

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. [More](#).

#### **I am writing an escalation contract tied to annual changes in the CPI. Should I specify a particular monthly index from one year to the next (e.g., December-to-December)? Or should I use CPI annual average indexes?**

There is no right or wrong answer to your question. That said, when an escalation contract is tied to the CPI, the index to be used should be spelled out clearly in the contract to avoid potential conflicts, as the Bureau of Labor Statistics cannot mediate disputes which might arise between the parties to an escalation agreement. More information on how to use the CPI in escalation contracts can be found at <http://stats.bls.gov/cpi/cpi1998d.htm>.

From a statistical perspective, each of these types of indexes has its advantages. A 12-month percent change from, say, December-to-December, is arguably a more recent estimate of price change than an annual average percent change. Said another way, the December-to-December percent change is the most recent 12-month percent change in a year, while the annual average percent change reflects the change in the average index for all 12 months of one year to the average index for all 12 months the next year.

The December-to-December index percent change, however, tends to be more volatile than the percent change in the annual average index. Annual average indexes are based on 12 monthly data points which, when averaged, reduce volatility by smoothing out the highs and lows. These two types of calculations are explored in greater detail in the report, "Math Calculations..." at <http://stats.bls.gov/cpi/cpimathfs.pdf>. To illustrate the differences that can arise between the two methods of calculation, take the situation which occurred in 2008 when the percent changes varied widely between these two approaches, largely as a result of the fluctuating cost of gasoline. The U.S City Average All items index increased just 0.1 percent from December 2007 to December 2008; only five months earlier (from July 2007 to July 2008) this index had risen 5.8 percent. Annual average percent changes for the last few years during this period, on the other hand, have been in a much narrower range.

#### **When should I use seasonally adjusted data?**

By using seasonally adjusted data, some users find it easier to see the underlying trend in short-term price changes. It is often difficult to tell from raw (unadjusted) statistics whether developments between any 2 months reflect changing economic conditions or only normal seasonal patterns. Therefore, many economic