PCE Price Index Details

- Compiled by Bureau of Economic Analysis (BEA).

- Surveys prices paid directly by, or on behalf of, consumers for goods and services.

- The products are those included in the GDP measure of personal consumption.

- Price weights derived primarily from business surveys using current and previous expenditures:
  - Census Bureau’s monthly and annual retail trade surveys, the Service Annual Survey, and the Quarterly Services Survey.
  - Weights change more frequently than the CPI.
The PCE price index is a chained Fisher index.

A Fisher price index is designed to better capture the changes in consumers’ demand for goods and services due to price changes than traditional methods.

A chained Fisher index uses both prices and quantities from adjoining time periods, and its calculation involves both a Laspeyres price index and a Paasche price index.
In this example, the Laspeyres index uses a basket of goods and services from the previous period \( q_{t-1} \) and then computes the ratio of the value of the basket using current prices \( p_t \) to the value of the basket using prices from the previous period \( p_{t-1} \). The formula is provided on the next page.

The Paasche index performs a similar comparison except that it uses a basket of goods and services in the current period \( q_t \). The formula is provided on the next page.
Chained Fisher Index

- The change in a chained Fisher index from one time period to the next is the geometric mean of the changes in the Laspeyres index and the Paasche index between those periods.

\[
(Fisher\ price\ index)_t = \sqrt{(Laspeyres\ Price\ Index)_t \cdot (Paasche\ Price\ Index)_t} \\
= \sqrt{\left(\frac{\sum p_t q_{t-1}}{\sum p_{t-1} q_{t-1}}\right) \cdot \left(\frac{\sum p_t q_t}{\sum p_{t-1} q_t}\right)}
\]

- The Fisher index yields growth for period \( t \), which we denote as \( g_t \).
PCE Price Index

• Using the previous formula, the change in a chained Fisher index can be calculated for any time period.

• The PCE price index is then constructed by choosing a period as the base year \((p_0=100)\), and then using the calculated growths to determine the appropriate levels of the series. For example, the level of the price index in period 1 and period 2 would be given, respectively, by:

\[
(p_1) = (p_0) \times (1+g_1)
\]

\[
(p_2) = (p_1) \times (1+g_2)
\]