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Adding Value & Driving Performance With Cost / Spend Analysis

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SPRING BRANCH INDEPENDENT SCHOOL DISTRICT

WHY We should Do Cost Spend Analysis

Departments look to purchasing to help them meet their needs and objectives while attempting to stay within drastically reduced budgets. Spend data can provide tremendous value for procurement, both to increase visibility into spending and to promote superior sourcing decision. Risk or red flag indicators raise awareness among procurement practitioners of key points to be verified throughout the procurement process.

Your Presenter

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- Award winning Procurement Sherpa with extensive leadership, staff and management experience in the US Military, State and Local Government, Academia, Corporate Business, and Public Education
- 25 years as a school business official with Clear Creek, Plano, Baltimore County, Houston and Spring Branch
- Published author and conference speaker internationally, nationally, and regionally
- BA - Public Administration from Stephen F. Austin, MPA -Troy University, MBA - U of H, Graduate U.S. Army Command & General Staff College
- Lieutenant Colonel, Field Artillery, USAR (Ret)
- Eagle Scout - Boy Scouts of America
- Hometown: Houston, Texas
- Married 43 years to a Texas Girl from Longview – 3 Children & 4 grandchildren
- My wife is a classroom teacher and has taught at all of the K-5 elementary grade levels for 33-years, so I get to hear about what's going on in the classroom everyday.

Learning Objectives

- 1. What is Cost/Spend Analysis?
- 2. How do I do it?
- 3. What are the resources available to me?

The Independent Estimate Determination

- The Independent Estimate Determination is used to document the estimated range of fair and reasonable costs for the goods and/or services to be acquired and to document the analysis **PRIOR** to seeking bids, proposals, or quotes.
- The documentation is kept as part of the procurement file.
- **Price Analysis** is conducted after receiving proposals but before awarding a contract.
- This demonstrates that the procurement process was conducted in an open and fair manner and that the school district has received the most advantageous price.

Cost or Price Analysis

- According to 2 C.F.R. § 200.318 (e) the district must conduct a cost or price analysis after receiving vendor responses for procurements at or above $ 50,000.
- We must make a determination of cost or price reasonableness and document that the offered price was fair and reasonable.
- We must create a form for the contracting file that is filled out by each vendor recommended for contract award.
- This form is to be completed after soliciting or negotiating but before awarding contract.

Do You Know The Difference Between Price And Cost?

- **Price –** Price is simply the amount of money an organization pays to a supplier for a product or service.
- When price is the focus, procurement departments work intensely to pay less than they had in the past for goods and services.
- If particular goods or services were not purchased in the past, procurement departments will work intensely to pay lower prices than initially proposed by suppliers.
- When price-oriented procurement departments report their performance, they only take into account the effect they had on prices paid.
- **Total Cost –** While seeking lower prices is noble, it shouldn't be done without considering factors that could make costs go up.
- A total cost focus assesses expenses that a price-only focus ignores.
- Total cost includes all expenses associated with the acquisition, receipt, storage, use, maintenance, and disposal of purchased products and services.

What is Value

- Simplified, improving business performance means increasing revenues and/or reducing costs.
- Historically, the procurement function has been associated exclusively with cost reduction. But modern procurement departments can also help to increase revenues.
- “Value” is the word used to describe any type of ***Price Vs. Total Cost Vs. Value*** financial benefit, whether it is a reduction in price, reduction in total cost, or an increase in revenue.

Cost Analysis

- If a Cost Analysis is required, separate cost elements must be documented, and the Buyer must also negotiate and document profit as a separate element. To establish a fair and reasonable profit, the Buyer must consider the all of the following:
  - The complexity of the work to be performed;
  - the risk borne by the vendor;
  - the vendor's investment;
  - the amount of subcontracting;
  - the quality of the vendor's record of past performance; and
  - industry profit rates in the surrounding geographical area for similar work.

Price Analysis

- Price Analysis evaluates the fairness and reasonableness of the total lump sum price, and can be used only if:
  - Purchase price was competitively procured in accordance with law; or
  - More than one bid or proposal was received.

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.

Consumer Price Index (CPI)

- **MEASURES** changes in prices average households (i.e. consumers) pay for everyday expenses
- **AVAILABLE**
  - Monthly for 211 items plus groupings of those items
  - Quarterly by Region or Metropolitan Area
- **LIMITATIONS**
  - Goods and services bought by your average household
  - Groupings are relatively broad
- **CONTRACT USES**
  - General measure of inflation (i.e. CPI-U, All items)
  - Adjusting wage, rent, & other payments to cost of living
  - Areas of no coverage in the PPI (e.g. public transportation)
  - Prices which are impacted by long-run regional influences

Producer Price Index (PPI)

- **MEASURES** changes in selling prices domestic producers receive for their output
- **AVAILABLE** monthly by
  - Most goods & 75% of services (1500+ detailed indexes)
  - Industry of origin –500+ NAICS classification
  - Similarity or end use (“Commodity” classification)
  - Level of processing or end use (FD-ID system)
  - Industry of consumption (Inputs to Industry)
- **LIMITATIONS**
  - Some industries, particularly services, not yet covered
- **CONTRACT USES**
  - Inflation from the producers’ perspective (e.g. Final demand, Materials for food manufacturing)
  - Goods and services bought by businesses as inputs
  - Consumer purchases from the seller’s perspective

Employment Cost Index (ECI)

- **MEASURES** changes in employers' costs of wages and benefits paid to employees
- **AVAILABLE** quarterly by either
  - Industry sector
  - Occupation (e.g. manager, production worker)
  - Region
- **LIMITATIONS**
  - Groupings are broad
- **CONTRACT USES**
  - Labor input costs
  - Labor intensive areas (i.e. services) of PPI/CPI non-coverage

General Guidelines to Consider When Developing an Escalation Agreement Using the CPI

- **It is recommended that users adopt the U.S. City Average CPI for use in escalator clauses.**
- The U.S. City Average CPIs 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, holidays, model change-overs, end-of-season sales, etc.).
- The primary use of seasonally adjusted data is for current economic analysis.
- The factors that are used to seasonally adjust the data are updated annually and seasonally adjusted data 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.

How do I calculate price adjustment using an index?

$New Price *= (Current Index Value / Base Index Value) x $Base Price*

For example:

Current Index Value = 205.8 (December 2018)

Base Index Value = 164.8 (December 2017)

Base Contract Price = $2,500

(205.8÷164.8) = 1.249

1.249 x $2,500

=**$3,122.50**

How do I calculate price adjustment using an index?

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 period. This is calculated by first determining the index point change between the two periods and then determining the percent change. The following example illustrates the computation of a percent change

CPI for current period	232.945
Less CPI for previous period	229.815
Equals index point change	3.130
Divided by previous period CPI	229.815
Equals	0.0136
Result multiplied by 100	0.0136 x 100
Equals percent change	1.4%

Should you accept the deal?

- Your paper distributor just proposed a fixed price arrangement in exchange for a one-year commitment. The proposed contract would reduce your costs by 2% from last year despite manufacturers in the industry indicating that they will soon raise prices.
  - First, properly categorize the commodity against an existing price index (e.g., Producers Price Index, or PPI), being as specific as possible.
  - Second, examine the index to see price levels historical fluctuation.
  - Third, look at micro- and macro-economic factors that may give hints as to where pricing may go.
  - Fourth, evaluate your starting point.

“Sometimes it’s how you say it.”

- Reporting cost savings is easiest when you negotiate a lower price and buy the same quantity of goods or services from one year to the next. Then, your cost savings is equal to the reduction in spend.
- Things get a little trickier when volume changes. For example, if you paid $10 for an item last year and bought 100,000 units and you pay $8 this year and will buy 150,000 units, your spend will actually increase to $1,200,000 from $1,000,000 despite a price reduction.
- In these cases, you have to communicate your savings on A per unit basis: “We saved $2 per unit”

Are Your Cost Savings Calculations Defensible?

- For items for which pricing changes are less predictably and quantities vary from year to year, calculating cost savings can be trickier. Here are some formulas for calculating cost savings for items whose prices and purchased quantities are more volatile.
- **Calculation A:** Last Year's Average Price = Total Spent Last Year / Number of Units Purchased Last Year
- **Calculation B:** This Year's Average Price = Total Spent This Year / Number of Units Purchased This Year
- **Calculation C:** This Year's Cost Savings = (Last Year's Average Price – This Year's Average Price) x Number of Units Purchased This Year

Cost Savings Claim #1

My district bought this product twice last year. We paid $500 the first time. We paid $402 the second time. We bought it twice this year for $400 each time. My savings is $200, right?”

- **Analysis of Cost Savings Claim #1:** Because this product was purchased in the prior fiscal year, use the average price paid in that fiscal year as the baseline. The district paid a total of $902 for the two units in the prior fiscal year, so that’s an average price of $451 per unit. For each unit bought this year, you’d subtract the current price from $451. So, at a current price of $400, the savings is $51 per unit. The savings on the two units bought this year, then, would be $102.

Cost Savings Claim #2

"My district never bought this product before. I got three bids: $100, $90, and $80. After negotiating with the low bidder, I got a price of $70. My savings is $30, right?"

Analysis of Cost Savings Claim #2: Without having purchased the product in the past, the baseline to be used is the lowest conforming bid prior to negotiation. In this case, that would be $80. The difference between that bid and the price paid of $70 would be $10 and that would be the cost savings/avoidance/offset in this case.

Cost Savings Claim #3

"My district bought this product last year for $10,000. The supplier proposed that this year's price would be $11,000. I negotiated and got the price down to $10,800. My savings is $200, right?"

Analysis of Cost Savings Claim #3: Again, the average price paid in the prior fiscal year was $10,000, so that's the baseline. If this company bought the product for $10,800 – regardless of what the supplier quoted – it would not be a cost savings, but a cost increase of $800.

CALCULATING LIFE-CYCLE COST

The formula for calculating life-cycle cost is:

LCC = I + Repl - Res + L + E + W + OM&R + O

- **LCC:** total life-cycle cost in present value (PV) dollars of a given alternative
- **I:** initial cost
- **Repl:** PV capital-replacement costs
- **Res:** PV residual value — resale value, salvage value — less disposal costs
- **L:** desired useful life in years of the building or system
- **E:** total energy cost (PV)
- **W:** total water costs (PV)
- **OM&R:** total operating, maintenance, and repair costs (PV)
- **O:** total other costs, if any, such as contract administration, financing, and salaries and benefits (PV)

Milk Spend By Category

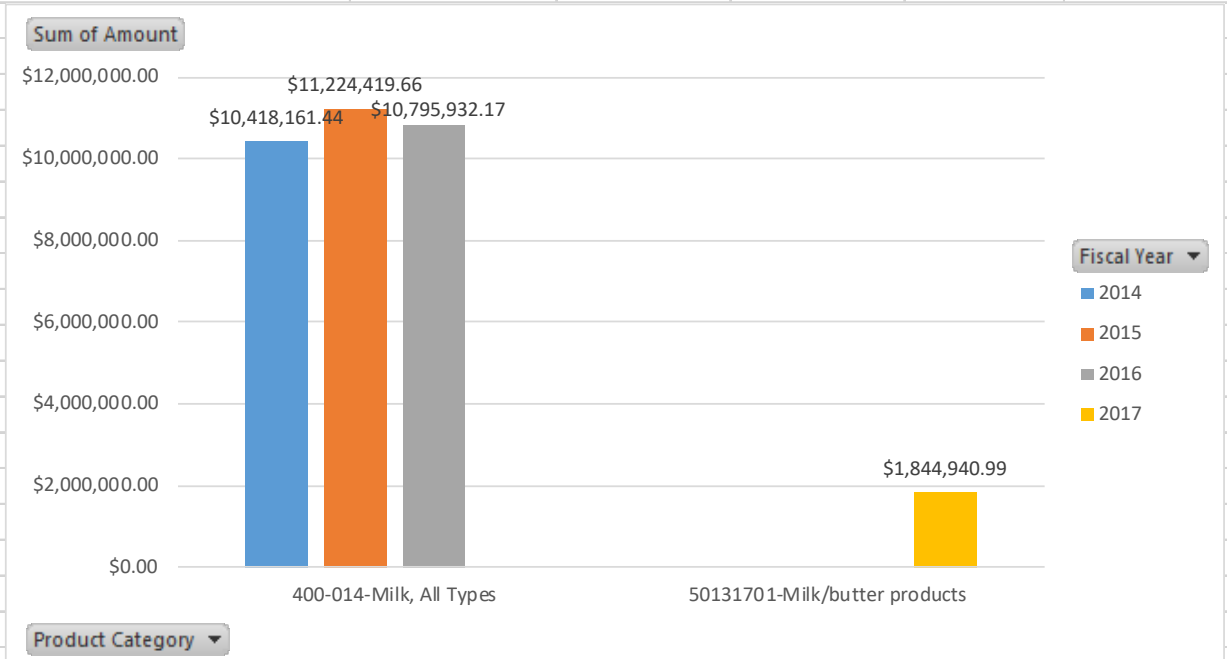
Milk Product Category / UNSPSC Code Spend

Sum of Amount	Column Labels				
Row Labels	**2014**	**2015**	**2016**	**2017**	**Grand Total**
400-014-Milk, All Types	$10,418,161.44	$11,224,419.66	$10,795,932.17		$32,438,513.27
50131701-Milk/butter products				$1,844,940.99	$1,844,940.99
Grand Total	**$10,418,161.44**	**$11,224,419.66**	**$10,795,932.17**	**$1,844,940.99**	**$34,283,454.26**

Quick Observations

Product Category was 400-014 Milk, All Types

New UNSPSC Code is 50131701 Milk/Butter Products



Milk

Milk Material Spend					
Sum of Amount	Column Labels				
Row Labels	2014	2015	2016	2017	Grand Total
28657-MILK, HALF PINT, 1% PLAIN, 50/cs	$5,079,454.88	$5,341,820.41	$5,021,041.84	$849,775.63	$16,292,092.76
35205-MILK, HALF PINT, SKIM CHOC, 50/cs	$4,182,860.43	$4,589,340.22	$4,318,026.47	$728,556.13	$13,818,783.25
28659-MILK, HALF PINT, SKIM PLAIN, 50/cs	$1,155,118.14	$1,293,122.87	$1,456,743.14	$259,511.21	$4,164,495.36
32431-LOW FAT MILK; PLASTIC BOTTLES ½ PINT	$300.01				$300.01
28665-HOMO MILK, GALLON EA	$146.40	$136.16	$120.72	$23.36	$426.64
28656-CHOCOLATE MILK 1% 50/CS.	$125.85				$125.85
35206-MILK, SKIM CHOC, PLASTIC BTL 1/2 PINT	$105.39				$105.39
28658-STRAWBERRY MILK 1% 50/CS	$50.34				$50.34
39052-MILK, SHELF STABLE 1% PLAIN 27/8OZ				$2,916.00	$2,916.00
39053-MILK, SHELF STABLE FF CHOCOLATE 27/8OZ				$2,916.00	$2,916.00
38204-MILK, HOMO, 1 GALLON				$1,242.66	$1,242.66
Grand Total	**$10,418,161.44**	**$11,224,419.66**	**$10,795,932.17**	**$1,844,940.99**	**$34,283,454.26**

Quick Observations

Over 99% of the spend per fiscal year goes to these 3 products.

	2014			2015			2016		
Material	Amount	Quantity	Price Per	Amount	Quantity	Price Per	Amount	Quantity	Price Per
28657-MILK, HALF PINT, 1% PLAIN, 50/cs	$5,079,454.88	19,804,891	$0.256	$5,341,820.41	19,178,483	$0.279	$5,021,041.84	17,847,393	$0.281
35205-MILK, HALF PINT, SKIM CHOC, 50/cs	$4,182,860.43	16,163,495	$0.259	$4,589,340.22	16,338,811	$0.281	$4,318,026.47	15,179,354	$0.284
28659-MILK, HALF PINT, SKIM PLAIN, 50/cs	$1,155,118.14	4,503,941	$0.256	$1,293,122.87	4,642,934	$0.279	$1,456,743.14	5,212,318	$0.279
Grand Total	**$10,417,433.45**	**40,472,327**		**$11,224,283.50**	**40,160,228**		**$10,795,811.45**	**38,239,065**	

Quick Observations

As you can see, the price per milk increases from 2014 to 2015. This is why the overall spend increased 7.74%. The price per milk also increased in 2016, but the order quantity decreased, which is why the overall spend only increased 3.82%

Milk Spend By Vendor

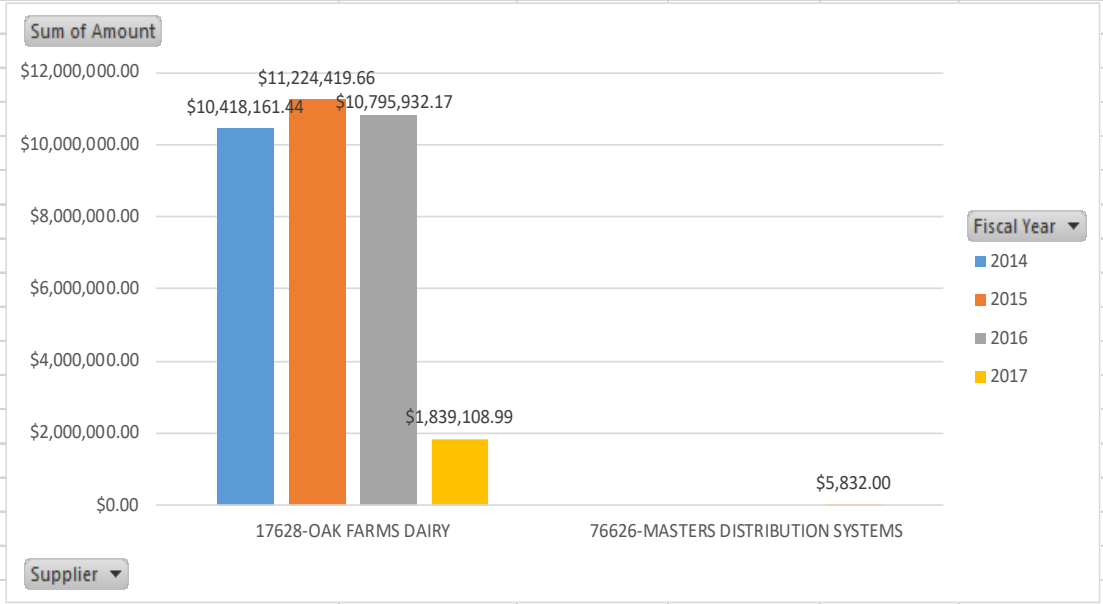
Milk Supplier Spend

Sum of Amount	Column Labels				
Row Labels	**2014**	**2015**	**2016**	**2017**	**Grand Total**
17628-OAK FARMS DAIRY	$10,418,161.44	$11,224,419.66	$10,795,932.17	$1,839,108.99	$34,277,622.26
76626-MASTERS DISTRIBUTION SYSTEMS				$5,832.00	$5,832.00
Grand Total	**$10,418,161.44**	**$11,224,419.66**	**$10,795,932.17**	**$1,844,940.99**	**$34,283,454.26**

Quick Observations

Spend increased 7.74% from 2014 to 2015.

Spend decreased 3.82% from 2015 to 2016.



Milk

Welcome to HISD Evaluation Matrix and Dashboard

The purpose of this Dashboard is to aid Sourcing and Procurement analyze Market Intelligence, Trends, Forecasting, and Benchmarking.

In the end this tool will provide market trends, forecast, cost variance, standard deviation, and quick decision making with a click of a button.

Please cut and paste CPI or PPI raw data in the table below.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2005												
2006	127.90	128.90	127.10	126.30	124.00	123.60	124.10	123.20	123.40	126.00	125.60	125.50
2007	127.04	128.24	129.33	130.39	133.28	137.92	146.73	148.24	149.72	149.74	151.12	149.69
2008	149.52	149.82	146.59	147.97	146.91	147.47	153.76	151.57	149.27	146.51	147.90	144.82
2009	142.86	134.78	128.88	127.90	126.88	126.05	125.55	124.68	125.36	127.21	128.06	129.54
2010	132.97	132.97	132.63	130.53	131.31	133.61	134.70	134.57	133.56	134.63	135.47	136.09
2011	136.31	137.01	141.62	144.72	146.68	147.27	148.43	149.94	151.00	149.43	148.78	148.67
2012	149.75	147.87	147.21	146.09	146.11	145.16	145.62	145.96	145.96	147.25	150.97	151.45
2013	150.75	149.92	149.30	148.67	146.89	148.87	148.46	148.37	148.30	148.69	150.25	151.66
2014	153.02	153.78	156.51	156.95	157.66	156.37	156.51	157.17	158.34	157.51	156.87	158.19
2015	154.77	149.66	149.42	147.56	146.91	145.29	147.40	145.85	146.68	145.69	144.81	145.73
2016	143.63	142.24	140.45	139.27	139.04	137.66	137.12	138.75				
2017												

Trend and Forecast

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly	Fiscal
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2006	127.90	128.90	127.10	126.30	124.00	123.60	124.10	123.20	123.40	126.00	125.60	125.50	-0.68%	15.42%
2007	127.04	128.24	129.33	130.39	133.28	137.92	146.73	148.24	149.72	149.74	151.12	149.69	15.04%	4.57%
2008	149.52	149.82	146.59	147.97	146.91	147.47	153.76	151.57	149.27	146.51	147.90	144.82	-4.66%	-22.47%
2009	142.86	134.78	128.88	127.90	126.88	126.05	125.55	124.68	125.36	127.21	128.06	129.54	-7.44%	6.79%
2010	132.97	132.97	132.63	130.53	131.31	133.61	134.70	134.57	133.56	134.63	135.47	136.09	2.44%	9.25%
2011	136.31	137.01	141.62	144.72	146.68	147.27	148.43	149.94	151.00	149.43	148.78	148.67	8.98%	-1.93%
2012	149.75	147.87	147.21	146.09	146.11	145.16	145.62	145.96	145.96	147.25	150.97	151.45	0.66%	1.91%
2013	150.75	149.92	149.30	148.67	146.89	148.87	148.46	148.37	148.30	148.69	150.25	151.66	1.48%	5.14%
2014	153.02	153.78	156.51	156.95	157.66	156.37	156.51	157.17	158.34	157.51	156.87	158.19	1.13%	-6.18%
2015	154.77	149.66	149.42	147.56	146.91	145.29	147.40	145.85	146.68	145.69	144.81	145.73	-7.76%	-7.49%
2016	143.63	142.24	140.45	139.27	139.04	137.66	137.12	138.75	144.57	143.75	143.45	144.65	**-0.02%**	**3.59%**
2017	143.60	142.47	143.03	142.60	142.33	141.81	142.23	141.55	141.89	141.08	140.79	141.96		
Average	150.38	148.69	148.58	147.71	147.32	146.67	147.02	147.22	148.77	148.58	149.27	150.34	**0.83%**	**0.78%**
Standard Deviation	5.93%	4.87%	5.02%	5.10%	5.60%	5.23%	5.33%	5.34%	5.36%	4.96%	4.67%	4.80%	**6.68%**	**10.15%**

Milk

Year	Month	Forecast	Actual	Difference	% Difference
2016	January	146.2727378	143.629	-2.643737785	-1.807%
2016	February	145.1324081	142.243	-2.889408148	-1.991%
2016	March	145.702548	140.446	-5.25654797	-3.608%
2016	April	145.2746362	139.27	-6.004636154	-4.133%
2016	May	144.9974059	139.036	-5.961405947	-4.111%
2016	June	144.4707711	137.661	-6.809771131	-4.714%
2016	July	144.9052447	137.123	-7.782244652	-5.371%
2016	August	144.21823	138.747	-5.47122996	-3.794%
2016	September	144.5686841			
2016	October	143.7493165			
2016	November	143.4528209			
2016	December	144.6544291			
2017	January	143.595295			
2017	February	142.47178			
2017	March	143.0273809			
2017	April	142.6032384			
2017	May	142.327014			
2017	June	141.8059884			
2017	July	142.2283334			
2017	August	141.5499025			
2017	September	141.889742			
2017	October	141.081438			
2017	November	140.7863211			
2017	December	141.9614223			

If you notice, the Actual CPI for August is 138.747. Our forecast for August is 144.218. The reason for the 3.79% difference is the volatility. Higher volatility will give a higher % difference for this predictive model.

How To Use the Consumer Price Index for Escalation

- This data may be obtained by using their one-screen data search for the CPI. Using this, you would select “U.S city average” in the first box, “All items” in the second, and check “Not Seasonally Adjusted.” Then, Get Data. This will bring up a data table. Then, to obtain the 12-month percent changes, click “More formatting options” on the upper right. Then check the box on the left for “12-month Percent Change” and retrieve data.
- Here is the contact information for the Bureau Labor Statistics Southwest Information Office:
  - www.bls.gov/regions/southwest | Telephone: 1-972-850-4800 | Contact Southwest

Questions?

Adding Value & Driving Performance With Cost / Spend Analysis

"***Are Your Cost Savings Calculations Defensible?***"