

### **Which index is the "Official CPI" reported in the media?**

Our broadest and most comprehensive CPI is called the All Items Consumer Price Index for All Urban Consumers (CPI-U) for the U.S. City Average, 1982-84 = 100.

In addition to the All Items CPI, BLS publishes thousands of other consumer price indexes. One such index is called "All items less food and energy". Some users of CPI data use this index because food and energy prices are relatively volatile, and these users want to focus on what they perceive to be the "core" or "underlying" rate of inflation.

Again, while we publish many indexes, our broadest measure of inflation includes all items consumers purchase, including food and energy. In addition, when CPI data are reported, these data can be reported on a not seasonally adjusted basis as well as a seasonally adjusted basis. Often, the media will report some, or all, of the following:

1. Index level, not seasonally adjusted. (for example, May 2008 = 216.632).
2. 12-month percent change, not seasonally adjusted. (for example, May 2007 to May 2008 = 4.2 percent).
3. 1-month percent change on a seasonally adjusted basis. (for example, from April 2008 to May 2008 = 0.6 percent).
4. Annual rate of percent change so far this year (for example, from December 2007 to May 2008 if the rate of increase over the first 5 months of the year continued for the full year, after the removal of seasonal influences, the rise would be 4.0 percent).
5. annual rate based on the latest seasonally adjusted 1-month change. For example, if the rate from April 2008 to May 2008 continued for a full 12 months, then the rise, compounded, would be 8.1 percent.

### **What index should I use for escalation?**

The decision to employ an escalation mechanism, as well as the choice of the most suitable index, is up to the user. When the terms of an escalation contract are drafted, both legal and statistical questions can arise. While BLS cannot help in any matters relating to legal questions, it does provide basic technical and statistical assistance to users who are developing indexing procedures.

- The CPI is the most widely used measure of inflation and is sometimes viewed as an indicator of the effectiveness of government economic policy. It provides information about price changes in the Nation's economy to government, business, labor, and private citizens and is used by them as a guide to making economic decisions. In addition, the President, Congress, and the Federal Reserve Board use trends in the CPI to aid in formulating fiscal and monetary policies.
- The CPI and its components are used to adjust other economic series for price changes and to translate these series into inflation-free dollars. Examples of series adjusted by the CPI include

retail sales, hourly and weekly earnings, and components of the National Income and Product Accounts.

An interesting example is the use of the CPI as a deflator of the value of the consumer's dollar to find its purchasing power. The purchasing power of the consumer's dollar measures the change in the value to the consumer of goods and services that a dollar will buy at different dates. In other words, as prices increase, the purchasing power of the consumer's dollar declines.

- The CPI is often used to adjust consumers' income payments (for example, Social Security) to adjust income eligibility levels for government assistance and to automatically provide cost-of-living wage adjustments to millions of American workers. As a result of statutory action the CPI affects the income of millions of Americans. Over 50 million Social Security beneficiaries, and military and Federal Civil Service retirees, have cost-of-living adjustments tied to the CPI. In addition, eligibility criteria for millions of food stamp recipients, and children who eat lunch at school, are affected by changes in the CPI. Many collective bargaining agreements also tie wage increases to the CPI.

Another example of how dollar values may be adjusted is the use of the CPI to adjust the Federal income tax structure. These adjustments prevent inflation-induced increases in tax rates, an effect called *bracket creep*.

- Traditionally, the CPI was considered an upper bound on a cost-of-living index in that the CPI did not reflect the changes in buying or consumption patterns that consumers would make to adjust to relative price changes. The ability to substitute means that the increase in the cost to consumers of maintaining their level of well-being tends to be somewhat less than the increase in the cost of the mix of goods and services they previously purchased.

Since January 1999, a geometric mean formula has been used to calculate most basic indexes within the CPI; in other words, the prices within most item categories (for example, apples) are averaged with the use of a geometric mean formula. This improvement moves the CPI closer to a cost-of-living measure, because the geometric mean formula allows for a modest amount of consumer substitution as relative prices within item categories change.

It is important to note that area CPIs cannot be used to compare levels of living costs or prices across areas. (See answer to Question 18: "Can the CPIs for individual areas be used to compare living costs among areas?")

- For example, if you or your family spends a larger-than-average share of your budget on medical expenses, and medical care costs are increasing more rapidly than the cost of other items in the CPI market basket, your personal rate of inflation may exceed the increase in the CPI. Conversely, if you heat your home with solar energy, and fuel prices are rising more rapidly than other items, you may experience less inflation than the general population does. A national

average reflects all the ups and downs of millions of individual price experiences. It seldom mirrors a particular consumer's experience.

- This information enabled BLS to construct the CPI market basket of goods and services and to assign each item in the market basket a weight, or importance, based on total family expenditures. The final stage in the sampling process is the selection of the specific detailed item to be priced in each outlet. This is done in the field, using a method called disaggregation. For example, BLS economic assistants may be directed to price "fresh whole milk." Through the disaggregation process, the economic assistant selects the specific kind of fresh whole milk that will be priced in the outlet over time. By this process, each kind of whole milk is assigned a probability of selection, or weight, based on the amount the store sells. If, for example, Vitamin D homogenized milk in half-gallon containers makes up 70 percent of the sales of whole milk, and the same milk in quart containers accounts for 10 percent of all whole-milk sales, then the half-gallon container will be 7 times as likely to be chosen as the quart container. After probabilities are assigned, one type, brand, and container size of milk is chosen by an objective selection process based on the theory of random sampling. The particular kind of milk that is selected by disaggregation will continue to be priced each month in the same outlet.

In sum, price changes are weighted by the importance of the item in the spending patterns of the appropriate population group. The combination of all these factors gives a weighted measurement of price change for all items in all outlets, in all areas priced for the CPI.

- The following are some examples of technical or statistical guidelines from BLS:

For escalation, BLS strongly recommends using indexes that are not seasonally adjusted. (See answer to Question 15, for a further explanation of seasonally adjusted indexes and the reasons BLS does not recommend seasonally adjusted indexes for use in escalation.)

Also for escalation, BLS recommends using national or regional indexes, due to the volatility of local indexes. (See answer to Question 16, for an explanation of this point.)

For those with further questions, BLS has prepared a fact sheet, [Using the Consumer Price Index for Escalation \(PDF 12K\)](#). This information also may be obtained by writing or calling the nearest BLS regional office listed in the answer to Question 22. You may also call the BLS national office at (202)691-700.

- The following illustration shows that although Area B has higher prices than Area A, the price change in Area A has been greater than in Area B.

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- Base Period           Current Period
- Price Index           Price Index

- Area A    \$0.30   100            0.55   183
- Area B    0.60   100            .90   150
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The CPI thus measures the rates of change in prices, rather than the level of prices.

## • **How to Use the Consumer Price Index for Escalation**

- The Consumer Price Index (CPI) measures the average change in the prices paid for a market basket of goods and services. These items are purchased for consumption by the two groups covered by the index: All Urban Consumers (CPI-U) and Urban Wage Earners and Clerical Workers, (CPI-W).
- Escalation agreements often use the CPI—the most widely used measure of price change—to adjust payments for changes in prices. The most frequently used escalation applications are in private sector collective bargaining agreements, rental contracts, insurance policies with automatic inflation protection, and alimony and child support payments.
- The following are general guidelines to consider when developing an escalation agreement using the CPI:
  - DEFINE clearly the base payment (rent, wage rate, alimony, child support, or other value) that is subject to escalation.
  - IDENTIFY precisely which CPI index series will be used to escalate the base payment. This should include: The population coverage (CPI-U or CPI-W), area coverage (U.S. City Average, West Region, Chicago, etc.), series title (all items, rent of primary residence, etc.), and index base period (1982-84=100).
  - SPECIFY a reference period from which changes in the CPI will be measured. This is usually a single month (the CPI does not correspond to a specific day or week of the month) or an annual average. There is about

a 2-week lag from the reference month to the date on which the index is released (e.g., the CPI for May is released in mid-June). The CPI's for most metropolitan areas are not published as frequently as are the data for the U.S. City Average and the 4 regions. Indexes for the U.S. City Average, the 4 regions, 3 city-size classes, 10 region-by-size classes, and 3 major metropolitan areas (Chicago, Los Angeles, and New York) are published monthly. Indexes for the remaining 23 published metropolitan areas are available only on a bimonthly or semiannual basis. Contact the BLS address at the end of this fact sheet for information on the frequency of publication for the 26 metropolitan areas.

- STATE the frequency of adjustment. Adjustments are usually made at fixed time intervals, such as quarterly, semiannually, or, most often, annually.
- DETERMINE the formula for the adjustment calculation. Usually the change in payments is directly proportional to the percent change in the CPI index between two specified time periods. Consider whether to make an allowance for a "cap" that places an upper limit to the increase in wages, rents, etc., or a "floor" that promises a minimum increase regardless of the percent change (up or down) in the CPI.
- PROVIDE a built-in method for handling situations that may arise because of major CPI revisions or changes in the CPI index base period. The Bureau always provides timely notification of upcoming revisions or changes in the index base.
  - **The CPI and escalation: Some points to consider**
- The CPI is calculated for two population groups: All Urban Consumers (CPI-U) and Urban Wage Earners and Clerical Workers (CPI-W). The CPI-U represents about 87 percent of the total U.S. population and is based on the expenditures of *all* families living in urban areas. The CPI-W is a subset of the CPI-U and is based on the expenditures of families living in

urban areas who meet additional requirements related to employment: more than one-half of the family's income has to be earned from clerical or hourly-wage occupations. The CPI-W represents about 32 percent of the total U.S. population.

- There can be small differences in movement of the two indexes over short periods of time because differences in the spending habits of the two population groups result in slightly different weighting. The long-term movements in the indexes are similar. CPI-U and CPI-W indexes are calculated using measurement of price changes for goods and services with the same specifications and from the same retail outlets. The CPI-W is used for escalation primarily in blue-collar cost-of-living adjustments (COLA's). Because the CPI-U population coverage is more comprehensive, it is used in most other escalation agreements.
- The 26 metropolitan areas for which BLS publishes separate index series are by-products of the U.S. City Average index. Metropolitan area indexes have a relatively small sample size and, therefore, are subject to substantially larger sampling errors. Metropolitan area and other sub-components of the national indexes (regions, size-classes) often exhibit greater volatility than the national index. BLS strongly recommends that users adopt the U.S. City Average CPI for use in escalator clauses.
- The U.S. City Average CPI's are published on a seasonally adjusted basis as well as on an unadjusted basis. The purpose of seasonal adjustment is to remove the estimated effect of price changes that normally occur at the same time and in about the same magnitude every year (e.g., price movements due to the change in weather patterns, model change-overs, holidays, end-of-season sales, etc.). The primary use of seasonally adjusted data is for current economic analysis. In addition, the factors that are used to seasonally adjust the data are updated annually. Also, seasonally adjusted data that have been published earlier are subject to

revision for up to 5 years after their original release. For these reasons, the use of seasonally adjusted data in escalation agreements is inappropriate.

- Escalation agreements using the CPI usually involve changing the base payment by the percent change in the level of the CPI between the reference period and a subsequent time period. This is calculated by first determining the index point change between the two periods and then the percent change. The following example illustrates the computation of percent change:

CPI for current period	136.0
Less CPI for previous period	129.9
Equals index point change	6.1
Divided by previous period CPI	129.9
Equals	0.047
Result multiplied by 100	$0.047 \times 100$
Equals percent change	4.7

- The Bureau of Labor Statistics neither encourages nor discourages the use of price adjustment measures in contractual agreements. Also, while BLS can provide technical and statistical assistance to parties developing escalation agreements, we can neither develop specific wording for contracts nor mediate legal or interpretive disputes which might arise between the parties to the agreement.
- For any additional information about the CPI, please call (202) 691-7000, or write to:
  - Bureau of Labor Statistics Office of Prices and Living Conditions 2  
Massachusetts Avenue, NE., Room 3615 Washington, DC 20212-0001