Fritz Helmedag

Marx and Keynes:
from exploitation to employment
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Outline:

1. Surplus value and labour demand

2. Unit labour costs and sectoral profits

3. Employment and technological progress

4. Reaping rewards for the work

1. Surplus value and labour demand

Proposition: The labour theory of value (Marx’s approach) provides a firm basis to inquire into the determinants of employment (Keynes’s concern)

Basic idea: Separation of the whole output into “necessaries” and “luxuries”
1. Surplus value and labour demand

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Basic idea: Separation of the whole output into “necessaries” and “luxuries”
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Adam Smith (1776):

“. . when … the labour of one family can provide food for two, the labour of half the society becomes sufficient to provide food for the whole. The other half … can be employed in providing other things . . .”

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\[ r \triangleq \text{uniform rate of exploitation (or profit)} \]
\[ y \triangleq \text{nominal return of a man hour} \]
\[ w \triangleq \text{nominal hourly wage rate} \]

\[ r = \frac{y - w}{w} = 1 - \frac{w}{y} \]  \hspace{1cm} (1)

\[ p_B \triangleq \text{price of the wage good} \]
\[ w_B \triangleq \text{real wage rate} \]
\[ v_B \triangleq \text{labour value of the wage good} \]

\[ r = \frac{p_B - v_B w_B p_B}{v_B w_B p_B} = 1 - \frac{v_B w_B}{v_B w_B} \]  \hspace{1cm} (2)
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\frac{r}{w} = \frac{y - w}{w} = \frac{1 - \frac{w}{y}}{\frac{w}{y}}
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\frac{r}{v_B w_B p_B} = \frac{1 - \frac{v_B w_B}{y}}{v_B w_B}
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(2)
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(1) = (2):

\[ h = v_B w_B = \frac{w}{y} < 1 \]  \hspace{1cm} (3)

\( h \triangleq \text{real unit labour costs, “value of labour-power”, “paid” labour, “purchasing power of the wage minute”} \)

Profit factor:

\[ 1 + r = 1 + \frac{y - w}{w} = \frac{y}{w} = \frac{1}{h} = \frac{1}{v_B w_B} > 1 \]  \hspace{1cm} (4)

Production- or core-price level, “labour commanded”, “wage-unit”

- Marx: Inevitable demise of the bourgeois regime
- Keynes: “Doctor at the sickbed of capitalism”

Synthesis: Capitalists, workers, international trade, public sector
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2. Unit labour costs and sectoral profits

Parameters:

\[ 0 < t_w, s_w, m_w < 1 \quad \text{and} \quad 0 < c_w = 1 - s_w - m_w < 1 \]
\[ 0 < t_p, s_p, m_p < 1 \quad \text{and} \quad 0 < c_p = 1 - s_p - m_p < 1 \]  

(5)

Gross profits \((P_B)\) in the basic industry:

\[ P_B = rW_B = c_w (1 - t_w) (W_B + W_X) - W_B \]  

(6)

\(W_B \triangleq \) wage bill in the basic industry

\(W_X \triangleq \) wage bill in the secondary sector

Autonomous demand:

\[ A = I + X + D \]  

(7)
2. Unit labour costs and sectoral profits

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Autonomous demand:

\[ A = I + X + D \]  \hspace{1cm} (7)
Gross profit in the luxury department \((P_X)\):

\[
P_X = rW_X = A + c_P(1-t_P)r(W_B + W_X) + (t_w + rt_P)(W_B + W_X) - W_X
\]  

(8)

Sectoral wage bills from (6) and (8):

\[
W_B = \frac{c_W(1-t_W)A}{(1+r)[r(1-c_P)(1-t_P) + (1-c_W)(1-t_W)]} = \frac{hc_W(1-t_W)hA}{(1-h)(1-c_P)(1-t_P) + h(1-c_W)(1-t_W)}
\]  

(9)
Gross profit in the luxury department ($P_X$):

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\[
W_x = \frac{(r + 1 - c_w(1 - t_w))A}{(1 + r)[r(1 - c_p)(1 - t_p) + (1 - c_w)(1 - t_w)]} = \frac{[1 - hc_w(1 - t_w)]hA}{(1 - h)(1 - c_p)(1 - t_p) + h(1 - c_w)(1 - t_w)}
\]  

\[
W_B + W_x = \frac{A}{r(1 - c_p)(1 - t_p) + (1 - c_w)(1 - t_w)} = \frac{hA}{(1 - h)(1 - c_p)(1 - t_p) + h(1 - c_w)(1 - t_w)}
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Total wages decline with the rate of profit (and increase with unit labour costs).
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Proportion between sectoral wage bills:

\[ \frac{W_B}{W_X} = \frac{hc_W(1-t_W)}{1-hc_W(1-t_W)} \]  

The profit of the basic sector depends on the wage bill in the luxury industry:

\[ P_B = \frac{1-h}{h} W_B = \frac{1-h}{h} \frac{hc_W(1-t_W)}{1-hc_W(1-t_W)} W_X = \frac{(1-h)c_W(1-t_W)}{1-hc_W(1-t_W)} W_X \]  

Maximal profit in the wage-good industry at \( h^* \):

\[ 0 < h^* = \frac{(1-c_p)(1-t_p) - \sqrt{(1-c_p)(1-t_p)(1-c_w)(1-t_w)}}{(1-c_p)(1-t_p) - (1-c_w)(1-t_w)} < 1 \]  

Intersection of the profit functions at \( \hat{h} \):

\[ \frac{1}{2} \leq \hat{h} = \frac{1}{2-c_w(1-t_w)} < 1 \quad \text{for} \quad 1 \geq c_w(1-t_w) > \frac{1}{2} \]
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Figure 1: Sectoral profits

\[ A = 1; \, c_W = 0.75; \, t_W = 0.1; \, c_P = 0.5; \, t_P = 0.2 \]
3. Employment and technological progress

Gross national income (\( Y \)):

\[
Y = (1 + r)(W_B + W_X) = \frac{(1 + r)A}{r(1 - c_p)(1 - t_p) + (1 - c_w)(1 - t_w)} = \frac{A}{(1 - h)(1 - c_p)(1 - t_p) + h(1 - c_w)(1 - t_w)}
\]  
(16)

\[
\frac{\partial Y}{\partial h} \leq 0 \quad \text{for} \quad (1 - c_p)(1 - t_p) \leq (1 - c_w)(1 - t_w)
\]  
(17)

Volume of work (\( N \)) by definition:

\[
N = \frac{Y}{y}
\]  
(18)
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“Scissors” tautology:

\[
\frac{dN}{N} = \frac{dY}{Y} - \frac{dy}{y}
\]  

(19)

Volume of work, analytically:

\[
N = N_B + N_X = N_B + \frac{hc_W (1-t_w)}{1-hc_W (1-t_w)} N_X
\]

(20)

With \( N_X = \nu_X X \) and \( h \) from equation (3):

\[
N = \frac{\nu_X X}{1-\nu_B w_B c_W (1-t_w)}
\]  

(21)

“Motion equation”:

\[
\frac{dN}{N} = \frac{dX}{X} + \nu_X + \frac{\nu_B w_B c_W (1-t_w)}{1-\nu_B w_B c_W (1-t_w)} \left( \frac{dv_B}{v_B} + \frac{dw_B}{w_B} \right)
\]  

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4. Reaping rewards for the work

- “Necessaries” and “luxuries” are not defined in kind but by the financial origin of expenses
- The uniform rate of profit depends on unit labour costs determined in the wage good sector
- Focal points of real unit labour costs refer either to the profit maximum in the basic industry or to the intersection of the sectoral profit curves
- The effects of technological progress in the basic and luxury industry differ
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- The uniform rate of profit depends on unit labour costs determined in the wage good sector
- Focal points of real unit labour costs refer either to the profit maximum in the basic industry or to the intersection of the sectoral profit curves
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Appendix

\[ P_x = rW_x = \frac{r \left( r + 1 - c_W (1-t_W) \right) A}{(1+r) \left[ r(1-c_p)(1-t_p) + (1-c_W)(1-t_W) \right]} = \]

\[ = \frac{(r^2 + ra) A}{r \alpha_p + \alpha_W + r^2 \alpha_p + r \alpha_W} \]

\[ 0 < a \equiv 1 - c_W (1-t_W) < 1 \]
\[ 0 < \alpha_p \equiv (1-c_p)(1-t_p) < 1 \]
\[ 0 < \alpha_W \equiv (1-c_W)(1-t_W) < 1 \]
Marx and Keynes: from exploitation to employment

Outline:
1. Surplus value and labour demand
2. Unit labour costs and sectoral profits
3. Employment and technological progress
4. Reaping rewards for the work

\[
\frac{\partial P_X}{\partial r} = \frac{A(Z_1 + Z_2)}{(\cdot)^2}
\]

\[
Z_1 = 2r^2\alpha_P + 2r\alpha_W + 2r^3\alpha_P + 2r^2\alpha_W + ar\alpha_P + a\alpha_W + ar^2\alpha_P + ar\alpha_W
\]

\[
Z_2 = -(r^2\alpha_P + 2r^3\alpha_P + r^2\alpha_W + ar\alpha_P + 2ar^2\alpha_P + ar\alpha_W)
\]

\[
Z_1 + Z_2 = r^2\alpha_P(1-a) + \alpha_W(r(r + 2) + a) > 0
\]