

Pre-Analysis Plan  
A (Free) Ticket to Ride: Experimental Evidence on the Effects of Means-Tested Public Transportation  
Subsidies

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**I. Introduction**

Place matters for economic success. Growing evidence indicates that neighborhood environment affects future economic outcomes (Chetty and Hendren, 2016a; Chetty and Hendren, 2016b). An important channel is access to jobs; long, tiring, and unpredictable commutes can hinder job search (Phillips, 2014; Phillips, forthcoming) and lower productivity (Van Ommeren and Gutierrez, 2011). However, housing vouchers that provide incentives to “move to opportunity” do little to encourage adult employment (Ludwig et al., 2013). Targeted transit subsidies represent an alternative policy lever, potentially allowing low-income households to commute to opportunity instead. In an effort to increase access to jobs and other amenities, local governments in Seattle, San Francisco, and Portland have recently made reduced transit fares available to all low-income riders (Cabanatuan, 2018; Redden, 2018). New York City, Los Angeles, and Washington DC are considering similar programs (Goodman and Mays, 2019). This evaluation will focus on the impact of King County’s reduced-fare program to provide, to our knowledge, the first rigorous evidence of how such transit programs can impact travel habits, employment, use of public benefits, healthcare, residential mobility, criminal justice outcomes, and overall well-being.

King County is home to 2.2 million people, making it the largest county in the state of Washington and 13th largest in the U.S. by population. It includes the city of Seattle as well as 38 other cities and towns. In Washington, 30% of the population, 40% of jobs, and 50% of payroll reside in King County. The government of King County operates with an annual budget of \$6 billion.

In 2015, King County Metro Transit (Metro) launched the ORCA LIFT program which made reduced-fare ORCA transit cards available to all people with income 200 percent or less of the federal poverty level. The program provides cards that look the same as full-fare ORCA cards and allows users to pay a rate of \$1.50 per ride, relative to a more complicated fare structure in which the most common bus fare is \$2.75. As of June 2019, nearly 75,000 LIFT cards were in circulation. The County forgoes an estimated \$27 million per year in revenues as a result of ORCA LIFT.

The King County Executive Office, King County Metro Transit, the Department of Social and Human Services (DSHS), UC- Irvine, and the Wilson Sheehan Lab for Economic Opportunities (LEO) at the University of Notre Dame have partnered to implement a randomized-controlled trial that will study the effect of fully-subsidized public transportation on travel habits, employment, and a series of secondary outcomes for low-income residents in King County. Participants can enroll in this study at one of ten DSHS offices throughout King County; enrollment often occurs in conjunction with public benefits’ enrollment and re-certification appointments. Clients not already enrolled in the ORCA LIFT program and who have income at or below 200% of the federal poverty are eligible to partake in the study. Upon enrollment, clients are randomly assigned one of two metro cards: a “passport” card that provides up to 6 months’ worth of free transportation, or a regular ORCA LIFT card pre-loaded with \$10 worth of transit. Enrollment is expected to

conclude in April, 2020 with a sample size of 2,012; 41% of the study sample (819 participants) will be in the treatment group, and 59% of the study sample (1,193 participants) will be in the control group.

At the time of filing this pre-analysis plan, only preliminary analysis on transit usage outcomes has been completed. This preliminary analysis focused on the effect of fully-subsidized transit on transit use for the initial participants to enroll in the study (approximately 26% of the total study sample). No analysis has been completed on transit usage outcomes for the full-sample, and no analysis has been completed on employment, or secondary outcomes for the full-sample or any sub-sample. Baseline data has been collected for nearly the full sample and has been analyzed.

Given there are a variety of events for which transportation assistance may be of use to individuals, researchers have identified the following sets of outcomes of interest, which we refer to as outcome domains:

1. Travel habits and use of public transportation
2. Employment
3. Use of public benefits
4. Health
5. Residential mobility
6. Criminal justice
7. Well-being

## II. **Key Data Sources**

At the time of filing of this pre-analysis plan, the researchers have established access to internal King County Metro transit records. The research team has executed a data-sharing agreement with King County Metro which provides access to transit records of ORCA products. Researchers also have access to consumer reference data from Infutor Data Solutions, which provides information on residential addresses. Finally, the research team is pursuing a data application to the Research and Data Analysis team housed in the Washington Department of Social and Human Services in order to access additional outcomes. Analysis of these outcomes is contingent upon successfully receiving approval for this application.

### A) King County Metro Registry, Boarding, Sales, and Access Databases

We will measure transit outcomes, including number of boardings; number of trips; timing of boardings and trips; routes used; and usage of the ORCA LIFT program using King County Metro transit records. King County Metro maintains de-identified transit data on the cards distributed to the treatment and control groups. This dataset also contains residential information for all ORCA LIFT clients; this will be aggregated to the block-group level in order for researchers to analyze transit use based on differing block-group characteristics. King County Metro has also constructed and granted researchers access to measures of transit access for all block groups within King County. This dataset will allow researchers to determine the number of low-income jobs, total jobs, schools and community service centers that are within a one-hour public transit commute from participants' residence.

### B) Travel Survey

The research team has partnered with the Survey Center at the University of Wisconsin to conduct a telephone survey with a randomly selected portion of the study population who enrolled in the study after December 5, 2019. This survey asks respondents to describe their travels on a randomly selected day. Participants who are not selected to participate in this telephone survey or who do not respond to this survey are asked to complete a web- or mail- version of this travel survey. This survey will provide information on people's travel destinations, travel mode, payment method, activities, opinions on transit systems, and self-reported wellness measures.

#### C) Google Timeline

During enrollment, study participants with smartphones are asked to turn on the "Google Timeline" feature associated with the Google Maps application. This feature uses phone GPS coordinates to record individuals' travel patterns. Google timeline contains information on travel destinations, travel distance, and travel mode (i.e. biking, walking, bus, etc.). This data will be used to understand how access to Metro cards affects people's choice of transit mode. This data will also be compared to self-reported responses to transit questions to better understand the accuracy of various types of travel surveys.

#### D) Infutor Data Solutions

The research team has purchased consumer reference data from Infutor Data Solutions. This data provides exhaustive address history information for all individuals residing in the United States. This dataset will allow the research team to identify both *if* participants move at all, and *where* participants move to.

#### E) DSHS Research and Data Analysis

The Washington DSHS Research and Data Analysis team maintains linked administrative records on statewide arrests, public assistance, earnings, etc. If the information request is approved, we will use this data for statewide outcomes on employment, use of public benefits, health, and involvement with the criminal justice system. Because study recruitment occurs among DSHS clients, we expect there will be a high match rate between our study population and the RDA administrative database.

#### F) Experian Credit Data

Experian is a credit data warehouse that collects information on individuals' credit and financial well-being. Experian contains data on a variety of financial attributes, including collections, broken down by type; mortgages; bankruptcies; and credit scores. Experian makes this data available to researchers to purchase. We will use these data attributes to explore the effect of transit subsidies on individuals' financial well-being.

### III. Hypotheses – Analysis by Outcome Domains

We will analyze outcomes by domain. Within each domain, we indicate a primary measure, which will be the focus of our analysis. We also list alternative measures of interest, which we may investigate to further understand the main effects on the primary outcome measure.

#### A. Primary Outcome: Travel habits and use of public transportation

1. Primary measure: Number of boardings paid with an ORCA LIFT card on public transit at agencies participating in the ORCA LIFT program
  - a. Measures the number of boardings on the study cards
    - i. Continuous measure of the number of boardings during peak and off-peak transit times per day
    - ii. Constructed using King County Metro boardings data
  - b. Hypothesis: expect treatment group to board transit more frequently as compared to the control group
  
2. Alternative measure: Number of trips paid with an ORCA LIFT card on public transit participating in the ORCA LIFT program
  - a. Measures the number of trips, defined as continuous transit within two hours, on the cards distributed to the treatment group
    - i. Continuous measure of the number of trips during peak and off-peak transit times per day
    - ii. Constructed using King County Metro boardings data
  - b. Hypothesis: expect treatment group to have more transit trips as compared to the control group
  
3. Alternative measure: Number of trips made using public transportation
  - a. Measures the number of trips made on public transportation, regardless of payment method
    - i. Continuous measure of the number of trips made
    - ii. Estimated using survey data
      1. Constructed using telephone survey
      2. Constructed using web survey
      3. Constructed using mail survey
    - iii. Hypothesis: expect treatment group to report more usage of public transportation as compared to the control group
  
4. Alternative measure: total number of trips
  - a. Measures the number of trips individuals make in a given day, regardless of mode
    - i. Measured as the number of places an individual travels to in a given day after the starting location
    - ii. Constructed using self-reported data from telephone survey
    - iii. Constructed using self-reported data from web-survey
    - iv. Constructed using self-reported data from mail-survey
    - v. Constructed using Google Timeline data
    - vi. Hypothesis: expect treatment group to make more trips than comparison group
  
5. Alternative measure: travel distance
  - a. Measures the total distance traveled in a given day for all sampled trips
    - i. Measured as the sum of miles traveled for sampled trips
    - ii. Constructed using self-reported data from telephone survey
    - iii. Constructed using self-reported data from web-survey
    - iv. Constructed using self-reported data from mail-survey
    - v. Constructed using Google Timeline data

- vi. Hypothesis: expect treatment group to travel a longer total distance in a day than comparison group
6. Alternative measure: travel time
- a. Measures the total time spent travelling in a given day
    - i. Measured as the sum over all trips in a day of the differences between leave time and arrival time
    - ii. Constructed using self-reported data from telephone survey
    - iii. Constructed using self-reported data from web-survey
    - iv. Constructed using self-reported data from mail-survey
    - v. Constructed using Google Timeline data
    - vi. Hypothesis: expect treatment group to travel a longer total travel time in a day than comparison group
7. Alternative measure: Use of ORCA LIFT after subsidy expires
- a. Measures whether study participants load value to their ORCA LIFT card after the subsidy expires
    - i. Continuous variable for the amount of value that is loaded to the ORCA LIFT card
    - ii. Constructed using King County Metro sales data
  - b. Hypothesis: expect control group to load more value to ORCA LIFT cards than the treatment group during the duration of the transit subsidy
  - c. Hypothesis: expect treatment group to load more value to ORCA LIFT cards than the control group after the transit subsidy expires
8. Alternative measure: Timing of transit
- a. Measures the timing of transit boardings on study cards
    - i. Measures the hour of boarding
    - ii. Measure will be grouped into the following categories on-peak, off-peak, morning on-peak, morning off-peak, evening-on peak, and evening-off peak
    - iii. Constructed using King County Metro boardings data
    - iv. Constructed using self-reported data from telephone-survey
    - v. Constructed using self-reported data from web-survey
    - vi. Constructed using self-reported data from mail-survey
  - b. Hypothesis: expect treatment group's usage of transit during on-peak, off-peak, morning on-peak, morning off-peak, evening-on peak and evening-off peak to increase proportionately compared to the control group
9. Alternative measure: travel mode
- a. Measures use of public transportation, relative to other forms of transportation
    - i. Constructed as the proportion of trips taken on a given day are taken using public transportation
    - ii. Constructed using self-reported data from telephone survey
    - iii. Constructed using self-reported data from web-survey
    - iv. Constructed using self-reported data from mail-survey
    - v. Constructed using Google Timeline data
  - b. Hypothesis: expect treatment group to substitute public transportation for other forms for transportation at higher rates than the control group

10. Alternative measure: payment method for public transportation
  - a. Measures what form of payment individual uses to use public transportation
    - i. Categorical variable for different payment types
    - ii. Constructed using self-reported data from telephone survey
    - iii. Constructed using self-reported data from web-survey
    - iv. Constructed using self-reported data from mail-survey
  - b. Hypothesis: expect treatment group to use ORCA LIFT card as payment type for public transportation more frequently than the control group
  
11. Alternative measure: number of transit trips by travel destination
  - a. Measures whether individuals use public transportation to attend various travel destinations. Destinations categorized by 9 common activities: work, school, shopping, errands, recreation/entertainment, visit family and friends, healthcare, religious or other community activity, benefits or social service agencies
    - i. Measures the number of times individuals use public transportation to attend each respective destination in a given day
    - ii. Constructed using telephone survey
    - iii. Constructed using web survey
    - iv. Constructed using mail survey
    - v. Constructed using Google Timeline
  - b. Hypothesis: expect treatment group to use public transportation for all activities at higher rates than the control group, conditional on engaging in the above 9 activities
  
12. Alternative measure: travel destination
  - a. Measures whether individuals travel to various destinations. Destinations categorized by 9 common activities: work, school, shopping, errands, recreation/entertainment, visit family and friends, healthcare, religious or other community activity, benefits or social service agencies
    - i. Measures the number of times individuals attend each respective destination in a given day
    - ii. Constructed using telephone survey
    - iii. Constructed using web survey
    - iv. Constructed using mail survey
    - v. Constructed using Google Timeline
    - vi. Hypothesis: expect treatment group to travel to all 9 destinations more frequently as compared to the control group

B. Primary Domain: Employment

In the employment domain, all analyses will be limited to participants with positive earnings at some point during the 8 quarters prior to the quarter of random assignment.

1. Primary Measure: hours worked per quarter
  - a. Measures hours employed
    - i. Continuous measure for hours worked per quarter
    - ii. Constructed using data from Employment Security Department (RDA data)

- b. Hypothesis: expect treatment group to work more hours compared to the control group
- 2. Alternative measure: earnings per quarter
  - a. Measures income from employment
    - i. Continuous measure for dollars per quarter of earnings
    - ii. Constructed using data from the Employment Security Department (RDA data)
    - iii. Quarterly earnings will be winsorized at the 95th percentile
  - b. Hypothesis: expect treatment group to be more likely to have higher earnings as compared to the control group
- 3. Alternative Measure: wage rate per hour
  - a. Measures hours employed
    - i. Continuous measure for quarterly earnings divided by hours worked in a quarter
    - ii. Sample limited to individuals with positive hours
    - iii. Constructed using data from Employment Security Department (RDA data)
    - iv. Wage rates will be winsorized at the 95th percentile
  - b. Hypothesis: expect treatment group to have greater wages than the control group
- 4. Alternative measure: employed
  - a. Measures whether the person is employed in a quarter
    - i. Dummy measure for positive quarterly earnings
    - ii. Constructed using data from Employment Security Department (RDA data)
  - b. Hypothesis: expect treatment group to be more likely to be employed
- 5. Alternative Measure: job exits to non-employment
  - a. Measures whether individuals lost a job
    - i. Indicator for whether individual moves from positive earnings to zero earnings
    - ii. Constructed using data from the Employment Security Department (RDA data)
  - b. Hypothesis: expect treatment group to be more likely to retain work at same employer as compared to the control group
- 6. Alternative Measure: job starts from non-employment
  - a. Measures whether individuals start a new job
    - i. Indicator for whether individual moves from zero earnings to positive earnings
    - ii. Constructed using data from the Employment Security Department (RDA data)
  - b. Hypothesis: expect treatment group to be more likely to find new employment
- 7. Alternative Measure: job-to-job-moves
  - a. Measures whether individuals start a new job and exit an old job
    - i. Indicator for whether individual remains employed but changes employers
    - ii. Constructed using data from the Employment Security Department (RDA data)
  - b. Hypothesis: ambiguous; treatment group may move to higher wage jobs but also be less likely to move to lower wage jobs
- 8. Alternative Measure: commute distance and duration
  - a. Measures individuals' commute distance and duration from their residence to work
    - i. Commute distance and duration by public transportation
    - ii. Commute distance and duration by car

- iii. Commute distance and duration along the shortest route (a straight line from residence to work place)
    - iv. Constructed using data from the Employment Security Department (RDA data)
  - b. Hypothesis: expect treatment group to have longer commute distance and duration as compared to the control group, conditional on being employed
- 9. Alternative Measure: commute distance and duration
  - a. Measures individuals' commute distance and duration from their residence to work
    - i. Commute distance and duration by public transportation
    - ii. Commute distance and duration by car
    - iii. Commute distance and duration along the shortest route (a straight line from residence to work place)
    - iv. Constructed using work trips that are self-reported data from telephone survey
    - v. Constructed using work trips that are self-reported data from web-survey
    - vi. Constructed using work trips that are self-reported data from mail-survey
  - b. Hypothesis: expect treatment group to have longer commute distance and longer duration as compared to the control group, amongst individuals who report a work trip in the travel survey

There are multiple secondary domains, which are final outcomes that might be directly affected by the subsidy. These secondary outcomes will be measured both for the time-period when the transit subsidy is active, as well as after the transit subsidy has expired.

### C. Secondary Domain: Use of Public Benefits

1. Primary measure for Benefits: amount received in public assistance
  - a. Measures dollar value amount received in public assistance
    - i. Continuous variable for dollar amount received
    - ii. Public assistance includes any ESA service, TANF/SFS, SNAP, HEN
    - iii. Constructed using the Economic Service Administration database (RDA data)
  - b. Hypothesis: expect treatment group to receive less in public assistance than the the control group
2. Alternative Measure for Benefits: receiving any public assistance
  - a. Indicator for whether participant receives any public assistance
    - i. Public assistance includes any ESA service, TANF/SFS, SNAP, HEN
    - ii. Constructed using the Economic Service Administration database (RDA data)
    - iii. Dummy: 1 if yes: 0 if no
  - b. Hypothesis: ambiguous; transit may make it easier to enroll in public assistance programs, but could also reduce eligibility by increasing income
3. Alternative Measure: receipt of different types of assistance
  - a. Indicator for whether participant receives a particular type of assistance
    - i. Measured separately for TANF/SFA, SNAP, HEN
    - ii. Constructed using the Economic Service Administration database (RDA data)
    - iii. Dummy: 1 if yes: 0 if no
  - b. Hypothesis: ambiguous; transit may make it easier to enroll in public assistance programs, but could also reduce eligibility by increasing income



#### D. Secondary Domain: Health

1. Primary Measure for Health: expected overall cost of healthcare
  - a. Includes emergency department, inpatient visits, and outpatient visits. Cost weights constructed by RDA.
    - i. The outcome will be measured in dollars as a weighted sum, weighting the number of each type of visit by the cost of such visits.
    - ii. Constructed using the Health Authority data
  - b. Hypothesis: ambiguous; treatment group may have better physical health but may use subsidized transit to access more healthcare services
2. Alternative Measure for Health: indicator for any emergency department visit
  - a. Measures any ED stay
    - i. Constructed using the Health Authority data
    - ii. Dummy for whether an individual was admitted to the emergency room (ER inpatient and/or ER outpatient).
  - b. Hypothesis: ambiguous; treatment group may have better physical health but may use subsidized transit to access more healthcare services
3. Alternative Measure for Health: indicator for any hospital inpatient visit
  - a. Measuring any hospital inpatient stay
    - i. Dummy for whether patient was admitted to the hospital for inpatient
    - ii. Constructed using the Health Authority Data (RDA data)
  - b. Hypothesis: ambiguous; treatment group may have better physical health but may use subsidized transit to access more healthcare services
4. Alternative Measure for Health: indicator for any outpatient visit
  - a. Measuring any hospital outpatient stay
    - i. Dummy for whether participant was recorded as outpatient, non-ED visit
    - ii. Constructed using Health Authority Data (RDA data)
  - b. Hypothesis: ambiguous; treatment group may have better physical health but may use subsidized transit to access more healthcare services
5. Alternative Measure for Health: indicators by diagnosis type and measure
  - a. We will split the above measures by diagnosis and type of treatment

#### E. Secondary Domain: criminal justice outcomes

1. Primary measure: arrest within one year
  - a. Measures whether an individual is arrested within one year of enrolling in the study
    - i. Dummy for whether an individual is arrested
    - ii. Categorical variable describing the charge for which the individual was re-arrested
    - iii. Constructed using Research and Data Analysis (RDA) data
  - b. Hypothesis: expect treatment group to have fewer arrests as compared to those in the control group

## G. Secondary Domain: Residential mobility

This analysis is limited to the sample that matches to address history data at baseline.

1. Primary Measure: whether individual moves in-county
  - a. Measures whether individual moves
    - i. Dummy for whether individual who matches to the Infutor database moves
    - ii. Constructed using address information from Infutor consumer reference data
  - b. Hypothesis: expect treatment group to be more likely to move as compared to the control group
2. Alternative Measure: whether individual moves out-of-county
  - a. Measures whether individual changes residences out of King County
    - i. Dummy for whether individual who matches to the Infutor database moves in-county
    - ii. Constructed using address information from Infutor consumer reference data
  - b. Hypothesis: expect treatment group to be less likely to move out of county
3. Alternative Measure: whether individual moves to areas with more bus stops
  - a. Measures whether individual moves to area with more bus stops in residential block group
    - i. Continuous measure for number of bus stops in residential block group
    - ii. Constructed using Infutor address data and King County Metro route data
  - b. Hypothesis: Expect treatment group to be more likely to move to areas with more bus stops than the control group
4. Alternative measure: whether individual moves to areas where access to low-income jobs is reachable within a one-hour commute by public transportation
  - a. Measures whether individual moves to areas that are more accessible to low-income jobs by public transportation
    - i. Continuous measure for number of jobs accessible within a one-hour commute from residential block group by public transit
    - ii. Constructed using Infutor transit data and King County Metro accessibility measure
  - b. Hypothesis: Expect treatment group to be more likely to move to areas with better transit-access to low-income jobs

## H. Secondary Domain: Well-being

1. Primary Measure: well-being
  - a. Measures changes to individuals' self-reported education, financial, transportation, health, housing, and employment circumstance
    - i. Constructed using self-reported data from telephone survey
    - ii. Constructed using self-reported data from web-survey
    - iii. Constructed using self-reported data from mail-survey

- b. Hypothesis: expect treatment group to be more likely to report larger improvement in education, financial, transportation, health, housing, and employment circumstance as compared to the control group
2. Alternative Measure: financial well-being
    - a. Measures individuals' total balance on debt collections
      - i. Constructed using Experian credit data
      - ii. Winsorized at the 95th percentile
    - b. Hypothesis: expect treatment group to have less in debt collections as compared to the control group

#### IV. Sub-Group Analysis

We are interested in determining whether the intervention is more effective for certain populations relative to others.

- A) Accessibility to public transit services  
Identifies whether an individual lives in a residential area that is considered highly accessible to transportation; moderately accessible to transportation; or not at all accessible to transportation. Transit access measures will be constructed using the number of bus stops accessible within one's residential block group, the number of jobs accessible within 1 hour of public transportation, and the number of low-income jobs accessible within 1 hour of public transportation.
- B) Predicted Transit Use (halves)  
We will predict transit use at followup in the control group using a regression that includes the covariates described in section V. B below. We will then predict transit use for all observations using observed characteristics and the coefficients from that regression. Finally, we will split the sample into halves (e.g., greater vs lesser transit use) based on this predicted outcome and test for heterogeneous effects in these two groups. To avoid endogenous stratification, we compute these statistics with a repeated split sample procedure as in Abadie, Chingos, and West (2018, RESTAT).
- C) Predicted Outcomes (halves)  
For each outcome, we will predict the outcome in the control group using a regression that includes the baseline value of the primary outcome and the covariates described in section V. B below. We will then predict the outcome for all observations using observed characteristics and the coefficients from that regression. Finally, we will split the sample into halves (e.g., higher likelihood of employment vs. lower) based on this predicted outcome and test for heterogeneous effects in these two groups. To avoid endogenous stratification, we compute these statistics with a repeated split sample procedure as in Abadie, Chingos, and West (2018, RESTAT).
- D) TANF vs. SNAP vs. other program receipt at baseline  
Identifies whether a DSHS client receives TANF vs SNAP vs other program at baseline.
- E) Gender  
Identifies as female vs. does not identify as female at baseline.

- F) Number of days used public transit in the past 30 days  
Identifies the number of days within the past 30 days individual has used public transportation prior to study enrollment. Analysis will be conducted separately for each response quartile.

## V. Data Analysis

### A) Estimates

For all outcomes, we will estimate treatment effects by OLS using the following regression:

$$Y_i = \alpha_0 + T_i\beta_0 + X_i\gamma_0 + \varepsilon_i$$

$Y_i$  is the outcome.  $T_i$  is an intent-to-treat dummy indicating the random assignment of person  $i$ . In the case of non-compliance,  $T_i$  takes on the value of the original random assignment. The vector  $X_i$  includes a set of person-level characteristics collected at baseline, and  $\varepsilon_i$  is an error term. The coefficient on the treatment dummy  $\beta_0$  will give us the difference in means between the treatment and comparison groups, the estimated impact of the program. The full estimation sample will include about 819 individuals in the treatment group and 1193 individuals in the control group.

### B) Covariates

We will report all analyses without covariate adjustment and with covariate adjustment. We plan to include the following list of covariates in our regression:

1. Value of dependent variable at baseline, if applicable
2. Age and age-squared
3. Gender (1 = female, 0 otherwise)
4. Set of mutually exclusive variables for race/ethnicity
5. Set of mutually exclusive dummies for DSHS office of enrollment
6. Dummy variable for whether probability of receiving treatment card is greater than 1/3
7. Set of mutually exclusive dummies for month of enrollment
8. Days of transit use at baseline
9. Dummy for whether the person used transit to come to the DSHS office at baseline

### C) Standard Errors

Standard errors will be clustered at the individual-level, as treatment assignment is randomized on the individual-level.

### D) Multiple Hypothesis Testing

We have limited our primary outcomes to a causal chain with one primary outcome per domain, making multiple hypothesis testing less of a concern. Nonetheless, we will report classic p-values. This provides the reader with full information that they can use to make multiple hypothesis testing corrections if they desire.