

USING LOCAL TRANSIT ON-BOARD SURVEYS FOR STATE-LEVEL MEASUREMENT

BACKGROUND

On-board surveys are conducted locally by public transit agencies to better understand their customers. While these surveys serve their primary local purposes, they also can provide ongoing information on transit markets at the state level for policy planning with little additional cost. There is a need to understand the feasibility of using these local on-board surveys for measuring the achievement of the State's transit program policy objectives at the state level.

OBJECTIVES

Three objectives were established in this project:

- 1) Develop a general method for using local systemwide on-board surveys of fixed-route transit services to measure the achievement of the State's transit program policy objectives. This method should include examining the policy objectives of the State's transit program, determining appropriate performance measures for these objectives, formulating appropriate survey questions for these measures, and developing an approach to aggregating local estimates for state-level measurement.
- 2) Review current practices of designing and administering on-board surveys in Florida, using existing documentations of the most recent on-board surveys.
- 3) Compare this general method to the current practices, and discuss the challenges to using local transit on-board surveys for state-level measurement; propose potential solutions to overcome identified challenges.

FINDINGS AND CONCLUSIONS

The general method of using local on-board surveys for state-level measurement is straightforward. As part of the transportation system, public transit in Florida helps to improve the state's economic competitiveness and quality of life by (1) expanding modal choices to those with access to motor vehicles (i.e., "choice riders," who may use transit when other transportation options are available, such as personal vehicles), and (2) ensuring basic mobility for people without other transportation options (i.e., "captive riders"). The proposed questions for defining choice and captive riders, respectively, are, "Do you have a vehicle that you would have used to make this trip either as the driver or as a passenger?" and "If transit were not available, would you have made this trip?"

If unbiased local estimates of the shares of choice and captive riders are available and synchronized in time from all individual agencies, and agency-level weights are available for aggregation, state-level measurement is straightforward using the method of stratified sampling. However, a comparison of the general method with the practice of transit on-board surveys as currently practiced in Florida indicates that there are many challenges to using local on-board surveys for state-level measurement.

One challenge is that local estimates are not always available because some on-board surveys do not ask the proposed questions. Besides requiring that all systemwide on-board surveys include these two questions,

agencies might be encouraged to see the importance of knowing the sizes of its choice and captive markets, and the value of the proposed questions in correctly determining these markets. Alternative practices that agencies have used to measure these markets have not worked.

A second challenge is that local estimates are not synchronized. Since transit development plans are not synchronized in Florida, requiring that a systemwide on-board survey be conducted as part of the major updates of these plans would not solve this problem. The only solution is to use the most recent available on-board surveys every time state-level measurement is desired, although this solution is not without problems. For example, the relative timing of individual surveys may change over time, such that labeling the results of state-level measurement in terms of a calendar year would be difficult because the information from the local agencies is a mix of different years.

The third and most serious challenge is that local estimates are biased sometimes. One source of bias is that the survey process does not always have systemwide coverage. Indeed, it is important for transit agencies to understand that systemwide coverage means that the sampling process covers the entire system (although this does not necessarily mean that additional resources would be necessary to perform the on-board surveys). Other biases can result from the design, sampling, and administration of on-board surveys. Bias may result from survey design when the design unit of analysis (persons, round trips, linked trips, or boardings) differs from the intended unit of analysis for each survey question. Bias may result from sampling when sampling is not random. Bias can also occur as a result of non-responses in surveys. Appropriate weighting of raw survey data is critical for correcting these biases in local estimates. Thus, a practical guide that transit agencies can use (1) to avoid such biases and (2) to develop weights for correcting sources of bias when they exist is urgently needed.

A related challenge is to develop agency-level weights, consistent across agencies, for state-level aggregation. A starting point would be to use agency-level boardings as the weights, except in cases where the design unit of analysis varies across agencies or where the design unit of analysis is not boardings. Thus, if a practical guide is developed, it should cover steps that agencies should take to develop agency-level weights under these circumstances.

BENEFITS

Florida invests heavily in public transit, and it is natural for the State to be interested in knowing the degree to which its public transit program is achieving program policy objectives. When feasible, the State can use information from the local transit on-board surveys to determine how well it is achieving its transit program policy objectives with little additional cost.

In addition, this research might be useful for supplementing the Department's bi-annual Customer Satisfaction Survey, which includes only a few questions on public transit. This project does not focus on transit customer satisfaction. However, it provides an approach that might be useful for determining the feasibility of using customer satisfaction data gathered through local transit on-board surveys to supplement the public transit information collected through the Customer Satisfaction Survey. Given that systemwide on-board surveys have many questions on customer satisfaction, they might offer quite useful extensions of the Department's Survey.

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