OREGON DEPARTMENT OF TRANSPORTATION SURVEY ON THE USE OF AUTOMOTIVE GASOLINE IN AVIATION

Summary of Survey Methodology and Results

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Introduction

The Oregon Department of Transportation (ODOT) is charged with estimating the amount of automotive gasoline (MOGAS) used in private aviation. To assist this effort ODOT contracted with the Oregon Survey Research Laboratory (OSRL) to research the gasoline usage of the operators of single engine aircraft. Working closely with representatives of ODOT, OSRL planned, and implemented a mail survey of single engine aircraft owners in February of 1999. This report summarizes the survey methodology and results.

Survey Methodology

Sample and Data Collection

Survey questionnaires were mailed out to a random sample of 1500 registered owners of private aircraft. Fourteen percent of the sample addresses were inaccurate and another eight respondents were deceased for an eligible sample of 1,280. The net response rate was 66%; see the enclosed sample and response rate report.

Survey sampling errors are calculated to assist data users in assessing how much confidence to place in a particular survey result. Large random samples, as in this study, reduce sampling error. For this survey of 838 private single engine aircraft owners the sampling error, when used to estimate population parameters, is $\pm$ 4.14% at the 99% confidence level.

Survey Results

The Use of Automotive Gasoline in Aviation

In order to estimate the amount of MOGAS used in aviation the survey results must be generalized back to the entire population of single engine aircraft registered in Oregon. In order to make this generalization, the percentage of MOGAS users in the sample (17.4%) is first multiplied by the population of single engine aircraft in Oregon (6156). This result estimates that the total number of aircraft using MOGAS in Oregon is 1073. Next, the average annual fuel consumption of every respondent who used MOGAS is multiplied by the percentage of MOGAS in their fuel, and the results added together and then divided by the number of respondents using MOGAS (146) to estimate the average annual MOGAS consumption of an airplane that uses MOGAS. Finally, the average annual MOGAS consumption (422.8 gallons) is multiplied by the estimate of planes using MOGAS (1073) to produce a final estimate of the total amount of MOGAS used by single engine aircraft in Oregon in 1998. This estimate is 453,463 gallons $\pm$ 4.14%. Consequently one can be 99% confident that the true answer is between 434,690 gallons and 472,237 gallons. See Section 5 for formula and results.

Refunds on Gasoline Highway Tax

When aircraft pilots use MOGAS they are entitled to a refund on a portion of the highway tax paid at the time of purchase. However, almost no pilots request this refund. Only 7% of the respondents who used MOGAS in 1998 applied for a refund of the highway tax.

Pilot assessment of ODOT Aeronautics

The survey ended by asking respondents how good a job they thought the ODOT Aeronautics Division did managing and planning aviation projects. Most respondents thought that ODOT did either an excellent job (12%) or a good job (40%). Only 5.3% thought ODOT did a poor job of managing and planning aviation projects.

Conclusions

The purpose of this survey was to assess the use of MOGAS in aviation. The methodology we used asked pilots of single engine aircraft questions pilots generally know to a high level of precision. The large sample size allowed the calculation of a reasonably exact estimate with a very high level of confidence in the error bars that need to be placed around the estimate. In addition, the survey yielded a high response rate adding confidence to the generalizability of the survey results.