PRICE FIXING ABOVE COMPETITIVE EQUILIBRIUM

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PRICE FIXING ABOVE COMPETITIVE EQUILIBRIUM

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This paper intends to make a modification of the following familiar diagram:

![Diagram of supply and demand]

that is, a purely competitive industry constrained with a price fixing, with the price \( \bar{p} \) fixed above its market-clearing level \( P_c \). This paper argues that the surplus IK shown in the above diagram can not be sustained over time; since the industry will not supply a quantity as much as \( \bar{p}K \), incurring a marginal cost \( MC = \bar{p} \) yet finding that they really are not able to sell all of the quantity \( \bar{p}K \) to realize the \( \bar{p} \) for each of the units they have produced. But the industry will not supply so few units as \( \bar{p}I \), either; since the now realizable unit price \( \bar{p} > MC \) and thus there is an incentive for each firm to supply more in order to maximize its profit. From the above two considerations, we see that \( \bar{p}K \) is too much and yet \( \bar{p}I \) is too less; thus, intuitively, the equilibrium state can only be settled somewhere between points I and K.
So we are searching for a point \( J \) lying between \( I \) and \( K \), or in other words,

\[
\frac{\bar{P}_I}{\bar{P}_K} < \frac{\bar{P}_I}{\bar{P}_J} < \frac{\bar{P}_I}{\bar{P}_I} = 1.
\]

This proportion \( \frac{\bar{P}_I}{\bar{P}_J} \) should serve as the probability for each unit to be sold in the market, because of the assumption of homogeneous product from pure competition. It then follows that \( \bar{p} \cdot \frac{\bar{P}_I}{\bar{P}_J} \) is the expected unit price (i.e., expected average revenue) \( \bar{p} \) for each unit produced. Furthermore, this expected average revenue \( \bar{p} \) should also be the expected marginal revenue; since -- as firms in free pure competition perceive their individual variations of the quantity supplied not to influence the market-determined price, so do competitive firms under price fixing \( \bar{p} \) perceive their individual variations of the quantity supplied not to influence the market-determined proportion of quantity sold to quantity supplied \( \frac{\bar{P}_I}{\bar{P}_J} \); i.e., firms take \( \frac{\bar{P}_I}{\bar{P}_J} \) as given and see \( \bar{p} \cdot \frac{\bar{P}_I}{\bar{P}_J} = \bar{p} \) both as the expected average revenue and as the expected marginal revenue for each unit they produce. As such, the equilibrium condition is \( \bar{p} = \bar{p} \cdot \frac{\bar{P}_I}{\bar{P}_J} = MC \) (which, as usual, is a function of the quantity supplied \( \bar{P}_J \)). In other words, we want to solve the equation \( \bar{p} \cdot \frac{\bar{P}_I}{\bar{P}_J} = MC(\bar{P}_J) \) for \( \bar{P}_J \). That particular \( \bar{P}_J^* \) is the equilibrium industry quantity supplied, with the resultant \( \bar{P}_J^* = \bar{P}_J^* - \bar{P}_I \) being the equilibrium market excess supply.

Now, in addition to the above algebra, the geometry of determining \( \bar{P}_J^* \) from \( \bar{p} \cdot \frac{\bar{P}_I}{\bar{P}_J} = MC(\bar{P}_J) \) could also be done as follows:

Transposing \( \bar{P}_J \) to the other side of the equation, we have \( \bar{P}_J \cdot MC(\bar{P}_J) = \bar{p} \cdot \bar{P}_I = \) the fixed total market revenue due to the price fixing. This suggests that we draw a rectangular hyperbola starting the point \( I \); this 'effectual demand curve \( D' \) will intersect the industry's supply curve \( S \) at a point \( H \), which will determine \( \bar{P}_J^* \). That is,
The above analysis is attributed to the existing rich airline studies.

Following Yance [2], the equilibrium condition for a carrier under price regulation $\bar{p}$ is that $\bar{p}$ = the marginal cost seat sold = \[\frac{MC}{\frac{\partial D}{\partial S}}\] (marginal load factor)

\[= \bar{D} \text{ (the average load factor)} \times (\frac{S}{D} \cdot \frac{\partial D}{\partial S}) \text{ (the capacity elasticity of demand)}\]

For an oligopolistic industry, due to the mutual dependence recognized, \(\frac{S}{D} \frac{\partial D}{\partial S} < 1\).

But for a purely competitive industry (without mutual dependence recognized), \(\frac{S}{D} \frac{\partial D}{\partial S} = 1\), that is, the individual carrier takes the observed average load factor \(\frac{D}{S}\) as given and believes that its incremental quantity supplied \(\Delta S\) will bring about a proportional increase in \(\Delta D\), i.e., \(\frac{\Delta D}{\Delta S} = \frac{D}{S}\) (Schmalensee [1]).

Hence, $\bar{p}$ \(\frac{D}{S}\) = MC, which is the concluding point of the above analysis.

Finally, we note that, like any other proposition of a static equilibrium point, no dynamic discussion is made here.
REFERENCES
