Absolute and Relative Surplus Value

Technical Change: A change in the labor process affecting the productivity of labor.

For given number of worker-days N,

$S = N(L_D - V_{LP})$

For a given number of worker-days, S can be increased by

1) L_D increasing

2) L_n (or V_{LP}) decreasing

Absolute and Relative Surplus Value (cont.)

Absolute surplus value:

an increase in S due to L_D increasing

Relative surplus value:

an increase is S due to L_n decreasing

$L_n = V_{LP} = \Sigma \lambda_i b_i$

Thus, the capitalists can get relative S in economy as a whole by

a) Lower real wage fall (b_i falls)
b) Increase in labor productivity in wage goods (λ_i falls)

Absolute and Relative Surplus Value (cont.)

The capitalist class as a whole can get relative surplus value in three ways:

1) Drive down the real wage (V_{LP} falls).
2) Increase the average intensity of labor in the economy as a whole.
3) Technological advance that increases the productivity of labor in wage goods industries.

Marx focused on #3.

Technical change and the individual capitalist

Story: One capitalist innovates
gets extra surplus value (superprofits)
imitation by other capitalists
extra surplus value is competed away

Social effect: Taking account of effect on entire economy, s/v rises for capital as a whole.

Note: Relative surplus value can also be obtained by single capitalist by
1) reducing the real wage below the social average
2) increasing the intensity of labor above the social average
There are limits to both of those methods.

Technical change and the individual capitalist

Social Value (λ^S): SNALT required to produce a commodity.

Individual Value (λ^I): The hours required to produce a commodity for an individual capitalist.

Example:

20 MP + 10 L $\xrightarrow{\text{▲}}$ 1 unit of product initially.

Innovating capitalist changes the labor process

20 MP + 5 L $\longrightarrow$ 1 unit of product

Hence, $\lambda^S = 30$ but now $\lambda^I = 25$ for innovating capitalist.

Technical change and the individual capitalist

20 MP + 10 L $\longrightarrow$ 1 unit of product initially.

20 MP + 5 L $\longrightarrow$ 1 unit of product for innovator

200c + 50v + 50s = 300V for industry

200c + 25v + Xs = 300V for innovator

X = 75

Thus,

$S = V^S - c - v$ where V^S = socially defined value of output.

Technical change and the individual capitalist

Result of TC by individual capitalist:

$S_0 = V_0^S - c_0 - v_0$

$S_1 = V_1^S - c_1 - v_1$

Thus, subtracting first equation from second equation, and recalling that social value does not change, we have

$\Delta S = -(\Delta c + \Delta v)$

If $(\Delta c + \Delta v) < 0$, then $\Delta S > 0$

Imitation of a new technology

New technology:

20 MP + 10 L $\longrightarrow$ 30λ before innovation

20 MP + 5 L $\longrightarrow$ 30λ^S after innovation, before imitation

After imitation:

20 MP + 5 L $\longrightarrow$ 25λ^S after imitation

Before innovation: 200c + 50v + 50s = 300V

After innovation & imitation: 200c + 25v + 25s = 250V

Before innovation: r = 50/250 = 20%

After innovation and imitation: r = 25/225 = 11.1%

This assumes no change in s/v in economy.

Final Social Effect of Innovation by 1 Capitalist

Once the innovation has been imitated throughout the industry, then the social value of the product falls. Unless the product is a luxury good, this reduces the value of the subsistence wage basket, and so s/v rises in the economy as a whole.

Sequence of steps of whole process of TC:

Drive to increase S by individual capitalist
TC that cheapens the commodity
Initial superprofit for the first innovator
Imitation which causes superprofit to disappear
s/v rises for capital as a whole.

Note: Effect on rate of profit not obvious since c/v likely to increase.