

B.A. Part III (Economics Honours)  
Ravi Shanker Singh  
Assistant Professor (Economics)  
Vaishali Mahila College, Hajipur

## **Weighted Aggregative Method**

In this method, different weights are assigned to the items according to their relative importance. Weights used are the quantity weights. Many formulae have been developed to estimate index numbers on the basis of quantity weights.

**Some of them are explained below:**

(i) **Laspeyre's Formula.** In this formula, the quantities of base year are accepted as weights.

$$P_{01} = \frac{\sum P_1 q_0}{\sum P_0 q_0} \times 100$$

Where  $P_1$  is the price in the current year ;  $P_0$  is the price in the base year ; and  $q_0$  is the quantity in the base year.

(ii) **Paasche's Formula.** In this formula, the quantities of the current year are accepted as weights.

$$P_{01} = \frac{\sum P_1 q_1}{\sum P_0 q_1} \times 100$$

Where  $q_1$  is the quantity in the current year.

(iii) **Dorbish and Bowley's Formula.** Dorbish and Bowley's formula for estimating weighted index number is as follows :

$$P_{01} = \frac{\frac{\sum P_1 q_0}{\sum P_0 q_0} + \frac{\sum P_1 q_1}{\sum P_0 q_1}}{2} \times 100 \quad \text{or} \quad P_{01} = \frac{L + P}{2}$$

Where L is Laspeyre's index and P is paasche's Index.

(iv) **Fisher's Ideal Formula.** In this formula, the geometric mean of two indices (i.e., Laspeyre's Index and paasche's Index) is taken :

$$P_{01} = \sqrt{\frac{\sum P_1 q_0}{\sum P_0 q_0} \times \frac{\sum P_1 q_1}{\sum P_0 q_1}} \times 100 \quad \text{or} \quad P_{01} = \sqrt{L \times P} \times 100$$

where L is Laspeyre's Index and P is paasche's Index.

#### Example

Comm- odity	Base Year		Current Year		$P_0 q_0$	$P_1 q_0$	$P_0 q_1$	$P_1 q_1$
	$P_0$	$q_0$	$P_1$	$q_1$				
A	10	5	20	2	50	100	20	40
B	15	4	25	8	60	100	120	200
C	40	2	60	6	80	120	240	360
D	25	3	40	4	75	120	100	160
Total					265 $\sum P_0 q_0$	440 $\sum P_1 q_0$	480 $\sum P_0 q_1$	760 $\sum P_1 q_1$

(i) Laspeyre's Formula :

$$P_{01} = \frac{\sum P_1 q_0}{\sum P_0 q_0} \times 100$$

$$P_{01} = \frac{440}{265} \times 100 = 166.04$$