

**TUGAS PERTEMUAN 10**  
**STATISTIKA DAN PROBABILITAS**  
**INDEKS AGREGATIF TERTIMBANG**



**Disusun oleh:**

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**BEKASI**

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Buatlah indeks agregatif tertimbang untuk tahun 1995 dengan waktu dasar 1994 dari data yang disajikan dalam tabel berikut.

| Jenis Barang  | Produksi (Satuan) |                | Harga (Satuan) |                | $P_0 \cdot Q_0$ | $P_t \cdot Q_0$ | $P_0 \cdot Q_t$ | $P_t \cdot Q_t$ |
|---------------|-------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
|               | 1994 ( $Q_0$ )    | 1995 ( $Q_t$ ) | 1994 ( $P_0$ ) | 1995 ( $P_t$ ) |                 |                 |                 |                 |
| A             | 35                | 20             | 20             | 15             | 700             | 525             | 400             | 300             |
| B             | 15                | 40             | 35             | 30             | 525             | 450             | 1400            | 1200            |
| C             | 60                | 50             | 40             | 40             | 2400            | 2400            | 2000            | 2000            |
| D             | 45                | 70             | 30             | 60             | 1350            | 2700            | 2100            | 4200            |
| E             | 30                | 90             | 15             | 80             | 450             | 2400            | 1350            | 7200            |
| <b>Jumlah</b> | <b>185</b>        | <b>270</b>     | <b>140</b>     | <b>225</b>     | <b>5425</b>     | <b>8475</b>     | <b>7250</b>     | <b>14900</b>    |

| Jenis Barang  | $P_t \sqrt{Q_0 \cdot Q_t}$ | $P_0 \sqrt{Q_0 \cdot Q_t}$ | $P_t (Q_0 + Q_t)$ | $P_0 (Q_0 + Q_t)$ |
|---------------|----------------------------|----------------------------|-------------------|-------------------|
| A             | 396,86                     | 529,15                     | 825               | 1100              |
| B             | 734,85                     | 857,32                     | 1650              | 1925              |
| C             | 2190,89                    | 2190,89                    | 4400              | 4400              |
| D             | 3367,49                    | 1683,75                    | 6900              | 3450              |
| E             | 4156,92                    | 779,42                     | 9600              | 1800              |
| <b>Jumlah</b> | <b>10847</b>               | <b>6040,5</b>              | <b>23375</b>      | <b>12675</b>      |

- **Indeks Agregatif Tertimbang**

$$I_{t,0} = \frac{\sum P_t Q_0}{\sum P_0 Q_0} \times 100\%$$

$$I_{t,0} = \frac{8475}{5425} \times 100\%$$

$$I_{t,0} = 156,22\%$$

- **Indeks Laspeyres**

$$IL_{harga} = \frac{\sum P_t Q_0}{\sum P_0 Q_0} \times 100\%$$

$$IL_{harga} = \frac{8475}{5425} \times 100\%$$

$$IL_{harga} = 156,22\%$$

$$IL_{produksi} = \frac{\sum P_0 Q_t}{\sum P_0 Q_0} \times 100\%$$

$$IL_{produksi} = \frac{7250}{5425} \times 100\%$$

$$IL_{produksi} = 133,64\%$$

- **Indeks Paasche**

$$IP_{harga} = \frac{\sum P_t Q_t}{\sum P_0 Q_t} \times 100\%$$

$$IP_{harga} = \frac{14900}{7250} \times 100\%$$

$$IP_{harga} = 205,51\%$$

$$IP_{produksi} = \frac{\sum P_t Q_t}{\sum P_t Q_0} \times 100\%$$

$$IP_{produksi} = \frac{14900}{8475} \times 100\%$$

$$IP_{produksi} = 175,81\%$$

- **Indeks Drobisch**

$$ID_{harga} = \frac{IL_{harga} + IP_{harga}}{2}$$

$$ID_{harga} = \frac{156,22 + 205,51}{2}$$

$$ID_{harga} = 180,86\%$$

$$ID_{produksi} = \frac{IL_{produksi} + IP_{produksi}}{2}$$

$$ID_{produksi} = \frac{133,64 + 175,81}{2}$$

$$ID_{produksi} = 204,72\%$$

- **Indeks Irving Fisher**

$$IF_{harga} = \sqrt{IL_{harga} \times IP_{harga}}$$

$$IF_{harga} = \sqrt{156,22 \times 205,51}$$

$$IF_{harga} = 179,18\%$$

$$IF_{produksi} = \sqrt{IL_{produksi} \times IP_{produksi}}$$

$$IF_{produksi} = \sqrt{133,64 \times 175,81}$$

$$IF_{produksi} = 153,28\%$$

- **Indeks Walsh**

$$IW = \frac{\sum P_t \sqrt{Q_0 Q_1}}{\sum P_0 \sqrt{Q_0 Q_1}} \times 100\%$$

$$IW = \frac{10847}{6040,5} \times 100\%$$

$$IW = 179,57\%$$

- **Indeks Marshall Edgeworth**

$$IME = \frac{\sum P_t (Q_0 + Q_t)}{\sum P_0 (Q_0 + Q_t)} \times 100\%$$

$$IME = \frac{23375}{12675} \times 100\%$$

$$IME = 184,82\%$$

**JAWABAN :**

|                                    |                 |         |
|------------------------------------|-----------------|---------|
| <b>Indeks Agregatif Tertimbang</b> |                 | 156,22% |
| <b>Indeks Laspeyres</b>            | <b>Harga</b>    | 156,22% |
|                                    | <b>Produksi</b> | 133,64% |
| <b>Indeks Passche</b>              | <b>Harga</b>    | 205,51% |
|                                    | <b>Produksi</b> | 175,81% |
| <b>Indeks Drobisch</b>             | <b>Harga</b>    | 180,86% |
|                                    | <b>Produksi</b> | 204,72% |
| <b>Indeks Irving Fisher</b>        | <b>Harga</b>    | 179,18% |
|                                    | <b>Produksi</b> | 152,28% |
| <b>Indeks Walsh</b>                |                 | 179,57% |
| <b>Indeks Marshall Edgeworth</b>   |                 | 184,82% |