are points which correspond to a rate of interest equal to n (except the point $(1,0)$, where the rate of interest is indeterminate).

Before leaving this part of the discussion, let us consider the problem of decentralization. It is clear that the distribution schemes discussed above (whether stationary or not) are not, in general, attainable by having each individual act on his own in a decentralized fashion. Indeed, the only distribution schemes which are attainable with each individual acting on his own through the (inactive) market are distribution schemes for which

$$\left.\begin{array}{l} C_t^1 \leqq 1 \\ C_t^2 = 0 \end{array}\right\} \text{for all } t.$$

Among these the only efficient scheme is given by $C_t^1=1$ and $C_t^2=0$ for all t, which also happens to be a stationary scheme. However, this is obviously not (in general) the scheme that individuals would pick, among all stationary schemes, if they had the choice. Thus, as Samuelson points out, we have here an example in which decentralized (competitive) behavior fails to lead to an optimum. This conclusion can be sharpened considerably if one drops the assumption that output is nondurable (see sec. VI below).

V. CONSTANT RATE OF INTEREST PATHS

In the foregoing section we have seen that the rate of interest is constant along every stationary path. We now ask whether every efficient path along which the rate of interest is constant is, in fact, stationary.

Constancy of the rate of interest means that there exists a real number r such that

$$C_t^1+\frac{C_t^2}{1+r}=1 \text{ for all } t.$$

Now, feasibility and efficiency of the distribution scheme mean that

$$C_t^1+\frac{C_{t-1}^2}{1+n}=1 \text{ for all } t.$$

Subtracting the latter from the former and rearranging leads to

$$\frac{C_t^2}{C_{t-1}^2}=\frac{1+r}{1+n}.$$

Since C_t^2 is bounded by

$$C_t^2 \leqq 1+n \text{ for all } t,$$

we find that the only rate of interest which can be constant for all $t=0,\pm1,\pm2,\ldots$, is the rate $r=n$, which, indeed, corresponds to a stationary scheme.

However, if we only require the rate of interest to be constant from some point on, say $t=0,1,2,\ldots$, then we find that $r \leqq n$ is possible, while $r>n$ is not.[4] If $r<n$ then as $t\rightarrow\infty$, C_t^2 tends to 0, and, therefore,

[4] Similarly, if the rate of interest is required to be constant *up* to some point, then $r \geqq n$ is possible, but $r<n$ is not.