Chapter III: A Preliminary Model Linking Distribution with the Level of Income
In this chapter we set up first a preliminary Keynesian macroeconomic model to explore systematically the link between distribution of income and effective demand. This model is similar to the one used in the previous chapter to explain Kaldor’s and Kalecki’s theory of distribution. The central difference is that, the level of mark-up is treated as exogenous (see Ch.II, ‘class A’ models), but the level of investment is considered endogenous to the model.\footnote{1}

The following relations characterize our model:

National Income in money terms is

\[ pY = \pi + W \] \hspace{1cm} (III.1)

where \( \pi \) is the level of money profits

\( W \) is the level of money wages

Here \( W = wL \)

where \( w \) is the money wage rate

\( L \) is the total labour employed

We assume that \( L \) bears a proportional relation with output

\[ L = bY \]

where \( b \) is the labour-output coefficient which is given.

\footnote{1 The method of treating mark-up or equivalently the real wage (at a given labour productivity) exogenous to the system is Classical in nature as most of the Classical economists adopted this method in their analysis (See Sraffa). In this context we also clarify that no attempt is made to provide a theory of mark-up. Ours is a theory of output where distribution of income plays a role in determining the level of effective demand and we do this without any direct reference to labour market.}
Incorporating these assumptions in (III.1) we have

\[ pY = \pi + w.b.Y \]

we assume fixed saving propensities for both profit and wage income, \( s_\pi \) and \( s_w \), respectively, where \( 1 \geq s_\pi > s_w \geq 0 \)

Saving-Investment equality becomes

\[ pI = s_\pi \pi + s_w w.b.Y \]  

(III.3)

Prices are assumed to be cost-determined i.e., marked up over constant marginal cost, which is due to existence of excess capacity in the system

i.e., \[ p = m.b.w \]  

(III.4)

where \( m \) is the percentage mark-up over labour cost which is the only prime cost (assumed for the sake of simplicity) and \( b \) is labour-output coefficient, which is given.

Equation (III.4) implies two things. First, it implies a positive functional relation between profit margin and profit share \( (h) \) i.e.,

\[ h = \frac{m - 1}{m}; \frac{dh}{dm} > 0 \]  

(III.5)

Second, it exhibits the distributional conflict between profit margin, profit share and real wage at given labour productivity i.e.,

\[ m.(\%_\rho) = (1 - h)^{-1}(\%_\rho) = \%_\rho \]  

(III.6)

Any increase in the profit margin would increase the profit share (equation III.5) and depress the real wage at a given labour productivity (equation III.6).
According to the strictly under-consumptionist logic, higher profit margin/share is detrimental to total output as this would reduce the consumption demand through lowering of the real wage. This route is taken by some authors to emphasize the depressive demand side effect of monopoly capital. In these models though investment finds its place as a component of aggregate demand, it is the negative impact of the higher degree of monopoly or profit margin/share on consumption which is shown as the reason for the decline in the aggregate demand, while investment plays no crucial role. And it is precisely this exclusive focus on consumption expenditure that makes these models under-consumptionist. We depart from this under-consumptionist tradition by considering investment to be an increasing function of profit margin/share i.e.,

$$I = I(h); \frac{dI}{dh} > 0$$  \hspace{1cm} (III.7)

Thus both the components of aggregate demand become function of the same variable (real wage/profit share). Consequently, exogenous variations of this variable affect the level of aggregate demand. In other words, any increase in profit margin/share or equivalently a lower real wage would simultaneously depress consumption demand but also owing to equation (III.7) raise investment. Thus the net effect on aggregate demand remains ambiguous.

This can be seen by working out the comparative statics after solving the model for $Y$

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3 Steindl (1952) seems to have recognized this problem and tried to overcome by specifying investment as a function of capacity utilization but failed to work out analytical connections satisfactorily. See earlier discussion on this issue in chapter I, pp. 14-16.
4 See Bhaduri and Marglin (1990), which exploits this ambiguity to define different paths of expansion in aggregate demand and output.
\[ Y = \frac{I(h)}{s_n h + s_w (1 - h)} \]  

(III.8)

Differentiating (III.8) with respect to h we get

\[ \frac{dY}{dh} = \frac{(s_n - s_w)[h \frac{dI(h)}{dh} - I(h)] + s_w \frac{dI(h)}{dh}}{[s_n h + s_w (1 - h)]^2} \]  

(III.9)

The crucial point to note is that the sign of the derivative is not unambiguously positive. Simplifying (III.9) we have

\[ \frac{dY}{dh} > 0 \Leftrightarrow h[(s_n - s_w)(1 - \frac{Y_{s_n}}{s_w})] > s_w \]

or

\[ h[(c_w - c_n)(1 - \frac{Y_{s_n}}{s_w})] < s_w \]  

(III.10)

For \( \frac{dY}{dh} < 0 \) the condition is \( h[(c_w - c_n)(1 - \frac{Y_{s_n}}{s_w})] < s_w \)  

(III.11)

In (III.11) \( e_{l,h} \) is the elasticity of investment with respect to profit share and \( c_w - c_n \) is the difference between per unit consumption out of wage income and profit income, with \( c_w > c_n \). The condition (III.11) is true as long as the value of the elasticity of investment with respect to profit share lies within \( 0 < e_{l,h} < 1 \). If \( e_{l,h} \geq 1 \) then the opposite inequality holds true. We can see this in the following illustration.

Assume \( s_w = 0.25 \), \( s_n = 0.65 \), \( h = 2\% \) and \( e_{l,h} = 0.8 \).

The condition holds for this case \((.2 < .25)\) and for all values \( e \) takes between \((0,1)\).

Numerically this means that when \( e_{l,h} < 1 \), that is, one per cent increase in profit share generates less than one per cent increase in investment, the difference
between per unit consumption out of wage income and profit income falls below
the value of per unit saving out of wage income i.e., \( h[(c_w - c_n)(1 - \frac{1}{c_{1,n}})] < s_w \).

The economic logic underlying the condition (III.11) comes out more clearly
when we consider the influence of profit share on the overall ratio of consumption
to income

\[
c = (1 - s_w)(1 - h) + (1 - s_w)h
\]
differentiating with respect to \( h \) we get

\[
\frac{dc}{dh} = -(c_w - c_n)
\]  \hfill (III.12)

substituting (III.12) in (III.11) and simplifying

\[
\frac{dY}{dh} < 0 \Leftrightarrow -h \frac{dc}{dh} + I(h) \frac{dc}{dh} - s_w < 0 \]  \hfill (III.13)

From (III.13) we can see that the total output, owing to a higher profit share might
decline if the loss in consumption due to a rise in the profit margin/share (or lower
real wage) is not compensated by the gain in investment (as well as indirect gain
in consumption). The condition (III.13) emphasises why our model is not simply
an under-consumptionist model. The influence of profit margin/share on the two
components of aggregate demand viz., consumption and investment, works in
opposite direction to make the link between income distribution and the level of
output ambiguous in sign. However, it should also be noted that this exogenous
increase in profit margin and hence profit share (equation III.5) does not lead to higher level of total profits.

Because

$$\pi = [p.Y - w.b.Y] = [p - w.b]Y$$

From equation (III.14) it is clear that the level of total profits depends on the strength of the output multiplier. Hence arbitrary increases in profit margin/share may not lead to a rise in the level of total profits as a whole since what is gained in profits per unit of scale might be lost in the lesser number of units sold. This suggests that the ‘micro-behaviour’ of the firms in setting a higher profit margin to increase total profits may be thwarted by the ‘macro structure’ of the system if overall aggregate demand declines sufficiently as profit margin per unit of sale is increased. The essence of this model is to show how exogenous variations in the given level of mark-up (distribution of income) induce changes in the level of output through its effect on both consumption and investment. However this model is still only a preliminary step in so far as the profit margin (m) is exogenously given and the nature of its link to aggregate demand is highlighted through the specification of the investment and the saving functions.

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5 This is contrary to Kalecki’s case, where the level of total profits are determined by capitalists’ expenditures irrespective of the effect of distribution on the level of total output.
6 The two-sided effect of the profit margin/share (real wage) on both the components of aggregate demand is the main point of Bhaduri and Marglin (1990).