

Manipulating Price Indexes

1. Updating Table 8.11: The minimum wage versus inflation

Year	Minimum wage	Consumer Price Index (1982-84=100)	Real Minimum Wage..... (\$ of 1982-84 purchasing power)	(\$ of year 2000 purchasing power)	(\$ of year 2006 purchasing power)	CPI 2006 = 100	Real (\$ of year 2006 purchasing power)
1	2	3	4	5	6	7	8
1938	\$0.25	14.1	\$1.77	3.05	\$3.60	6.9	3.60
1946	\$0.40	19.5	2.05	3.53	\$4.16	9.6	4.16
1950	0.75	24.1	3.11	5.36	\$6.31	11.9	6.31
1960	1.00	29.6	3.38	5.82	\$6.85	14.6	6.85
1968	1.60	34.8	4.60	7.92	\$9.33	17.2	9.33
1980	3.10	82.4	3.76	6.48	\$7.63	40.6	7.63
1990	3.69	130.7	2.82	4.86	\$5.73	64.4	5.73
2000	5.15	172.2	2.99	5.15	\$6.07	84.9	6.07
2006	5.15	202.9	2.54	4.37	\$5.15	100.0	5.15

Source: Bureau of Labor Statistics
<http://www.bls.gov/cpi/home.htm>

$\$2.54 = \$5.15 / 202.9\%$
 $\$4.86 = 172.2\% \times \2.82
 $\$5.73 = 202.9\% \times 2.82$
 $\$6.07 = \$5.15 / 84.9\%$
 $84.9\% = 172.2\% / 202.9\%$

Notes: See "Changing the Base Year, page 359-60.
 The 2006 CPI-U in column 3 was updated from <http://www.bls.gov/cpi/home.htm>
 Column 4 divides the minimum wage by the level of the CPI (1982-84=100)
 Column 5 multiplies column 4 by the level of the CPI (1982-84) = 100 in year 2000 to convert to \$ of year 2000 purchasing power
 Column 6 multiplies column 4 by the level of the CPI (1982-84) = 100 in year 2006 to convert to \$ of year 2006 purchasing power
 Column 7 changes the base year of the CPI to 2006 by dividing the entry in column 3 by the level of the index in year 2006

2. Converting Monthly into Annual rates of inflation:

Example 1: Minimum Wage Data

From 1938 to 2006
 Number of years = 2006-1938 = 68

$P_{2006} / P_{1938} = 14.39$
 $14.39 = 172.2\% / 202.9\%$

Annual Rate: 3.999%
 $3.999\% = 14.39^{1/68} - 1$

Monthly rate: 0.3273%
 $0.3273\% = ((3.999\% + 1)^{1/12} - 1) = 0.0327\%$

Example 2: Hyperinflation occurs if the monthly rate of inflation is at least 50%

monthly rate: 50%
 annual rate: 12875%

$(1 + \dot{p}_m)^{12} = (1 + 50\%)^{12} = 1 + \dot{p}_a = 129.7$ (see equation 4, p 354)
 Therefore, $\dot{p}_a = (1 + \dot{p}_m)^{12} - 1 = 129.75 - 1 = 128.75 = 12,875\%$