

# Lecture 9 - Inflation and You Calculating CPI

February 3, 2020

## Inflation

- Inflation is a continuous increase in price over time.
- There are two main types of inflation:
  - **Demand Pull Inflation:** As demand for a good or set of goods increases, so does its price.
  - **Cost Push Inflation:** As prices rise, companies must protect their profit margin by raising prices.
- We will discuss the economic causes and implications of inflation in more detail in the next lecture.

## Consumer Price Index

- Assuming that prices remain roughly proportional, prices can be converted between years.
- A consumer price index relates average prices to some base year. These are computed by tracking prices of a selection of goods between two years.
- The base year is assigned a price index of 100. The proportional relationship is:

$$\text{price in a given year} : \text{price in base year} :: \text{CPI for given year} : 100$$

- Discuss: What relationship does CPI have to percent?
- For convenience, CPI's are usually standardized to a base year. All prices are compared to prices on this year.
- The standard base year, as defined by the United States Bureau of Labor Statistics uses the average prices over the range 1982-1984 as the standard base year. (This is called a chained base year.)
- Given the CPI in year a and year b, the following proportion will hold:

$$\text{price in year a} : \text{price in year b} :: \text{CPI in year a} : \text{CPI in year b}$$

## Problems and Discussion

1. Compute the beef index price based on the 1971 advertisement from A&P.
2. Convert the 1971 based beef index to a 1982-1984 based index. How does this compare to the actual Depart of Labor Statistics CPI for 1971?
3. If a college textbook has a list price of \$12.95 in 1971, what should its price be in 2018?

- Look up the list price of Hopcroft and Ullman's *Introduction to Automata Theory, Languages, and Computation*. This is the book from the previous question. Has it kept pace with inflation or has it outperformed it? What could account for this?
- Examine the CPI chart for the years 1913-2018. How does the CPI compare to major events in US history?

12-M—Manitowoc (Wis.) Herald-Times Two Rivers Reporter, Wed., Jan. 6, 1971.



**"Super-Right" Top Quality Beef**

# CHUCK ROAST

BONELESS CHUCK ROAST **75¢** Lb.  
BONELESS BEEF STEW CHUCKS **79¢** Lb.

Blade Cut **45¢** Lb.

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**"Super-Right" Top Quality**

## CHUCK STEAK

Blade Cut **49¢** Lb.

**Fresh All Beef**

## GROUND CHUCK

**79¢** Lb.

**Boston Cut Rolled & Tied**

## BONELESS ROAST

"Super-Right" Beef **89¢** Lb.

**Allgood Brand**

## SLICED BACON

**2** Lb. **\$1.19** Pkg.

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**LEAN MEATY BEEF**

### SHORT RIBS . . . .

**45¢** Lb.

**WITH THIGHS QUARTERS**

### FRYER LEGS . . . .

**39¢** Lb.

**WITH RIBLETS QUARTERED**

### FRYER BREASTS . . .

**49¢** Lb.

**PATRICK CUDAHY LINKS**

### PORK SAUSAGE . . .

**79¢** Lb.

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Chuck Roast Semi-Boneless Lb. **65¢**  
 Chunk Bologna Hygrades Fresh Lb. **59¢**  
 Liver Sausage Hygrades Fresh or Smoked Lb. **49¢**

Beef Briskets Boneless Whole or Point Cut Lb. **99¢**  
 Oscar Mayer Sliced Bacon 3-Lb. Pkg. **77¢**  
 Turkey Legs Bone Thighs Quarters Lb. **29¢**

All Meat Wieners "Super-Right" 2-Lb. Pkg. **\$1.29**  
 Chicken Livers Frozen 8-Lb. Pkg. **\$1.39** Lb. **49¢**  
 Pork Neck Bones Lean Meaty Lb. **25¢**

Cornish Hens Tender 20-Oz. Size 4 Lb. **89¢**  
 Halibut Steaks Flaky White Carver Cuts 1-Lb. **79¢**  
 Polish Sausage Soppenback Lb. **89¢**

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**SULTANA 3 VARIETIES**

## FROZEN MEAT PIES

**5** 8-Oz. Pkg. **\$1**

**COFFEE SALE!**

## EIGHT O'CLOCK

**3** Lb. Bag **\$2.49**

**MARVEL CREAMY**

## VANILLA ICE CREAM

**\$1.23** Gallon Carton

**JANE PARKER SPECIAL**

## APPLE PIE

**49¢** 8 Inch Size

Image Source: <https://www.flickr.com/photos/andrew-turnbull/3347776176>

# Yearly Average Consumer Price Index

1913 - 2018

Year	CPI	Year	CPI	Year	CPI	Year	CPI
1913	9.9	1940	14	1967	33.4	1994	148.2
1914	10	1941	14.7	1968	34.8	1995	152.4
1915	10.1	1942	16.3	1969	36.7	1996	156.9
1916	10.9	1943	17.3	1970	38.8	1997	160.5
1917	12.8	1944	17.6	1971	40.5	1998	163
1918	15.1	1945	18	1972	41.8	1999	166.6
1919	17.3	1946	19.5	1973	44.4	2000	172.2
1920	20	1947	22.3	1974	49.3	2001	177.1
1921	17.9	1948	24.1	1975	53.8	2002	179.9
1922	16.8	1949	23.8	1976	56.9	2003	184
1923	17.1	1950	24.1	1977	60.6	2004	188.9
1924	17.1	1951	26	1978	65.2	2005	195.3
1925	17.5	1952	26.5	1979	72.6	2006	201.6
1926	17.7	1953	26.7	1980	82.4	2007	207.3
1927	17.4	1954	26.9	1981	90.9	2008	215.303
1928	17.1	1955	26.8	1982	96.5	2009	214.537
1929	17.1	1956	27.2	1983	99.6	2010	218.056
1930	16.7	1957	28.1	1984	103.9	2011	224.939
1931	15.2	1958	28.9	1985	107.6	2012	229.594
1932	13.7	1959	29.1	1986	109.6	2013	232.957
1933	13	1960	29.6	1987	113.6	2014	236.736
1934	13.4	1961	29.9	1988	118.3	2015	237.017
1935	13.7	1962	30.2	1989	124	2016	240.007
1936	13.9	1963	30.6	1990	130.7	2017	245.12
1937	14.4	1964	31	1991	136.2	2018	251.107
1938	14.1	1965	31.5	1992	140.3		
1939	13.9	1966	32.4	1993	144.5		

Base Year Chained 1982-1984 = 100

Compiled from the Department of Labor Statistics Data Releases