

The cost of 'basic necessities' has risen slightly more than inflation over the last 30 years

By Jonathan Church

The Consumer Price Index (CPI) is widely used as a cost-of-living indicator. In some cases, its use is mandated by relevant statutes; in other cases, its use is a matter of contractual agreement or practice. For example, Social Security and Supplemental Security Income (SSI) payments are adjusted each year by an amount equal to the change in the CPI. Other payments adjusted by the CPI include federal tax brackets, rents, alimony payments, child support payments, and wages.

Each agreement or law that mandates use of the CPI to adjust payments must select a specific index to use for adjustment purposes. For example, Social Security and SSI use the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W), U.S. City Average, All Items. In general, there are three main parameters to choose:

1. Population coverage (either all urban consumers, covered by the Consumer Price Index for All Urban Consumers, or CPI-U; or urban wage earners and clerical workers, covered by the CPI-W)
2. Geographic coverage (e.g., the U.S. city average or one of four census regions)
3. Item coverage (e.g., all items).

Most statutes and agreements use an all-items CPI, either the CPI-W or the CPI-U. Then, in either case, they use the U.S. city average, one of the four census regions, or one of 27 metropolitan statistical areas for which BLS publishes indexes.

Contracts often use an all-items index to ensure that payments are adjusted to account for overall consumer inflation in the economy.¹ The CPI is designed to track the average change over time in the prices paid by either urban consumers or urban wage earners for a constant-quality market basket of goods and services.² Cost-of-living adjustments that use the CPI for All Items are based on changes in the average level of prices across the *broadest range* of goods and services available in the consumer marketplace. However, one might be interested in price change across a more *limited range* of items. For example, one might wish to know how the price of a set of items that constitute “basic necessities” for daily living changes. A general consensus on the set of goods and services necessary for daily living is perhaps elusive; however, this **Beyond the Numbers** article constructs three pairs of experimental indexes for three different sets of goods and services that might reasonably be considered necessary for daily living. Each pair consists of a U.S. city average for the CPI-U and for the CPI-W. Thus, six indexes are presented for comparison.³

The base pair of experimental indexes covers only food at home (grocery items), shelter, and apparel.

The next pair of indexes adds energy to the base pair. In today's economy, many find it necessary to drive to the supermarket. Many also power their homes with electricity and heat their homes with natural gas or fuel oil.

The final pair of experimental indexes adds medical care to the base-plus-energy pair of indexes. The CPI is used to adjust Social Security payments each year. Many seniors are frequent consumers of medical care and face higher copayments, prescription drug costs, and other medical costs every year.



All six indexes are normalized to 100 in the beginning month and are then charted over time. They are compared against the CPI-U or CPI-W All Items index. The series are constructed starting in December 1982 for the CPI-U and December 1984 for the CPI-W.⁴ Annual Social Security cost-of-living adjustments (COLAs) use a calculation that compares the third-quarter average index value in the current year with the third-quarter average index value in the most recent year in which a COLA was implemented; therefore, the article presents the long-term change from the third quarter of 1983 to the third quarter of 2014 in the case of the CPI-U and from the third quarter of 1985 to the third quarter of 2014 in the case of the CPI-W.

Methodology

This article uses a standard methodology to construct experimental indexes. The methodology updates expenditure weights by price change. The weights are rebased in December of each year. CPI relative importance data are used as a proxy source of expenditures. Relative importance data for particular categories of expenditures are published as percentages of total expenditures. Therefore, the All Items index has a weight of 100. (In other words, 100 percent of total expenditures are spent on all items.) These percentages can be interpreted as relative dollar expenditures. Accordingly, a weight of 100 percent can be interpreted as, for example, \$100 spent on all items. Thus, the relative importance of a CPI category in a particular year can be interpreted as equivalent to a certain number of dollars out of a hundred. For instance, a relative importance of 20.097 in December 1984 for the food-at-home category of the CPI-W tells us that urban wage earners and clerical workers spent about 20 percent of their total expenditures on grocery items then. Because the relative importance data can be treated as the amount of dollars out of a hundred dedicated to food at home, we can treat 20.097 as the dollars spent on food at home by an average urban wage earner or clerical worker in December 1984.

The index associated with each category is used to update the starting expenditure amount in December.⁵ This method thus provides a measure of price change for a particular category by measuring changes in total expenditures over time on that category of good or service. Historically, that is the basic approach to calculating the CPI. The methodology implicitly assumes that the quantity component of expenditures remains fixed between weight updates (In other words, consumers purchase the same quantity of a given food item from year to year.) Throughout the history of the CPI, weights have been updated approximately every 10 years. In January 2002, biennial weight updates were introduced and the quantity in the market basket was assumed to be fixed between the updates.

Results

The results presented in this section are for the experimental CPI-U, unless otherwise indicated. According to all of the experimental indexes except the base-plus-energy pair, basic necessities increased annually at a slightly higher rate than the rate of overall consumer inflation.⁶ During the period examined, the rate of overall consumer inflation was 2.78 percent, as measured by the regular CPI-U for All Items. In comparison, the base experimental index rose at an average annual rate of 2.91 percent from December 1982 to December 2014. The base-plus-energy experimental index increased at an average annual rate of 2.75 percent over the same period. The base-plus-energy-and-medical-care experimental index rose at an average annual rate of 2.99 percent during the same timeframe.

Because the CPI is used to update payments, the analysis considered what \$100 in 1982 would be equal to in 2014 if \$100 were updated each year by the average annual rate of change for each experimental index. Thus, \$100 in 1982 would be equal to \$250.36 in 2014 using the rate of change of the base experimental index. Similarly, the \$100 in 1982 would equal \$238.53 using the rate of change of the base-plus-energy experimental index. Finally, the same \$100 would equal \$256.47 using the rate of change of the base-plus-energy-and-medical-care experimental index. Using the rate of change of the All Items index gives an amount equal to \$240.59. These results for the CPI-U are summarized in table 1. Table 2 summarizes the results for the CPI-W. Both tables also compare the third-quarter average in 2014 with the third-quarter average in 1983 and in 1985, respectively.

Table 1. Average annual rates of change in experimental "basic necessities" indexes based on the Consumer Price Index

Period covered	Food, shelter, and clothing	Food, shelter, clothing, and energy	Food, shelter, clothing, energy, and medical care	All items
Average annual rate of change (percent):				
December 1982–December 2014	2.91	2.75	2.99	2.78
Third quarter 1983–third quarter 2014	2.81	2.76	2.97	2.74
December 2014 amount needed to equal \$100 in December 1982	\$250.36	\$238.53	\$256.47	\$240.59
Percent difference between December payment based on basic necessities index and December payment based on all-items index	4.06	-0.85	6.6	0.0

Source: U.S. Bureau of Labor Statistics.

Table 2. Average annual rates of change in experimental "basic necessities" indexes based on the Consumer Price Index for urban wage earners and clerical workers (CPI-W)

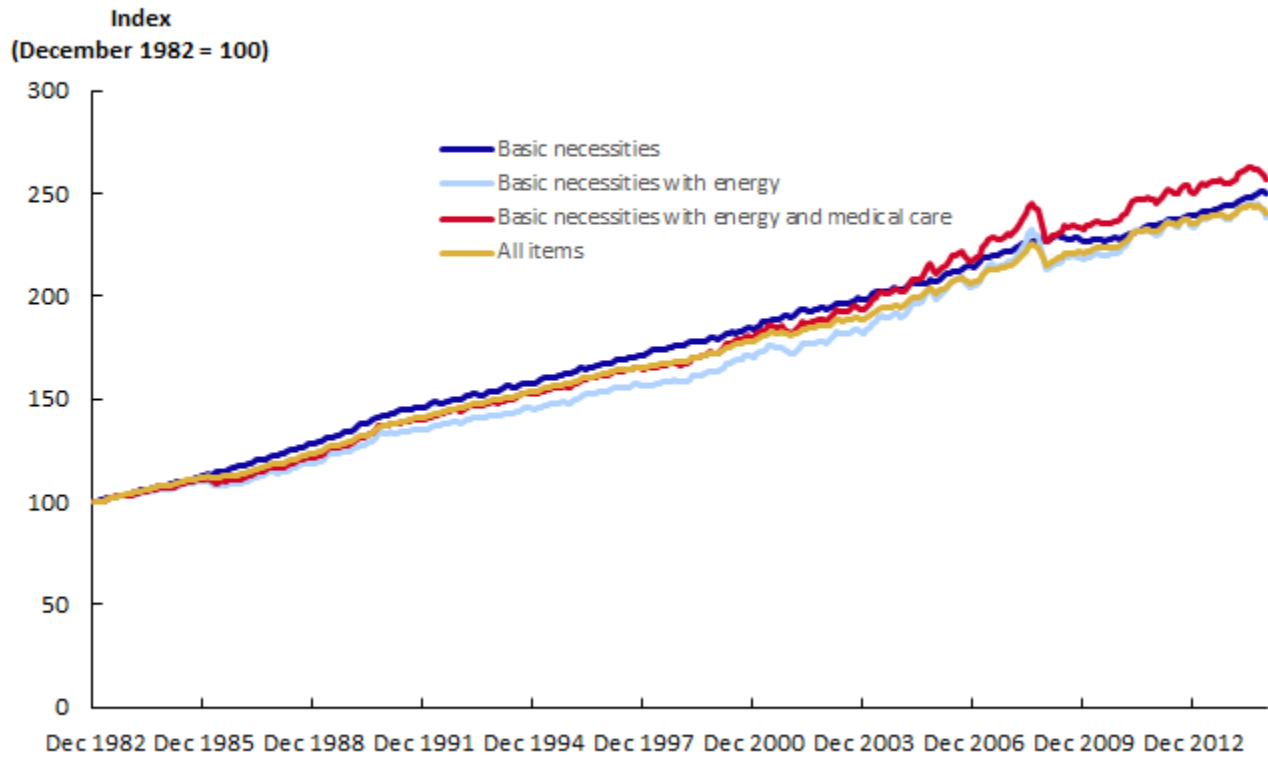
Period covered	Food, shelter, and clothing	Food, shelter, clothing, and energy	Food, shelter, clothing, energy, and medical care	All items
Average annual rate of change (percent):				
December 1984–December 2014	2.8	2.71	2.91	2.65
Third quarter 1985–third quarter 2014	2.69	2.72	2.9	2.64
December 2014 amount needed to equal \$100 in December 1984	\$229.11	\$222.87	\$236.21	\$219.38
Percent difference between December payment based on basic necessities index and December payment based on all-items index	4.25	1.52	7.34	0.0

Source: U.S. Bureau of Labor Statistics.

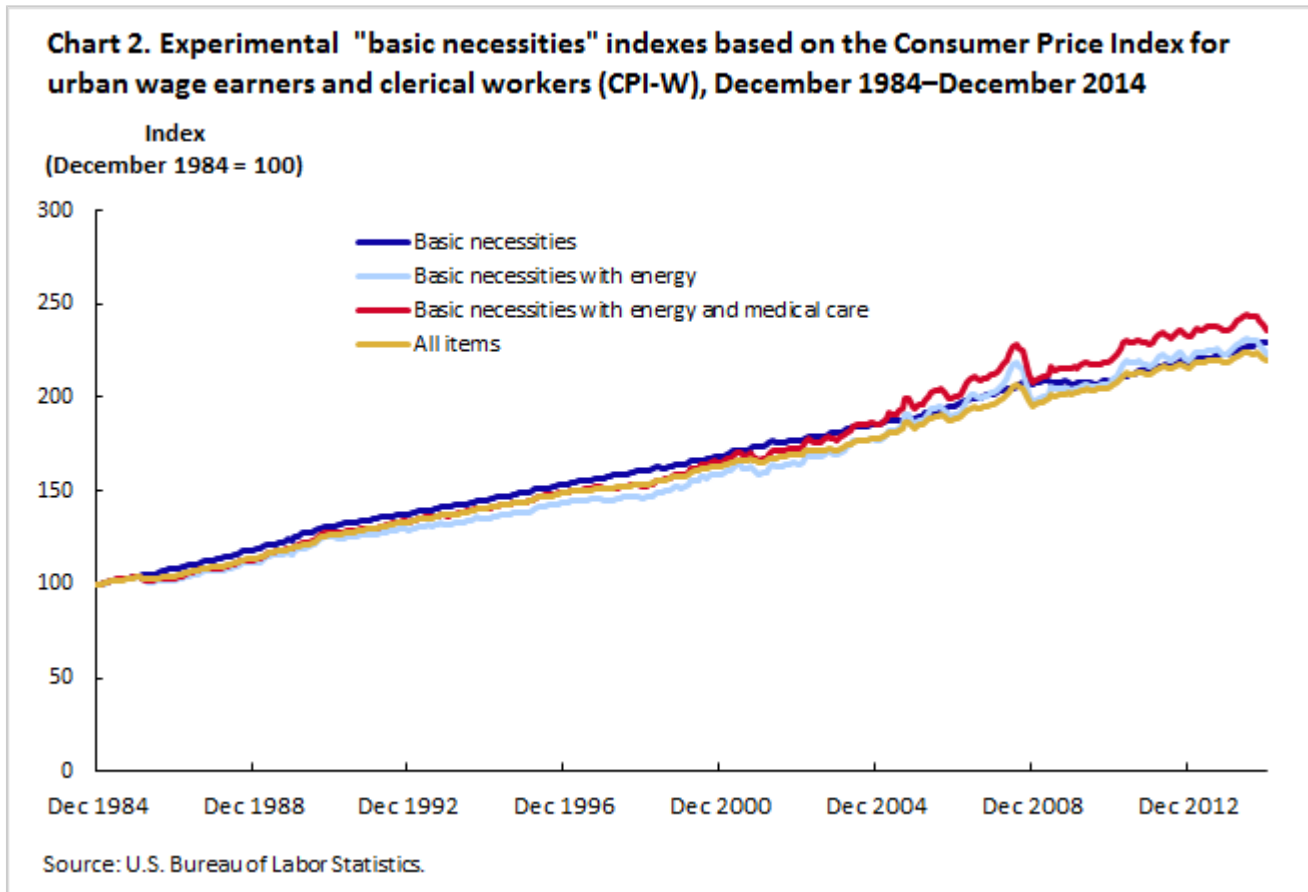
As mentioned earlier, all of the experimental indexes for the basic necessities, except for the base-plus-energy CPI-U, have grown at a slightly faster annual rate than the rate of overall consumer inflation. The difference is very small, except

in the case of the two experimental indexes that include medical care. These indexes show a rate higher than the average rate of overall inflation by an amount roughly equal to a fourth or fifth of a percent. Charts 1 and 2 show the trend lines for the base-plus-energy-plus-medical-care CPI-U and CPI-W, respectively.

Chart 1. Experimental "basic necessities" indexes based on the Consumer Price Index for all urban consumers (CPI-U), December 1982–December 2014



Source: U.S. Bureau of Labor Statistics.



Nonetheless, someone who started receiving contract or other payments (e.g., a Social Security recipient) in December 1982, adjusted on the basis of the base experimental CPI-U, would receive a few dollars more in December 2014 than if the payments were adjusted on the basis of the All Items index. Adding energy would result in a few dollars less. Adding medical care to the base-plus-energy index would result in a few dollars more. These dollar amount differences are not negligible in percentage terms. For example, for the CPI-U, the December 2014 payment based on the annual rate of growth in the base index is 4.06 percent higher than the December 2014 payment based on the annual rate of growth in the All Items index. (See table 1.) Alternatively, the December 2014 payment based on the annual rate of growth in the All Items index is 3.91 percent lower than the December 2014 payment based on the annual rate of growth in the base index.⁷

In the case of the CPI-W, if contracts or other payments had been adjusted by a base experimental CPI-W, then average monthly payments for someone who started receiving such payments in December 1984 would be a few dollars more in December 2014 than if the payments were adjusted on the basis of the All Items index. The result is the same when energy and medical care are separately added.

Conclusion

Experimental indexes were constructed to measure the change in the price of "basic necessities" over the last 30 years. These indexes indicate that the cost of a market basket consisting only of groceries, shelter, clothing, energy, and medical care has risen at a slightly higher annual rate than the cost of a market basket consisting of the full range of goods and services available for purchase in the consumer marketplace. If contracts and other payments had been adjusted each

year over the last 30 years by the rate of increase in one of these “basic necessities” indexes, the average payment received would be slightly higher than if the All Items index were used.

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NOTES

¹ The CPI is not the only price index used to escalate contracts. Producer Price Indexes (PPIs) are commonly used as escalators in purchase and sales contracts and to account for changes in input prices. For example, a long-term contract for bread may adjust for the price of bread according to the percent change in the PPI for wheat. (See “Producer price indexes: frequently asked questions” (U.S. Bureau of Labor Statistics, February 18, 2015), <http://stats.bls.gov/ppi/ppifaq.htm#1>.) Also, the Employment Cost Index (ECI) is used for a number of purposes: federal pay adjustments; active-duty military pay adjustments; escalator clauses in collective bargaining contracts, U.S. government contracts, and foreign government contracts; adjustments to Medicare reimbursements for hospital, physician, and related services; adjustments to school district property taxes; and economic price adjustments in long-term purchase contracts. (See *BLS handbook of methods*, chapter 8, “National compensation measures (U.S. Bureau of Labor Statistics), <http://www.bls.gov/opub/hom/pdf/homch8.pdf>.)

² A “constant-quality” market basket is a theoretical concept according to which the items in the market basket remain the same over a given length of time. In reality, the marketplace evolves. Goods and services can become obsolete. New goods and services enter the marketplace. Existing goods and services improve in quality. The CPI accounts for marketplace evolution by completely rotating its sample every 4 years. However, the goal of a measure of inflation is to track changes in the standard of living. In order to do so, adjustments must be made to account for changes in the standard of living. Thus, if the size of cereal boxes decreases, but the price remains the same, the CPI accounts for the increase in per-unit price. In another example, a higher quality computer purchased at the same price as a previous-generation computer is treated as a price decline. Thus, conceptually, the standard of living remains constant, allowing for measurement of “pure” price change independently of changes in the marketplace.

³ The CPI-U and CPI-W constitute the pair; the U.S. city average and experimental index are the common elements. Because there are three experimental indexes, there are three pairs.

⁴ The index for shelter is composed primarily of the indexes for “rent of primary residence” and “owners’ equivalent rent.” The index for “owners’ equivalent rent” was introduced into the CPI-U in January 1983. The base period was December 1982 = 100. The index for “owners’ equivalent rent” was introduced into the CPI-W in January 1985. Its base period was December 1984 = 100.

⁴ The relative importance for each category provides a starting amount in December 1982 for the CPI-U and in December 1984 for the CPI-W. These starting amounts are updated each month by changes in the price index until they are “rebased” in December of each year. For a simple example of how to construct such an index, see Gerald Perrins and Diane Nilsen, “Math calculations to better utilize CPI data” (U.S. Bureau of Labor Statistics), <http://www.bls.gov/cpi/cpimathfs.pdf>.

⁶ Note that, because a confidence interval is not constructed around the estimated rate of change in the experimental index, tests of statistical significance are not applicable. The analysis presented consists simply of calculating annual rates of change in experimental indexes and comparing them with the annual rate of change in the All Items index.

⁷ The two percentages given in this paragraph are not percent differences in growth rates. Rather, they are percent differences between amounts of payments based on two indexes. For example, 4.06 percent is the percent difference between \$240.59, the amount in December 2014 needed to equal \$100 in December 1982, based on the All Items CPI, and \$250.36, the amount in December 2014 needed to equal \$100 in December 1982, based on the base experimental index. (Mathematically, $[(250.36 - 240.59)/240.59] \times 100 = 4.06$.) A similar calculation holds for the 3.91-percent figure.

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