Annotated Summary of:

Alpert, Mark I., and Jon F. Bibb (1974), "'Fitting Branch Locations, Performance Standards, and Marketing Strategies': A Clarification." *Journal of Marketing* 38 (April), 72–74.

Chapter 4: Multiple Regression Analysis
Multivariate Data Analysis, Sixth edition
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The authors, while supporting the use of multiple regression, question the validity of the findings in Clawson's article. In their critique, they indicate that the model's lack of validity is due to one major methodological flaw—the use of too many independent variables (n) relative to the sample size (N). They demonstrate that even while the adjusted R^2 of the Clawson study remains high (86.7 percent), the use of stepwise regression when the number of independent variables falls below the recommended ratio of five cases per variable substantially increases the risk of finding results that are due solely to chance and lack generalizability. Although stepwise regression can "reduce" the number of variables to a smaller number in such a situation, it still faces the strong possibility of "overfitting" the data. The authors offer three recommendations for modifying the application to increase the value of the results: (1) increase the sample size to at least 5 to 10 times the number of independent variables (i.e., 120–240 branch locations); (2) reduce the number of independent variables through factor analysis (see chapter 3); or (3) cross-validate the model either through split-sample or on additional data.