**Question 2 Policy Brief**

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**Data Challenge Question:**

How does the level and duration of incentive (i.e., fare subsidy) affect riders’ long-term use of and enrollment in low-income transit programs?

**Key Results:**

* Riders who received a subsidized annual pass boarded transit roughly 0.54 more times per week than similar riders who received a $10 stored value card.
* Over a year and half period (October 2020 to March 2022), riders who received a subsidized annual pass spent an average of $123 less for transit services than similar riders who received a $10 stored value card.

**Approach:**

* We compared transit riders who received a subsidized annual pass with those who received a $10 stored value card. The study period is October 2020 through March 2022, following the reinstatement of fares in the King County Metro system. For each card ID, we compute two outcomes: the average weekly number of transit boardings, and the total dollar amount of individual sales during the study period. Because there were too few users in treatment conditions other than $10 stored value and Subsidized Annual Pass, we focused our analysis only on those two levels.
* The assignment of subsidies is not randomized. Riders who received a subsidized pass were more likely to be senior citizens, less likely to speak Spanish, and their cards were more likely to be issued around the winter holiday season. To overcome this limitation, we rely instead upon the assumption that outcomes are independent of treatment assignment conditional on a set of observed confounding variables. These include the cardholder’s race, age, and language, the date their card was issued, as well as the median age, income, and percentage white residents in their home Census tract. Using a form of statistical matching called *entropy balancing*, we compare riders in the treatment group to those in the control group with similar characteristics.

**Major Findings**

* Higher ridership**:** We find that riders who received a subsidized annual pass boarded transit roughly 0.54 more times per week during the study period than riders who only received a $10 stored value card.
* Less spending: These riders also spent $123 less on passes and card loadings during the study period than the riders who received a $10 preloaded card. This is largely as would be expected, since their pass allowed them to ride fare-free for a year.

**Implications & Recommendations**

* There is evidence that the type of subsidy that policymakers provided riders in King County could have impacted ridership. As might be expected, an annual ridership subsidy likely increases ridership and decreases spending, compared to a more limited subsidy.
* Our study has many important limitations. The data does not come from a randomized control trial, and thus, it is hard to make conclusive claims about the causality of different subsidy types. The type of riders who received annual subsidized passes differed in important respects to those who did not. While we try to control for this the best we can, the results from a separate randomized control trial would better establish the relationship between type of subsidy and ridership. We also only study two types of subsidy, as the other levels lack sufficient data after the reinstatement of fares in October 2020. Lastly, the study duration was in the midst of a global pandemic. This limits how applicable the data might be to other, more typical time periods.