

estimate the population mean was computed as follows. Given the sample characteristics of:

1. sample size ( $n = 48$ ),
2. sample mean ( $\bar{Y} = 364.9$  miles),
3. the standard deviation of the sample ( $S = 353.3$ ), and
4. the size of the population ( $N = 17,373$ ),

there was a 95 percent probability that the population average empty backhaul mileage per truck hauling Florida FF&V during April 1979 was between 263.1 miles and 466.7 miles.

Thus, we were 95 percent confident that the sample mean was, at most, 28 percent larger (smaller) than the population mean.

### Determination of Total Empty Backhaul Miles, April 1979

The total empty backhaul mileage (*EBM*) for all Florida FF&V truckers that hauled produce during April 1979 will now be estimated. In estimating the population average,  $N$  (the number of truckloads of Florida FF&V during April 1979) was equal to 17,373 trucks.<sup>4</sup>  $\bar{Y}$  (the average number of empty backhaul miles per truck) was 364.9 miles.<sup>5</sup>  $S$  (standard deviation of the sample) was 353.3 miles,<sup>5</sup> and  $n$  (the number of trucks in the April 1979 sample) was 48.<sup>5</sup> The total empty backhaul mileage for Florida FF&V truckers during April 1979 was determined as follows:

$$\begin{aligned} EBM &= N \bar{Y} \\ &= (17,373) \times (364.9) \\ &= 6,339,408 \text{ miles} \end{aligned} \quad (1)$$

Given that the 6,339,408 miles was a sample estimate, we were 95 percent confident that the actual number of empty backhaul miles was between 4,570,004 and 8,108,812 miles<sup>6</sup> for an error of estimation of 28 percent. The empty mileage represented 35.3 percent of the total fronthaul mileage for April 1979.<sup>7</sup>

Determination of the empty backhaul miles per truck (364.9 miles) and the total empty backhaul miles for April 1979 (6,339,408 miles) accomplished Objectives 1 and 2. Next, the potential for loaded backhauls to Florida was explored.

4. Calculated from Federal-State Market News Service.

5. Calculated from backhaul survey.

6.  $EBM \pm 2[(N^2)(S^2/n)(|N - n|/N)]^{1/2}$  [Mendenhall, 1971, p. 38].

7. The average fronthaul mileage per truck from the backhaul survey was 1033 miles.