

Problems – Chapter 8: Monitoring Economic Performance

Reading Assignment: Chapter 8:

The following section is optional: Paasche Index and Substitution Bias – after equation (1) on page 364 to page 367.

Appendix 8.a: Compound Interest is optional, but you may find that it provides a useful review that will help you understand inflation arithmetic.

Exercises: (pages 396-98)

Questions 1, 2 a and b, and 3

Honors Option: 4* and update Table 8.15, p 397, by adding a new row with the most recent data on Army Pay and the CPI that you can find on the internet.

ATTEMPTED CLARIFICATION:

At our last session I was asked about the discontinuity (jump) in the marginal labor cost curve on the lower right hand corner of the graph handout. I hope the following explanation helps:

With a minimum wage, $W(L) = \max [(w_0 + w_1L), w_{\min}]$ – this is the red wage curve on the bottom panel of Figure 7.7 (also page 317)

Total Labor Cost is $Lw(L) = \max [(w_0 + w_1L)L, w_{\min}L]$ - this is the blue curve in the top panel of Figure 7.7.

Then $C(L,K) = Lw(L) + rK$ is the total cost red line on the upper panel

Now marginal total cost on the bottom panel is the plot of the derivative of $C(L,K)$ with respect to L ; note that $\partial C(L,K)/\partial L = \partial(Lw(L))/\partial L$ in the short run because K is fixed.

Observe that neither the labor cost curve nor $C(L,K)$ is differentiable on the top panel at the kink-point level of employment where $w(L) = w_{\min}$.

Now the marginal cost curve $\partial C(L,K)/\partial L$ on the bottom panel (red line) is equal to w_{\min} up to the kink point because the $C(L,K)$ curve from which it is derived is a straight line with slope w_{\min} . Beyond that kink point the slope of the $C(L,K)$ line in the top panel was unaffected by the minimum wage, which means that its slope is the same $\partial C(L,K)/\partial L$ as before the minimum wage.

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 2006 purcahsing power)
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(sp)	5.15	202.9	2.54	4.37	\$5.15	100.0	5.15

$\$2.54 = 5.15 / 202.9\%$

$\$4.86 = 202.9\% \times 2.82$

$84.9\% = 172.2\% / 202.9\%$

$\$6.07 = \$5.15 / 84.9\%$

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

Converting Monthly into Annual rates of inflation:

	2002/1938	Annual Rate	Monthly rate	Annual RATE
From 1938 to 2006	14.39007092	4.00%	0.003273162	1.039992811
2006-1938:	68			
hyperinflation	50%	129.7463379	$(1 + \dot{p}_m)^{12} = 1 + \dot{p}_a = 129.7$ (see equation 4, p 354) $(1 + \dot{p}_m)^{12} - 1 = \dot{p}_a = 129.7 - 1 = 128.7 = 12,870\%$	