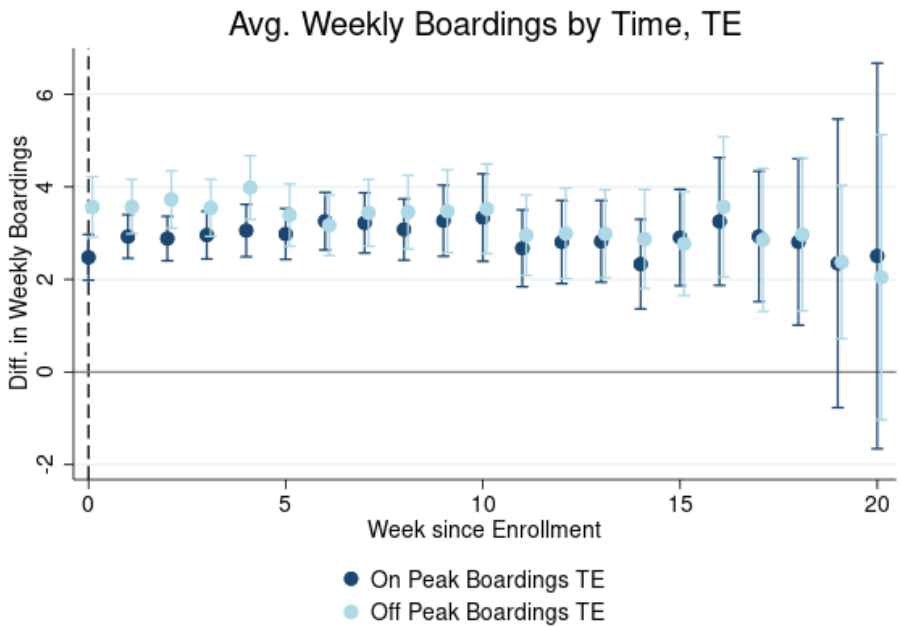
- Public benefit access
- Financial well-being
- Residential mobility

Effects on Transit Use



Effects on Transit Use





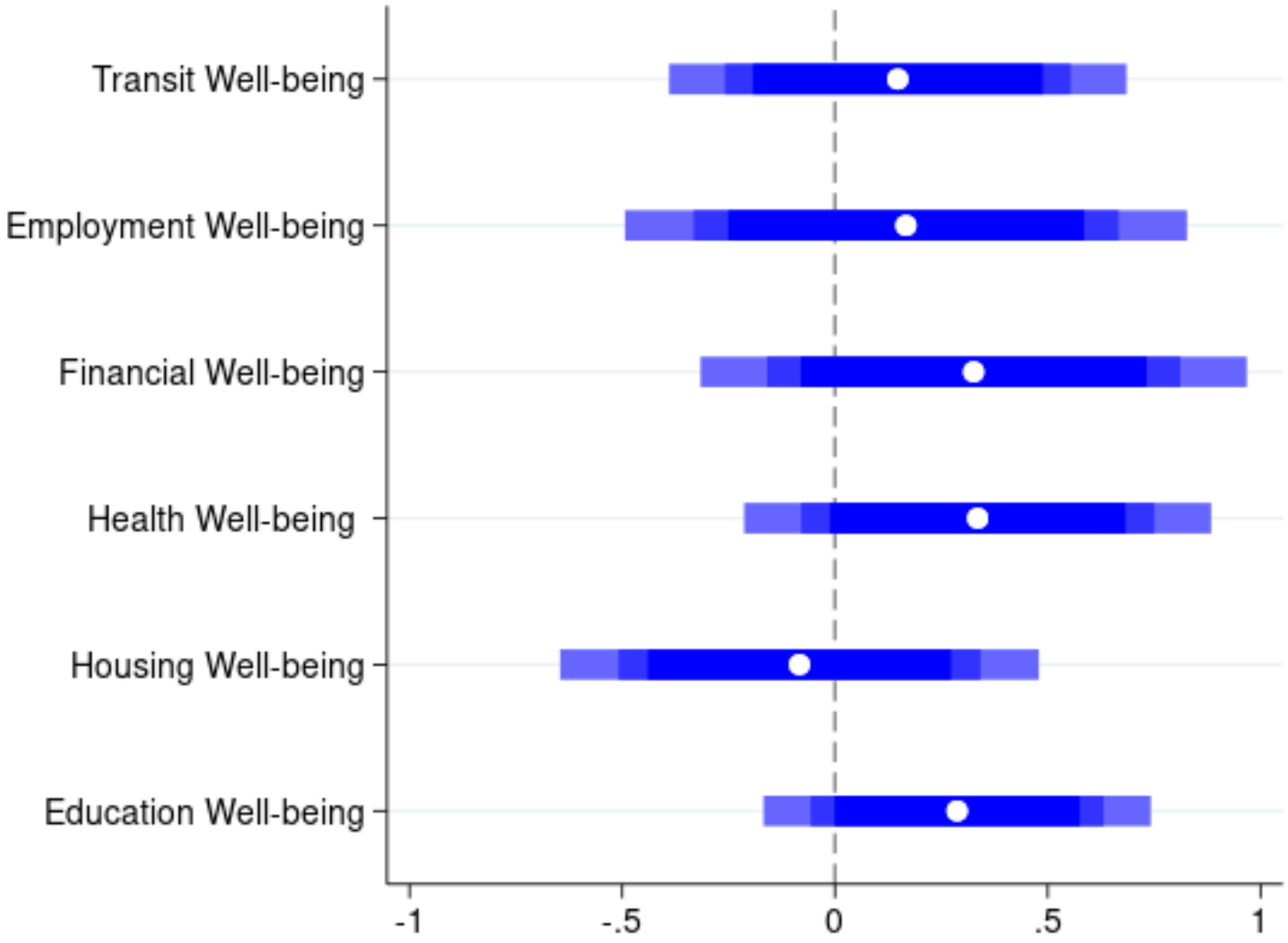
Effects on Transit Use

Differences between card taps and travel

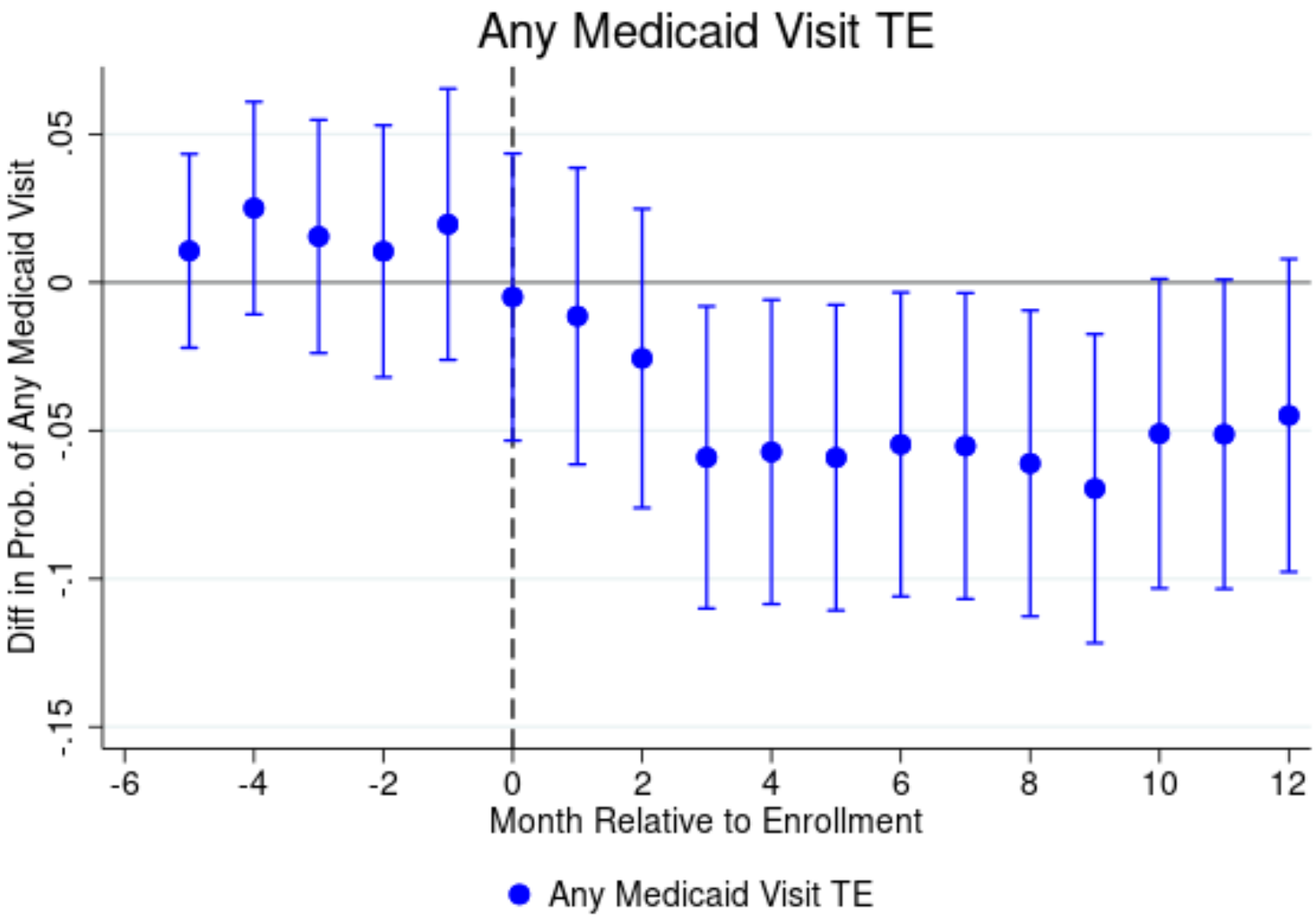
- Use of card for transit trips in treatment (80%) vs control (51%)
- Use of transit versus other modes in treatment (79%) vs control (62%)

Conclusion: transit use roughly doubles; probably a mix of new trips and mode-switching (Brough et al., 2022)

Self-reported Survey During Treatment Months



Effects on Healthcare Use



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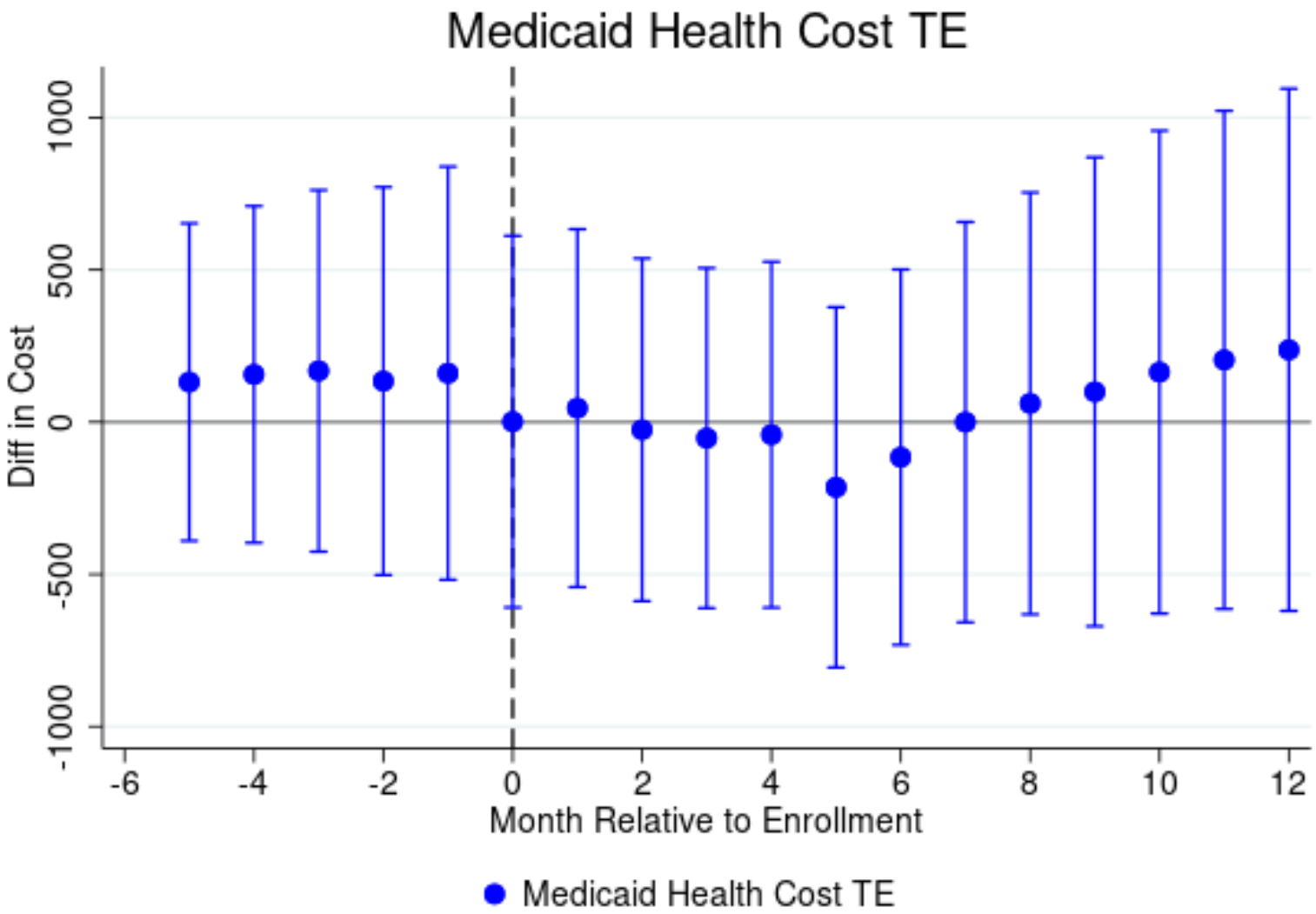

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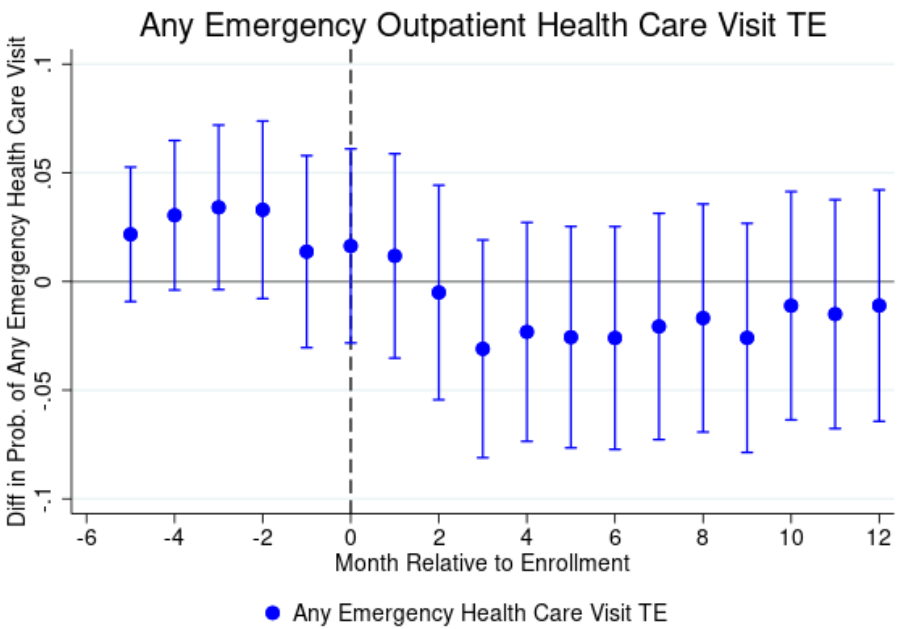

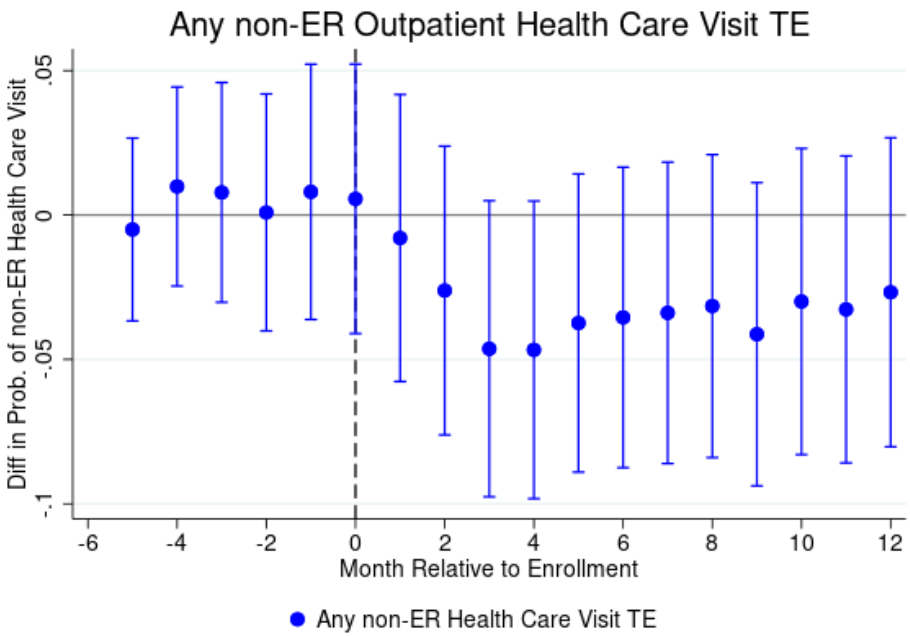

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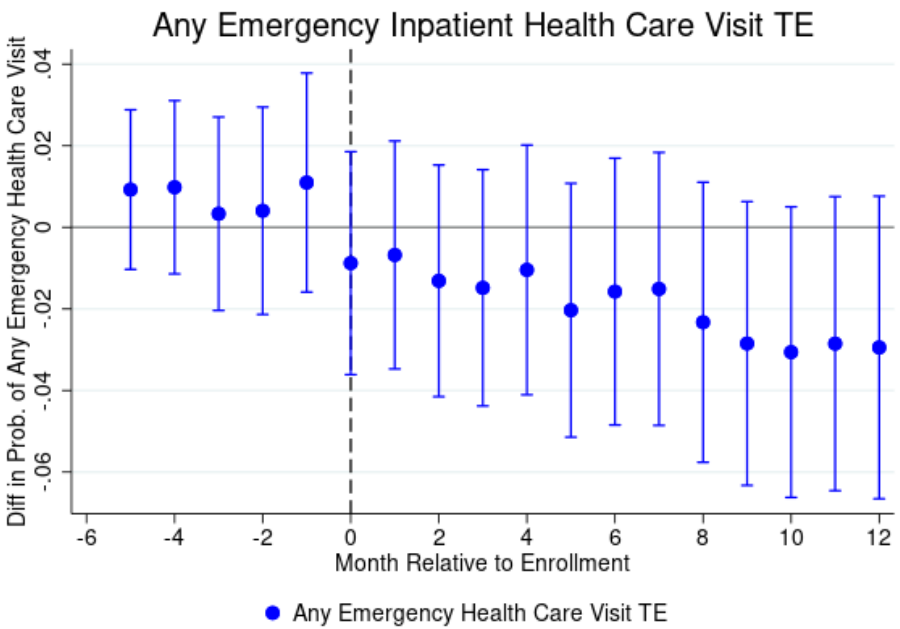
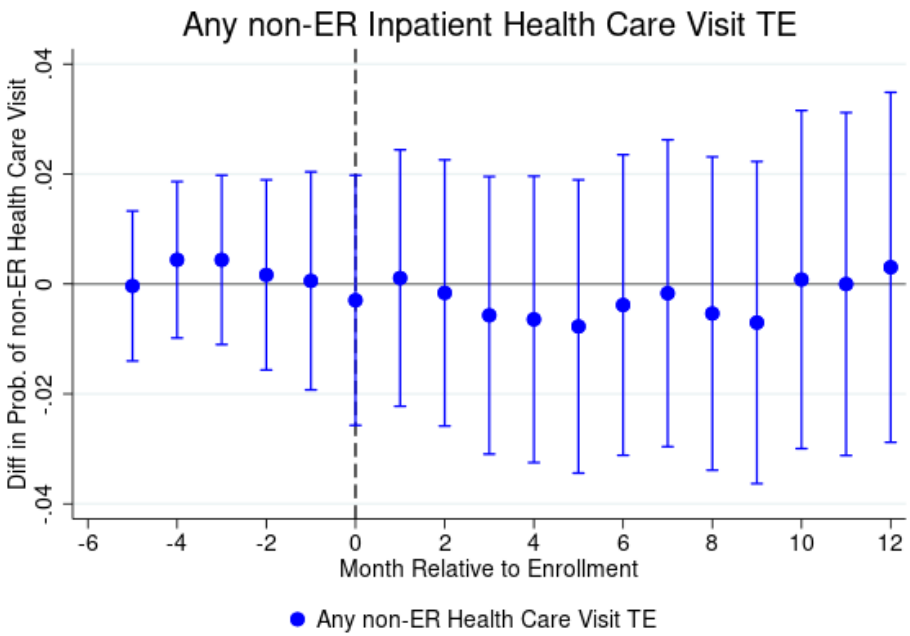
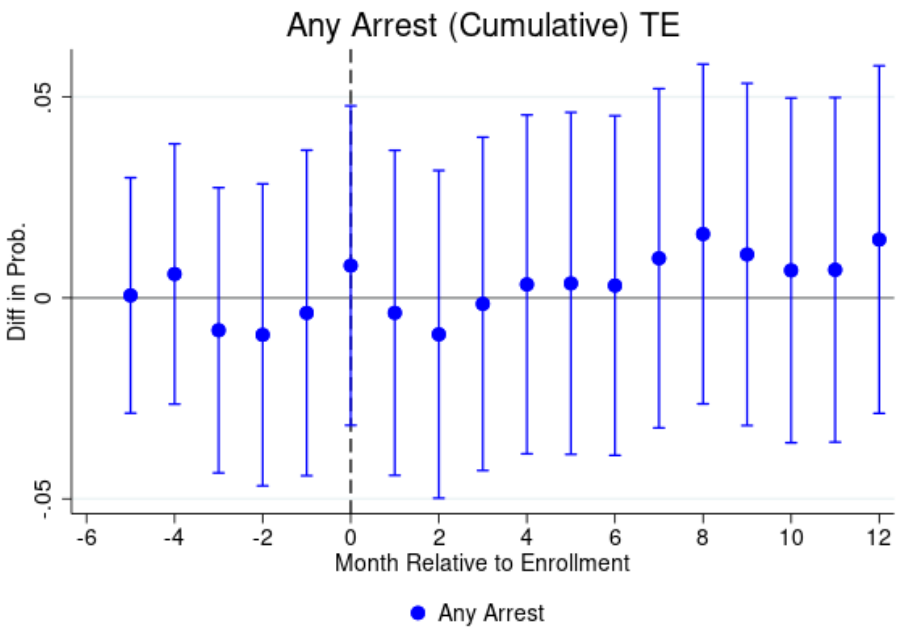
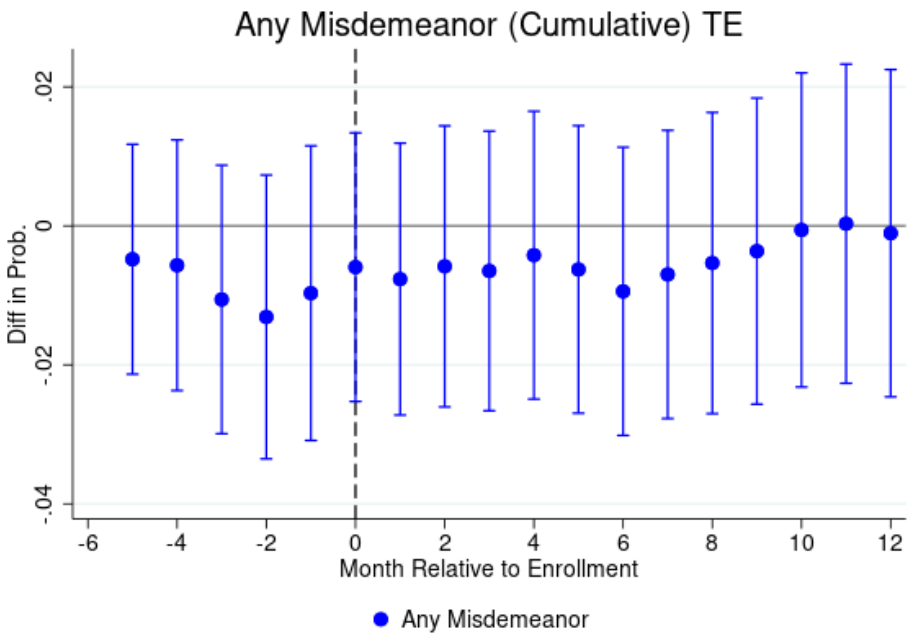


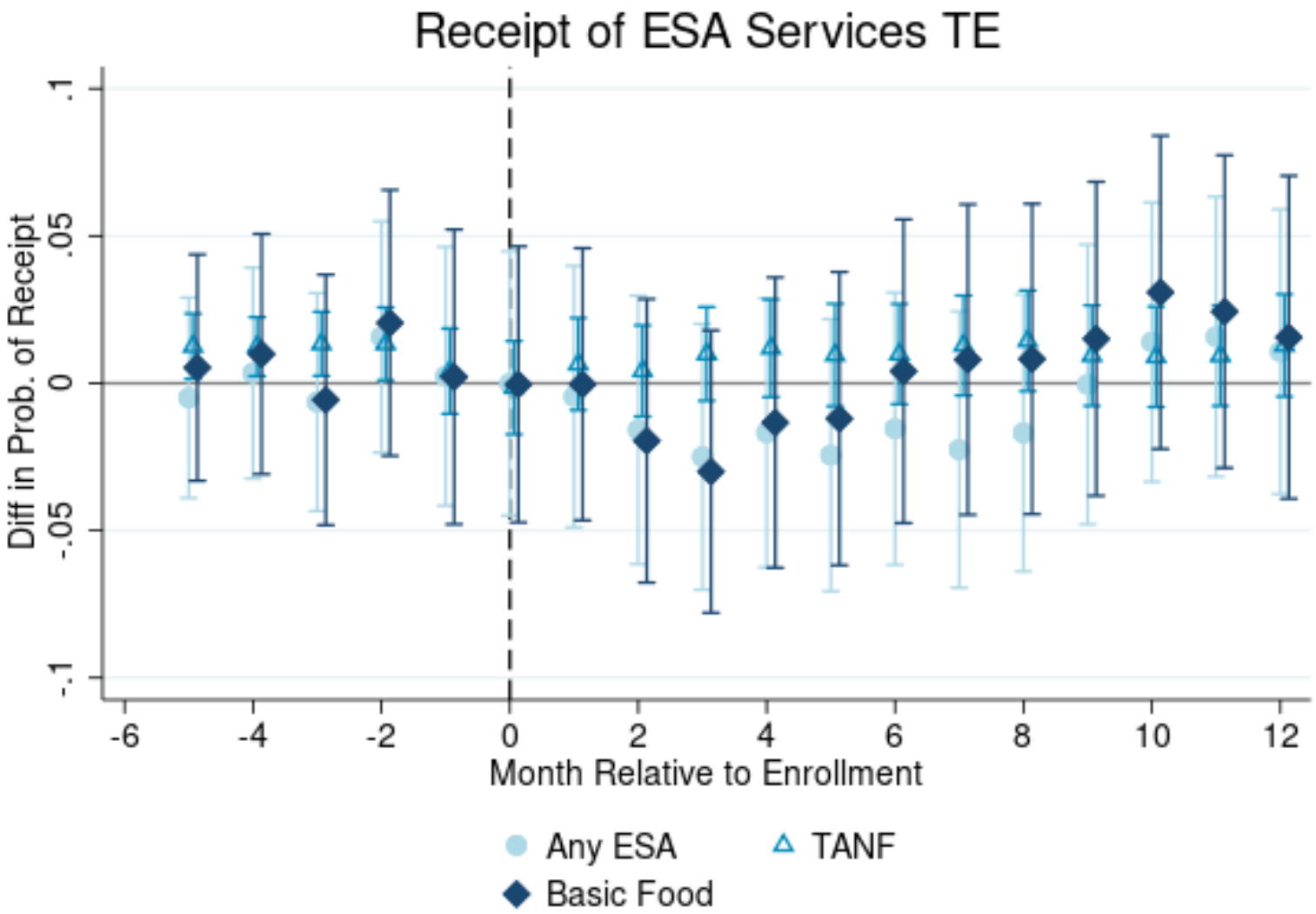


Effects on Criminal Justice Outcomes





Effects on Public Benefits



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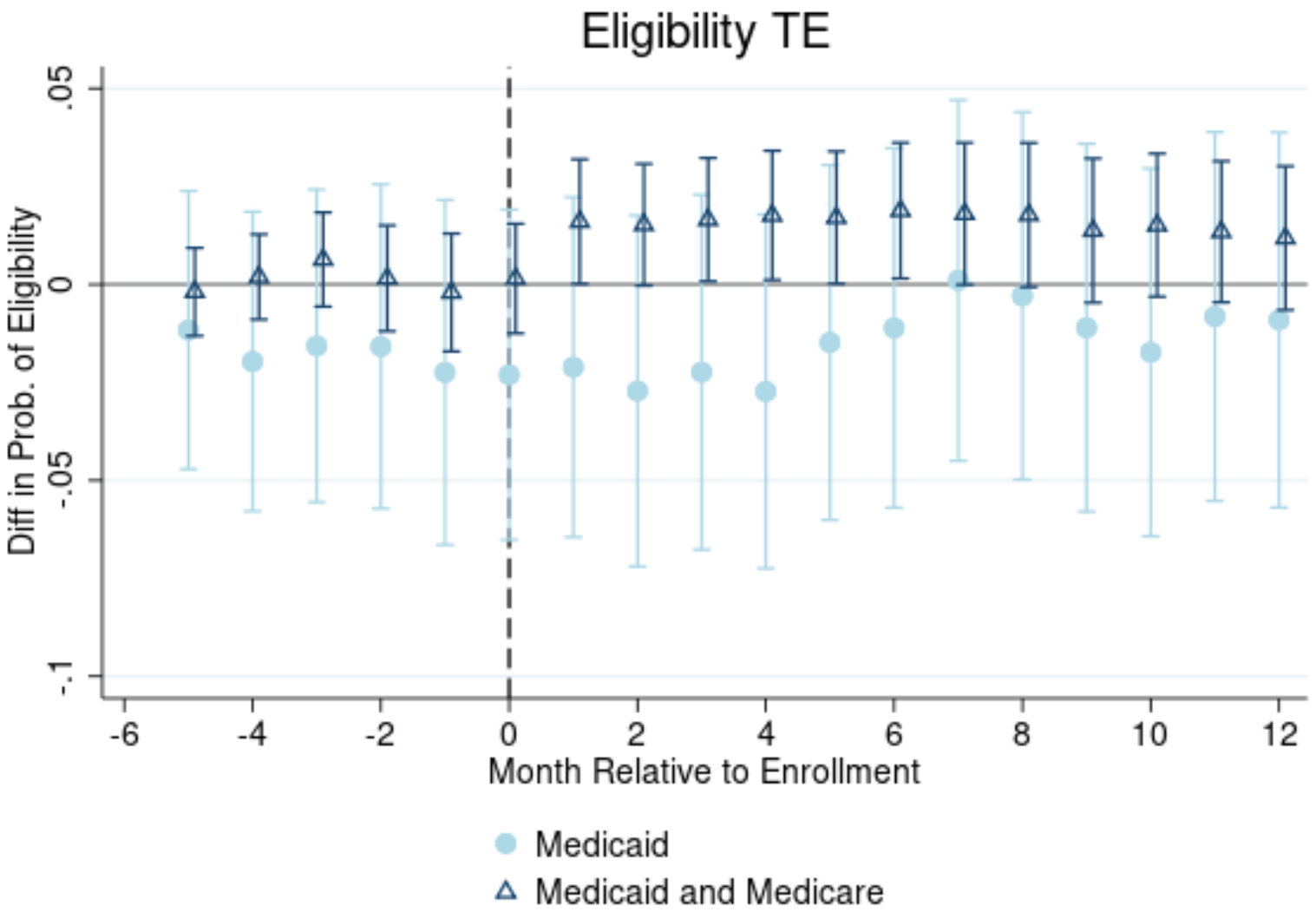
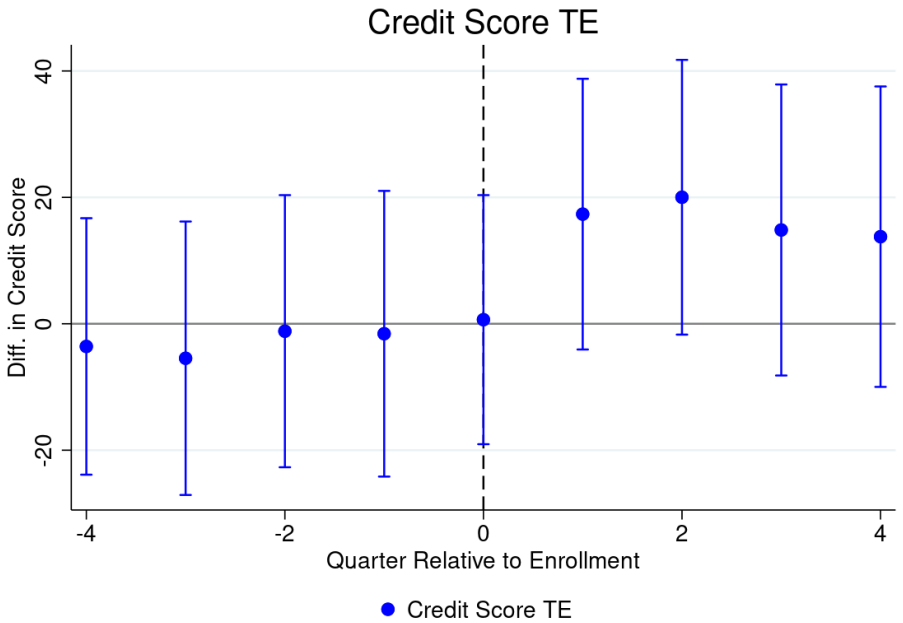
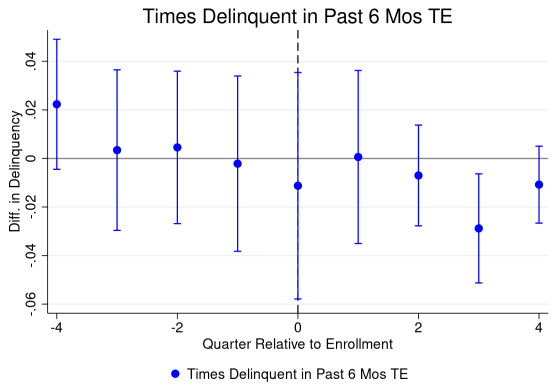
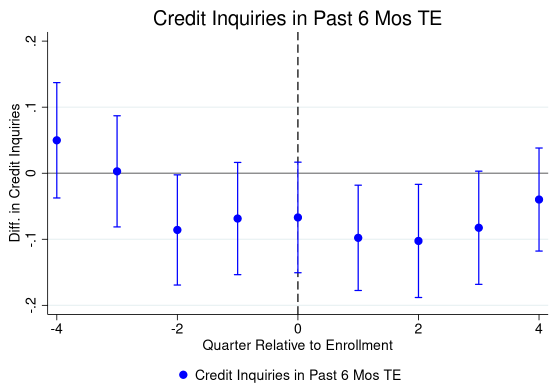


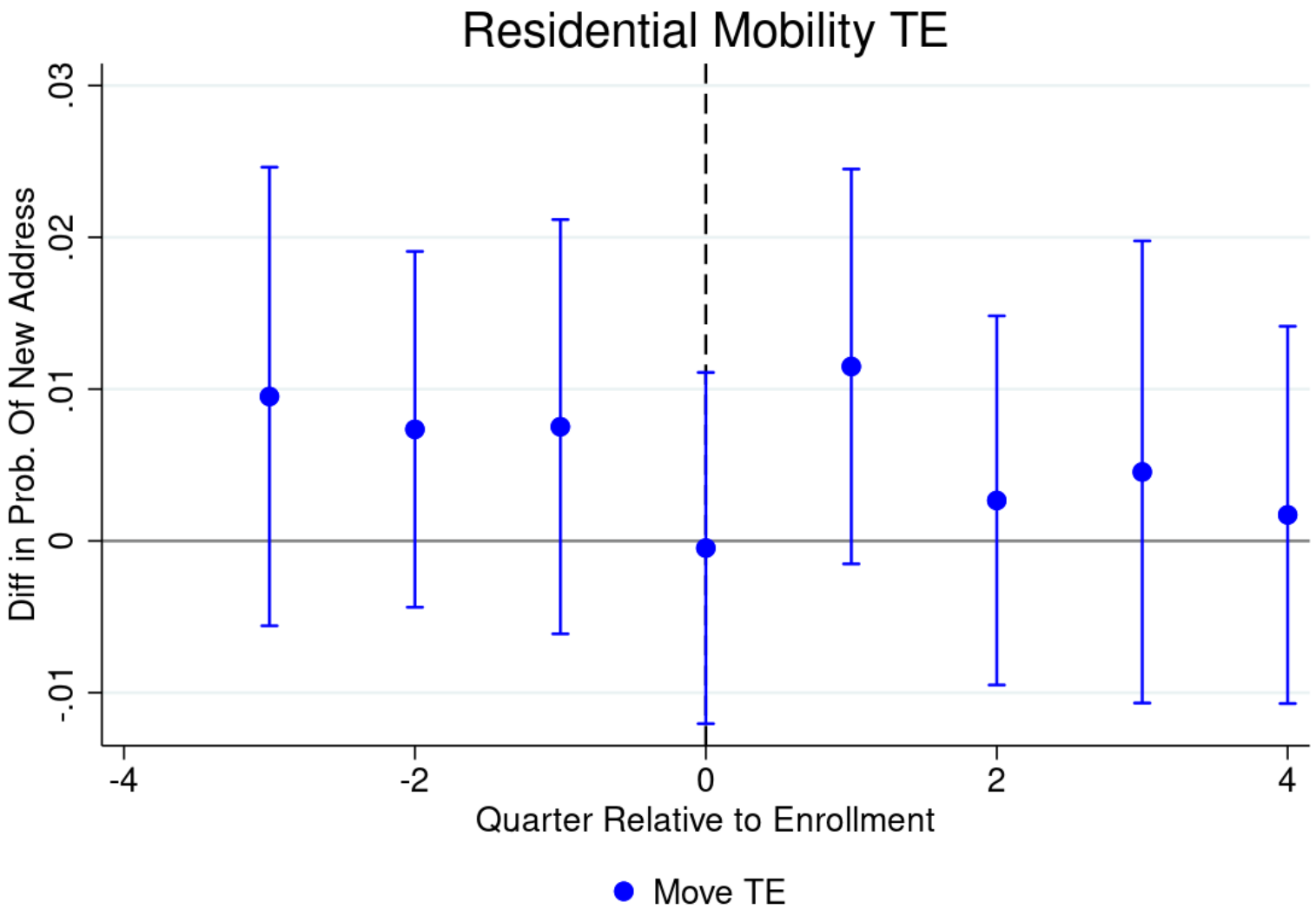
Effects on Credit-Related Outcomes







Effects on Residential Mobility



Conclusions and next steps

Subsidizing the $1.50 bus fare for low-income individuals...

- Affects travel behavior
  - Doubles transit use, accounting for shifting payment types
  - Mostly off peak, potential improvements in transit system efficiency
- Affects well-being
  - Reduces healthcare visits, appears to improve health
  - Appears to improve financial well-being

Free transit can increase mobility and access to opportunity.

Thanks!