Customer Segmentation in Washington DC Metro Area

Client

WMATA

Facts

Period 2022

Project Country United States

EBP collaborated with a team to support The Washington Metropolitan Area Transit Authority (WMATA) in understanding how different segments of their ridership respond to changes in services and fares.

We developed elasticity models to help WMATA understand how different segments of their ridership respond to changes in services and fares. These elasticity estimates highlighted the variation in transit rider behavior, including differences between regular and occasional riders, and between people who pay fares with stored value and those who use passes.

The analysis uses processed fare card data and demographic data to cluster WMATA customers into segments that share similar travel behavior and demographic characteristics. EBP then designed and estimated elasticity models to estimate passenger responses to fare and service frequency changes. We worked with weekly ridership and operational system data from 2017 to 2020, which we supplemented with additional data on TNC and taxi activity, special events, weather, and gas prices to ensure that the models accurately measured behavioral responses to WMATA's planning decisions by accounting for these important exogenous factors. To measure both cross-sectional and temporal factors influencing ridership, we developed a panel fixed-effects model and estimated separate fare and service elasticity estimates for each customer segment.

The analysis won the People's Choice Award at the TRB 2023 Transit Data Challenge!

Contact Persons

Cecilia Viggiano, Ph.D
cecilia.viggiano@ebp-us.com