

CAPITALISM AND THE ECOLOGICAL CRISIS

Prabhat Patnaik

Capitalism is a "spontaneous" system in the sense that it is driven by its own inner logic, and cannot be planned in accordance with social rationality. Even Keynesian "demand management", which, far from institutionalizing any sort of a "planned" capitalist economy, merely wanted to make such an economy function close to full employment, has come a cropper. Notwithstanding the early promise of Keynesianism that thenceforth State intervention in demand management could make capitalist economies come a little closer to realizing social rationality, the "spontaneity" of the system ultimately asserted itself to a point where "austerity" has now become de rigeur.

One particular feature of the "spontaneity" is that a capitalist economy cannot settle down at a state of zero output growth. (I am assuming a constant population), without simultaneously experiencing substantial unemployment and unutilized capacity, i.e. without visiting upon the workers substantial distress. The idea of having the economy settle down at zero growth, but at full employment (or full capacity), with the whole of a constant social output being enjoyed in the form of consumption (apart from what is required to ensure that the capital stock is maintained intact through appropriate replacement), is unrealizable under capitalism.

This has an extremely important bearing on the ecological crisis facing mankind. An obvious way of meeting the challenges of this imminent crisis is to freeze economies, at least those economies which have already achieved high levels of per capita income and consumption, at their full employment level of GDP and merely to ensure that they continue to enjoy a level of per capita consumption (correspondingly to such a frozen full employment GDP) ad infinitum and devote their time to more creative pursuits like literature, music, painting, or exploring the beauties of nature. But within the confines of the capitalist system, this is not possible. Any effort to freeze economies at a stationary state with full employment would give rise not to an unchanged level of output, with more of it being devoted to consumption in lieu of net investment (which would now be zero), but to fall in output, employment and capacity utilization, which would bring distress to workers.

A solution to be ecological crisis within capitalism therefore is not possible without causing great distress to the people, for which there is no reason other than the infinity of the system itself and which is therefore entirely available. It follows then that a solution to the ecological crisis that causes no pain to working people and that is therefore acceptable to all, is possible only under a "non-spontaneous" system. And socialism constitutes such a non-spontaneous system. Those who are seriously interested in meeting the ecological challenge facing mankind therefore cannot but reject capitalism and accept socialism as the mode of production under which this challenges can at all be met. But, socialism, needless to say, will not necessarily take the form that it has done till date in history. The purpose of this paper is to explicate this argument.

The total investment in any period in a capitalist economy is the aggregate sum of individual investments undertaken by capitalists separately, and the actual investment undertaken in any period is usually a result of investment decisions taken earlier. Each capitalist decides how much to invest in the next period on the basis of current experience especially with regard to the level of capacity utilization. If a firm has a lot of unutilized capacity in the current period, relative to some benchmark level of "desired" capacity utilization, then it cuts back on investment in the next period (since investment in the current period is based on orders placed in the previous period about which very little can be done in the current period itself). And of course the absolute amount of investment, whose variations thus depend upon the level of capacity utilization, must also depend upon the absolute magnitude of capital stock. Aggregating over all firms, we thus have:

$$I(t+1)/K(t+1) = I(t)/K(t) [1 + \{u(t) - u^*\}] \dots (1)$$

Where I denotes net investment (we assume for simplicity zero depreciation), K the capital stock existing at the beginning of the period, u the actual level of capacity utilization and u^* the desired level of capacity utilization. Putting in some definitions and identities we have:

$$K(t+1) - K(t) = I(t)..... (2)$$

$$u(t) = O(t)/K(t)\hat{a}..... (3)$$

Where O denotes net output and $\hat{a}$ technological output capital ratio.

$$O(t) = C_w(t) + C_z(t) + I(t)..... (4)$$

When C_w denotes workers consumption, and C_z that of the capitalists. We assume that the workers consume their entire wages, no more and no less, and that capitalists' consumption is a constant fraction of their wealth, as measured by their capital stock. Denoting the share of wages in output by u , we then have;

$$C_w(t) = uO(t)..... (5)$$

$$C_z(t) = c.K(t)..... (6)$$

Where c is a constant.

This is an extremely simple model where the six equations determine the six variables $I(t+1)$, $O(t)$, $K(t+1)$, $u(t)$, $C_w(t)$ and $C_z(t)$ for given $K(t)$ and $I(t)$. Denoting I/K by i , this system gives us, upon substitution, the following equation;

$$I(t+1) = z/j(t) + bj^2(t)$$

Where $a = (I+c/\hat{a}(1-a))$ and $b = 1/\hat{a}(1-a)$; both a and b are constants. This system admits two possible steady growth solutions which are;

$I^* = (1-a)/b$; or $i^* = 0$, of which the first (which corresponds to Harrod's warranted growth rate) is unstable, while the second is stable.

It follows then that the system can be in a stationary state (which in fact is a stable trend); but at this stationary state, the level of capacity utilization will be $c/\hat{a}(1-a)$ which would be extremely low, way below u^* , the desired level of capacity utilization. If we put some plausible figures, e.g. $\hat{a} = 1/3$, $U = 1/2$, and $c = 1/15$, then the level of capacity utilization in the stationary state will be a mere 40 percent, and at this level there will be an extremely high unemployment rate. Let us assume, plausibly, that the economy has enough workers to permit the use of the capital stock at the desired level of capacity utilization, which is, say 90 percent. If we

assume a capital labour ratio of 1:1 (the exact number is immaterial), then there must be at least 90 workers in the economy. Let us assume that there are exactly 90 workers, (Assuming more workers will only strengthen our argument), in which case the stationary trend would entail 55 percent unemployment. The economy in its spontaneous functioning therefore will freeze only at a coincidentally high level of unemployment and unutilized capacity.

But suppose the Government wishes to freeze the economy at full employment. The easiest way for it to do so would be to raise the level of aggregate demand through a fiscal deficit. In these days of hegemony of finance capital, fiscal deficits are frowned upon, but let us assume that the Government can raise the fiscal deficit as much as it likes. A fiscal deficit generates in the above simple model, an amount of equivalent excess profit in the hands of the capitalists (i.e. profits over and above their own consumption and investment expenditures) which is exactly equal to itself. The Capitalists hold these excess profits as claims upon the government. In other words, if we denote profits by P , then if all wages are assumed, then

$$P(t) = Cz(t) + I(t) + D(t)$$

Where $D(t)$ is the fiscal deficit.

Now, it is extremely unlikely that when the level of capacity utilization is what they desire, i.e. is as high as they would like it to be, capitalists would simply go on accumulating claims upon the government without making any positive net investment. Putting it differently, once we introduce fiscal deficits, the investment function of equation (1) will necessarily change. Let us introduce the simplest change:

$$I(t+1) K(t+1) = I(t)K(t) [I + (u(t)-u^*)] + nD(t)K(t).....(I')$$

Where n is a constant. It follows that if the government tries to freeze the economy at full employment by running a fiscal deficit, then it will be unsuccessful in doing so, for net investment will become positive when the economy is at full employment.

In the above illustration, freezing the economy at full employment would mean raising the level of capacity utilization to 90 percent. At that level however the economy cannot be frozen, since the capitalists, faced

with their desired level of capacity utilization will make positive investment, and the economy will start growing. In fact, it can be seen that the government will be unable, through a policy of running a fiscal deficit, to freeze the economy at any level of capacity utilization other than where the spontaneous operation of capitalism would have frozen it. i.e. at 40 percent capacity utilization in the above example (in which case of course the fiscal deficit has to be zero for such freezing). This is obvious from the fact that such freezing requires that $I/K = 0$, and this is not possible from (I) unless $D = 0$. Hence if, when it is faced with growth at full employment, the government wants to cut back on the fiscal deficit, and keep cutting it back with the objective of freezing the economy, then the level of unemployment will keep increasing, until the economy finally gets frozen with 55 percent unemployment (according to the numerical values given in the above example).

Of course the government may not run a fiscal deficit at all, but may tax capitalists to balance its budget, in which case capitalists' profits in any period once again become equal only to the sum of their consumption and investment. In such a case it may be thought that the stationary trend experienced with 40 percent capacity utilization would continue even when the actual capacity utilization is 90 percent, i.e. even when the economy is at full employment, without upsetting equation (I*) in any way.

Let us, for argument's sake, accept this proposition formally (even though some alternative, but not unrealistic, reformulation of the investment function may rule this out). Nonetheless there would be four obvious problems with this policy. First, it would entail heavy taxation of capitalists which they would resent and resist. In the above example, 55 percent of profits of full employment would need to be taxed away (since with a capital stock of 100, full employment output would be 30 pre-tax profits 15, and post taxes profits $20/3$, which is $1/15^{\text{th}}$ of 100 and just equal to capitalists' consumption).

Secondly, government expenditure which would happen in every period must be for some purpose, and the only purpose can be transferred payment to the

workers (for even the stock-piling of military equipment has its limits), Capitalists would be averse to any government policy that taxes away 55 percent of their profits, no matter what its end-use; but they would be particularly opposed to a policy that taxes away their profits to subsidize the workers.

Third, even if government expenditure is used not for subsidizing the workers through transfer payments but for an piling up armaments, even then the very maintenance of full employment would be armaments for the capitalists, since full employment, or any state close to it, undermines the control of capital over labour. ("Workers get out of hand" is how the matter is expressed in the language of the capitalists).

And finally, even if all these problems are overcome, and the capitalist economy is frozen at full employment through a balanced budget whereby government expenditure for the maintenance of full employment is financed through a tax on profits, any chance deviation of the economy from this position would give rise to a cumulative movement away from it. In particular a chance increase in growth would disturb the economy's stationary. What is more, even if we assume that when this happens, the government through its fiscal instruments manages to lower the growth rate of the economy and brings it back to the original state from where the chance deviation had taken place, even then ecological damage would continue for the following reason. There is an asymmetry such that while growth makes demands upon the ecology, a fall in output does not undo the damage. For instance, while growth may lead to deforestation, a reduction in output does not lead to reforestation. Hence alternative movement of booms and slumps have a cumulative damaging impact on the ecology.

Meaning an economy conform to social rationality, which is what confronting the challenge of the ecological crisis amounts to, requires therefore that it should be liberated from "spontaneity", and this is possible only with the abolition of large-scale private ownership of the means of production, Social rationality can be exercised only with social ownership of the means of production, at least of the means required for large-scale production. Such social ownership is the essence of the conception of socialism.