

This, despite the monthly changing weights in the numerator of the fraction, is actually based, *inter alia*, on Laspeyres' formula (see assumption (iii) above), which requires constant weights (values of q_m , &c.) in both the numerator and the denominator.

It will be seen that the method consists essentially of the following operations:—

- (i) Any current month is linked by the standard technique with the corresponding month of the regulating period. The year 1946 will be used as the regulating period for this purpose. This movement contains no seasonal variation, but trend only.
- (ii) A trend has to be established between the months of the regulating period. In the suggested formula, first the annual movement (again trend only) between each of three months (comprising the first month of this period and the immediately preceding and following months) and a month twelve months later in each case is ascertained; then the average of these three measures of trend is spread by "simple interest" or "straight line trend" over the months of regulating period.
- (iii) Combining (i) and (ii), the trend to any current month from a fixed month (say, the first) of the regulating period is obtained.
- (iv) The base period of the index (assumed a specific month) being chosen, the trend to this month from the fixed month of the regulating period is obtained exactly as in (iii).
- (v) The trend to the current month from the base month is derived from a comparison of the trends under (iii) and (iv).
- (vi) The index number formula developed from these principles involves simply (1) the determination of the aggregate for any month by the application to that month's respective prices of commodity weights which have been adjusted from the original quantity weights by multiplying throughout by the value of $\phi(m)$ appropriate to that month, and (2) division by a constant—*i.e.*, the group weight.
- (vii) As $\Sigma q_a p_{12r+a}$ enters into $\phi(m)$, the adjusted weights cannot be calculated until the prices for the base period (month $12r+a$) have been collected. Compare para. 27 of the report. Nor does the method lend itself to the predetermination of commodity expenditure weights within the seasonal group.

* This formula is suggestive only: in practice it may be found advisable to vary the selection of the months entering into it, or to increase their number so as to include a greater range of the commodities comprised in the seasonal group.

By a further refinement a separate value of t may be computed for each commodity, thus:—

$$t = (\text{say}) \frac{1}{36} \left[\frac{p_{12}}{p_0} + \frac{p_{13}}{p_1} + \frac{p_{14}}{p_2} - 3 \right]$$

$$t' = \frac{1}{36} \left[\frac{p'_{12}}{p'_0} + \frac{p'_{13}}{p'_1} + \frac{p'_{14}}{p'_2} - 3 \right] \text{ \&c., in which case}$$

$$\frac{f(m)}{f(1)} = \frac{\Sigma q_m p_m}{\Sigma q_m p_m} \cdot \frac{1 + (m-1)t}{1 + (m-1)t}$$

$$\phi(m) = \frac{k}{\Sigma q_a p_{12r+a}} \times \frac{\Sigma q_a p_a}{1 + (a-1)t} \cdot \frac{\Sigma q_m p_m}{1 + (m-1)t}$$

NOTE.—The subscript 0 denotes the month immediately preceding the month 1.

Approximate Cost of Paper.—Preparation, not given; printing (788 copies), £100.

By Authority: E. V. PAUL, Government Printer, Wellington.—1948.
Price 1s.]