THE QUESTIONS WE ASK

The problems we shall be dealing with concern economic efficiency. More precisely we shall examine whether the proportion in which labour and capital are combined in the design and operations of individual fishing vessels is efficient when related to the social opportunity cost of these factors. Furthermore we shall consider returns to scale; that is, whether the design and operations of the fishing vessels is such that economies of scale, to the extent they are present, are fully utilized.

As is well known from economic theory, a socially optimal combination of factors which are substitutes in production requires that the ratio of their marginal products is equal to the ratio of their social opportunity costs. That is,

$$\frac{\text{MP}_L}{\text{MP}_K} = \frac{w^O}{r^O}$$

(1)

where MP denotes marginal product, L and K are subscripts denoting labour and capital, and \(w^O\) and \(r^O\) are the social opportunity costs of a unit of labour and capital respectively. With regard to scale efficiency this requires that the size of all production units be so determined that the scale elasticity of output is equal to one for all units, as it is then impossible to increase the output obtained by a given set of inputs by altering the number of units of production.

Is there, then, a presumption that the efficiency condition (1)
will or will not be satisfied in the fishery? Again economic theory tells us that it will be satisfied in a competitive market economy without market failures of any sort\(^{(1)}\). There is one particular market failure of interest in this context which we suspect to prevail in the fishery. Norwegian fishermen have access to cheap credit from a public bank set up for the purpose of financing the construction of fishing vessels, so one would expect that the cost of capital, as it appears to the fishermen, will be lower than the social opportunity cost of capital - that is, the value of the marginal product of capital in its best alternative use. As to the private opportunity cost of labour, we must take into account that the remuneration of Norwegian fishermen is determined not by a wage rate but by a share in the value of the vessel's catch. This implies a certain resemblance with the labour-managed firm. In that case, the relevant private opportunity cost of labour to consider in a long run equilibrium analysis is the one at which there are no incentives either to enter or leave the fishery. As a first approximation it is not unreasonable to set this opportunity cost equal to "the" wage rate outside the fishery, disregarding the details of different individual preferences, etc. Since private opportunity costs rather than social opportunity costs determine which particular combination of factors will be chosen by individual entrepreneurs, the right hand side of Equation (1) must be replaced by the ratio of private opportunity costs \(w/r\). Taking the wage rate outside the fishery as representing the social opportunity cost of labour \(w=w^o\) and considering our argument that \(r<r^o\), we obtain the following characterization of the long term equilibrium in the fishery:

\[
\frac{MP_L}{MP_K} = \frac{w}{r} > \frac{w^o}{r^o}.
\]  

According to the law of diminishing returns, which says that the marginal productivity of one factor relative to that of another will increase if its use is decreased relative to the other, we may therefore expect that less labour tends to be used in the fishery relative to capital equipment than is warranted from the point of view of economic efficiency. We will refer to this later

\(^{(1)}\) That this will occur as a result of the maximization of profits by capitalistic firms taking the prices of all commodities and inputs as fixed parameters is a theorem presented in every introductory textbook on economics. What is less widely known is that this will be the result as well in an economy consisting of labour-managed firms maximizing the remuneration per employee, provided entry is free and that no industry operates under decreasing returns. See\(^5\), pp. 27-41.