

November 23, 1948

Comments on Demand Analysis for Individual Commodities

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The following are brief statements that may help in the discussion of Preest's paper on demand analysis (Cowles Commission Discussion Paper, Economics 230).

1. The paper speaks of a bias in least squares estimates if observations are subject to error. There is an additional bias, present also in the case of exact observations where the scatter is due to disturbances in consumers' behavior, arising from the fact that the behavior equation for total consumers' expenditure is part of a complete system of relationships. The latter bias, in percentage terms, in the estimated response coefficient of expenditure to price cannot on the average be appreciably smaller for items absorbing only a small part of total expenditure, because least squares estimates are additive and the arithmetical bias in the total must be the sum of the arithmetical biases in all its parts. However, this bias in an individual response coefficient will be smaller than average if the disturbances affecting this particular expenditure item are specific to it rather than being correlated with the disturbances in total expenditure. See C. C. 1.3 (can be found in mimeographed materials for our first C. C. conference, in our library).

2. The bias discussed above is one instance of the general phenomenon of "specification bias," which can be reduced, but never altogether avoided, by refinements of the model. Other such instances may arise from:

errors in observations
serial correlation in disturbances
distributed lags in response
omission of variables having secondary influence, etc.

With a limited number of observations, there is a point in the sequence of possible refinements at which the increase in sampling variances of estimated parameters*,

* or even the loss of identifiability of some parameters.

arising from the introduction of the next refinement, is worse than the specification bias resulting from its suppression. It is, therefore, important to study specification bias with relation to the most important possible refinements.

3. The first paragraph of page 8 mentions that the use of first differences instead of original observations seems to measure a different parameter. If this is not due to some statistical bias, there is a good case for giving the phenomenon explicit recognition by refinement of the model (lagged response of demand).

4. To the list of commodities that do not "behave nicely" (p. 13) we may from Dutch experience add tea.