The Economic Theory of Cost of Living Index Numbers. By MELVILLE J. ULMER. Columbia University Press, New York. 1949. 106 pages.

THIS MONOGRAPH is concerned with a relatively narrow segment of the problem of cost-of-living index numbers. The stated purpose is to determine (1) an effective method of approximating changes in living cost over time and (2) a method of estimating the reliability of such measurements.

The author demonstrates, through the use of indifference curves, that the "true" cost-of-living index measures the ratio of the money cost of two equal real incomes (allowing for substitutions yielding equivalent satisfactions). He admits it is not a new definition. It had been developed by Hans Staehle, Ragnar Frisch, and others. The definition rests on the "assumption of fixed tastes for a homogeneous group between situations." This study is not concerned with how to identify homogeneous groups—a major problem in the economic theory of cost-of-living index numbers.

The main new contribution (in chapter IV) is a means of estimating the reliability of the Laspeyre and Paasche indices when employed as measures of changes in living costs. The Laspeyre index $\frac{\sum p_1 q_o}{\sum p_o q_o}$ where p_1 represents prices in the given year, and p_o and q_o represent prices and quantities in the base year, is the type used in the construction of the BLS Consumer Price Index and the BAE Index of Prices Paid by Farmers. The Paasche index $\frac{\sum p_1 q_1}{\sum p_o q_1}$ which uses given-year quantities has not been used extensively in measuring the cost of living, partly because of the lack of annual estimates of quantities of goods and services purchased and the unavoidable lag in making the data available when surveys of consumer purchasers have been made.

It is well known in index-number literature that the Laspeyre index overstates the change in the "true" cost of living since with fixed weights it is assumed that consumers do not alter their consumption pattern in response to relative changes in price. Conversely, the Paasche index understates the change in living costs by ascribing to the base period the same weights as in the given year. The author demonstrates mathematically that the "true" index lies between the Laspeyre and Paasche indices and that the range between those indices approximates the maximum difference between each of these indexes and the "true" index of the cost of living. On the basis of computations with the Retail Price Indices of the Department of Commerce, he finds that the maximum difference between the Laspeyre and Paasche indices and the true retail price index in 1929–40 was 1.4 percent.

The author summarizes that "the Laspeyre and Paasche index numbers are close approximations to (though they are not identical with) the true cost of living indices . . . The aggregate amount of expenditures wage earners are required to make in order to maintain a given plane of living is affected (A) by changes in money prices and (B) by changes in relative prices and the adjustments in consumption patterns made by consumers in response to these relative price changes. The effects of factor (A) are measured by the true cost of living indices as well as by the Laspeyre and Paasche index numbers. The effects of factor (B) are measured only by the true indices. The evidence presented in Chapter IV, therefore, indicates that the effects of factor (B) are ordinarily very small, probably most often negligible, when compared with factor (A)."

In his final chapter, the author touches upon two important problems: (1) What to do when tastes have so changed as to impair the meaning of an index-number series and (2) when to introduce new commodities into the index. He suggests no new approach to these problems.

Outside of the scope of this study is that area in which the most vexatious problems occur—those relating to comparisons of living costs between countries or between different groups within countries, such as farm and urban.

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