CHAPTER 8

Market Power and Market Price

8.1 THE REASONS FOR AN ANALYSIS OF MARKET POWER

In neo-classical theory prices operate on exogenous conditions of supply and demand to allocate resources both within the firm and in markets. There are compelling reasons to reject this view in the present theoretical analysis.

One reason I have discussed at length in chapters 2 and 3. It is that neo-classical theory rests on the assumption that firms are characterized by exogenous production functions, whereas the aim of business strategy is to change the relationships which the production function describes.

In addition, we have seen in the three preceding chapters that firms will be subject to inducement effects to alter market relationships when the institutional structures of markets adversely affect the survival prospects of the firm, or when they are incompatible with strategies of growth and diversification to which the management team of the firm is committed. The changes in the institutional composition of the market might be effected by vertical integration in production or exchange or by goodwill competition (such as advertising directly to households) which reduces the influence of a firm's immediate customers (such as wholesalers or retailers) upon the strength and composition of demands for the firm's outputs. Any of these strategies will, if successful, alter the conditions of demand and supply faced by the firm — conditions which are represented in
neo-classical analysis by exogenous demand and supply functions.

Furthermore, the neo-classical assumption that price competition dominates the competitive process is rejected here as a universal truth in the light of the argument developed in chapter 4 that price competition creates uncertainty without limit, whereas goodwill competition generates only limited uncertainty and might actually reduce it.

The rejection of the neo-classical theory of price and output determination is costly. There is no complete and coherent general theory available to replace it. Moreover, a theory of the firm which has nothing to say about price and output determination is clearly deficient. For these reasons it is imperative to develop an alternative theory of price and output determination which is compatible with the theory of business strategy developed in this book. Unfortunately, the development of such an alternative theory is beyond the scope of this book and its limitations on length. I therefore leave the complete exposition of such a theory to another place. It is none the less possible to outline the essential features of such a theory.

It is hardly necessary to start from scratch in this development, for Eichner (1973, 1976) and Wood (1975) have, apparently independently, developed a theory of the profit margin which, once production and selling costs are known, yields supply prices. The problem with this theory is that it is limited to oligopolistic markets in which there is an undisputed price leader. In such cases one firm sets the market price on the basis of its own needs and expectations. Clearly, if the needs of different firms in an industry differ, and if their management teams do not share common expectations, the price leader must have some sort of power to ensure that competitors follow his pricing decisions. It might be that no one firm has the power to exercise price leadership or that, if there is a concentration of power in the market, it might lie on the demand rather than the supply side. How can we know which will be the case? In order to know this, and therefore to have clear conditions of applicability of the Eichner-Wood theory or any other
theory of price and output determination, we require an
independent analysis of market power. But first we require
a clear definition of that concept.

8.2 AN ECONOMIC DEFINITION AND ANALYSIS OF
MARKET POWER

Market power will be defined here as the ability to inflict
unacceptable consequences upon competitors, suppliers
and/or customers. Now, consequences which are unaccept-
able to one management team might be tolerable to another.
The threshold of acceptability is likely to depend upon the
strategy adopted by each particular management team and
its strength of commitment to the strategy it has chosen.
It follows from the weak assumption of managerial motiva-
tion, however, that consequences which threaten the survival
of the firm will be unacceptable to any management team.
Since survival requires the maintenance of positive net cash
flows on average over time, it will be consistent with the
previous analysis of this book to identify market power
with the ability systematically to eliminate the positive net
cash flows of competitors, suppliers and/or customers in
so far as that cash flow derives from, or depends upon,
activities in the markets in which the holder of market
power trades.

We have already seen several ways in which a firm can
exercise market power. One example is the advertising of
branded consumption goods directly to households, so
that final purchasers specify the outputs of particular manu-
facturers. If, as a result, consumers give their custom only
to retailers who stock the products of the advertising manu-
facturer, then the retailer who does not stock those products
will lose sales. If the loss of sales has an adverse effect on the
retailer's cash flow, then the manufacturer can refuse to
sell his outputs to retailers who do not conform to prices
established by the manufacturers — both the prices at which
the retailer buys those outputs and the prices at which he
in turn sells them. If the retailer's customers give him their
custom in order to secure economies of joint exchange, or if
the retailer's sales are made up largely of a commodity or group of commodities the prices of which are set by the same sellers, then the loss of cash flow, should they refuse to supply him, could indeed be devastating. It would in any case reduce the available finance of the retailer, thus limiting the incomes of the owners or the ability of the firm to grow and diversify. To the extent that any of these consequences is unacceptable to the retailer, the manufacturer holds market power over him.

This sort of case is by no means fanciful. Until resale price maintenance was made illegal, to all intents and purposes, by Act of Parliament and decisions of the Restrictive Practices Court, refusal to supply retailers was a principal means by which manufacturers ensured that retailers did indeed maintain the prices set by the manufacturers. And attempts by manufacturers to prevent price competition among retailers by this same means are hardly unknown since the practice has been illegal.

Technological and financial bases of market power

One means of curtailing the cash flows of customers, suppliers and/or competitors is by restricting their throughputs. This is done by restricting the availability of inputs required by customers or the rate of sales and hence outputs produced by suppliers, or by restricting competitors' inputs or outputs. It is clear from the discussion in chapter 7 that the effect of any restriction on cash flow will be greater the higher the operating leverage of the firm of which throughputs are reduced. In other words, restricting outputs by any means — including the restriction of necessary inputs — imposes shortage costs which certainly limit the finance available to follow strategies of growth and diversification and which might actually threaten the survival of the firm.

A second means of curtailing cash flows is the raising of input prices and the lowering of output prices. Either of these price changes increases break-even outputs and therefore operating leverage. The greater the initial operating leverage, the larger will be the proportional effect on cash flows from any increase in input prices or reduction in
output prices. Of course, it is always possible that one or the other of these price changes could increase direct unit production costs or lower unit revenues to such an extent that direct costs exceed revenues for any feasible output. In such cases, continued production for any appreciable period of time becomes wholly uneconomic.

It follows that market power is more readily acquired by a firm if its suppliers, customers and/or competitors produce subject to considerable operating leverage than if the operating leverage of each of these firms is slight. For the greater the operating leverage of any firm, the greater will be the proportional impact on its cash flow of any curtailment of throughputs or any adverse changes in the prices of inputs and outputs.

Although high degrees of operating leverage encourage concentrations of market power, it by no means follows that there will be concentrations of power in all markets in which traders are subject to such operating leverage. For it is of the essence of power that its holder should be able to exercise it without himself incurring unacceptable consequences.

There are two sets of conditions which are sufficient for there to be a concentration of power in a market. The first is that there should be a concentration of financial strength and, in the long run, differential production and/or selling cost efficiencies. The second condition is that there should be substantial buyer or seller concentration in the market.

Consider the first set of conditions. It will be convenient to take the case of a price leader as an example here.

How does a firm maintain its position as price leader? Surely it is by threatening, perhaps implicitly, to undercut the prices of any other firm in the industry which deviates from the leader's price? Now, such a threat must be credible, and it will be credible only if the leader is known to have the capacity to reduce prices below the production costs of any other firm in the industry for a longer period of time than could the other firms in the industry. At the same time, the price leader must meet all of the demands which its lower prices attract.
If the financial strength of the price leader is far greater than that of any of its competitors, then that firm could hold its prices below its own costs of production if that were necessary to squeeze the demands of its competitors or to reduce the prices they could get for their own outputs below their own costs of production. That is, if the price leader is no more cost-efficient than its competitors, it must have sufficient financial reserves or borrowing capacity to suffer negative cash flows over a longer period of time than the financial strengths of its various competitors would allow them to do.

Alternatively, the price leader might simply be far more efficient than any of its competitors, in the sense that it produces and sells at lower unit cost. In that case the price-leading firm could shade its prices so that they were below its competitors' unit costs while the price leader continued to generate gross profits, albeit at a reduced rate. However, superior efficiency is not itself sufficient to enable a firm to claim the mantle of price leadership.

It is quite possible, for example, for a new firm to be established in an industry with scant financial resources but with the most advanced and efficient plant and equipment. The unit costs of such a firm could well be the lowest in the industry, since its competitors will require to operate at least some older and less technically advanced equipment in order to meet the level of demands required to maintain goodwill with their customers. If the new, small, poor firm were to set its prices above those of established firms, it could hardly expect to gain a foothold in the market. If it were to set its prices below those of the established firms, they would very probably have the financial reserves to cut their own prices below unit costs for the short period of time necessary to force the new, relatively efficient firm into bankruptcy. A firm which can lead prices neither up nor down is hardly a price leader.

If the foregoing line of argument is right, the market power necessary to exercise price leadership certainly requires some concentration of financial strength in the hands of the price leader and is enhanced by relative efficiency in production and exchange. But while in the short run financial
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strength is a necessary and sufficient condition for market power, efficiency is neither necessary nor sufficient.

In the long run, however, one would expect the relatively efficient firm to increase its financial strength in relation to that of less efficient firms — provided that it can remain in business. The essential point here is simple mathematics.

In any industry in which all firms set or accept the same prices, any firm with a higher profit margin must incur lower unit costs than a firm with a lower profit margin. In this circumstance, the higher the profit margin, the more efficient the firm. The point to be demonstrated here is that the most efficient firm can generate financial strength faster than any other firm (by financial strength I mean size of liquid reserves relative to normal outputs, together with untapped borrowing capacity). The borrowing capacity of a firm is typically related to the value of its net assets or net worth, since lenders usually impose some limit to financial leverage or gearing. Thus, it will be legitimate to identify untapped borrowing capacity with low financial leverage.

If the net profit margin is \( \pi \), the output price \( p \) and output flow \( Q \), net trading profits in any period are \( \pi p Q \). If net increases in debt are \( F \), the total sources of funds for the firm are \( \pi p Q + F \), ignoring any non-trading income. The uses of funds are profit distributions as interest and dividend payments together with investment expenditures. If the cost of increasing production capacity by one unit is \( v \), the value of net investment is \( v \Delta Q \). If \( s \) is the net retention ratio of the firm, profit distributions are \( (1 - s)\pi p Q \). The firm's uses of funds then will be \( v \Delta Q + (1 - s)\pi p Q \). The net cash flow — the excess of sources over uses of funds — will be

\[
Z = s\pi p Q + F - v \Delta Q \tag{8.1}
\]

In order to consider the effect of efficiency on financial leverage, it will be best to relate net increases in debt to profit retentions. For this reason, I define \( f = F/(s\pi p Q) \) so that \( f \) is the marginal financial leverage of the firm. Substituting this definition into expression (8.1), we have

\[
Z = (1 + f)s\pi p Q - v \Delta Q \tag{8.2}
\]

Dividing through by \( Q \),
\[ z = (1 + f)s\pi p - vg \]  
(8.3)

where \( z = Z/Q \), cash flow per unit of output, and \( g \) is the rate of output growth. Solving for the price of output,

\[ p = \frac{z + vg}{(1 + f)s\pi} \]  
(8.4)

Now let us compare two firms, labelled 1 and 2, of which one is the price leader and the other a follower. The price \( p \) will therefore be common to both firms. Let firm 1 be the follower but technically more efficient than the price leader, firm 2. There will be an equation such as (8.4) for each of these firms, in which \( p \) takes the same value although no other variable need do so. Eliminating \( p \) from these two equations, we have

\[ \frac{s_1 + v_1g_1}{(1 + f_1)s_1}\pi_1 = \frac{s_2 + v_2g_2}{(1 + f_2)s_2}\pi_2 \]  
(8.5)

Since firm 1 is more efficient by assumption, \( \pi_1 > \pi_2 \), from which it follows that

\[ \frac{(1 + f_1)s_1}{s_1 + v_1g_1} < \frac{(1 + f_2)s_2}{s_2 + v_2g_2} \]  
(8.6)

Apart from the implicit assumption that the cost of the productive equipment of each firm grows at the same rate as its outputs, condition (8.6) is derived entirely from definitions. It therefore specifies nothing other than quantitative relationships and absolutely nothing about behaviour. For this reason, my comments about this inequality are not conclusions but merely a starting-point for the discussion of efficiency and financial strength in the long run.

Provided that firm 1 is more efficient in production than firm 2, inequality (8.6) implies that at least one of the following must be true.

(a) Firm 1 grows faster than firm 2 \( (g_1 > g_2) \).
(b) The financial leverage of firm 1 is lower at the margin than the financial leverage of firm 2 \( (f_1 < f_2) \). Thus, the leverage of firm 1 is falling relative to the leverage of firm 2.
(c) Firm 1 holds a rising proportion of its assets in liquid form relative to the proportion of liquid assets held by firm 2 \( z_1 > z_2 \).

(d) Firm 1 retains a lower fraction of trading profits than firm 2 \( s_1 < s_2 \).

(e) Although more efficient in production \( (\pi_1 > \pi_2) \), firm 1 is less efficient in investment than firm 2 \( (v_1 > v_2) \).

(f) None of the above. It is simply that the ratio of internal and external finance to costs (the numerator) divided by the value of liquid and real assets per unit of current output is smaller for firm 1 than for firm 2.

Of these six possibilities, the last seems least likely on economic grounds if firm 1 is seeking security of survival — that is, if the weak assumption of managerial motivation is true. For the firm would have to choose to grow more slowly and to increase its financial leverage more quickly, in part by choosing to keep its internal finance small and giving away its liquid financial assets. This is mathematically possible but, at the same time, it is strategic lunacy.

Of the remaining five relationships, some are likely to be important and true in some markets and others in other markets. I can see no reason to postulate that one scenario is more likely than any other or to suggest that any will be universally applicable. But, apart from inefficiency in investment, all of the five economically sensible relationships above will increase the power of the efficient firm 1 relative to the inefficient firm 2. Consider one example of what could happen.

It is typical for small but successful firms to grow at a very high rate early in their lives and to do so with high financial leverage and profit margins. As they increase their market shares, however, such firms attract the attention of the management teams of large, established firms. If the established firms do threaten their newer and financially weaker brethren, the latter might well accept whatever market share they have already attained and reduce their growth rates to the same level, on average, as that of the market, thereby to stabilize their market shares. Thereafter, the owners of such firms could take profits out of their firms as profit
distributions or reduce their financial leverage while, at the same time, building up stores of financial reserves. Alternatively, they could diversify into other markets. But as long as the management teams of the more efficient firms are growth-oriented — so that they do not simply seek the quiet life financed by high profit margins — their real and/or financial assets will continue to grow and, therefore, their market power will continue to be enhanced. Once such a firm has the untapped borrowing power resulting from low levels of financial leverage and the liquid resources and production capacity to withstand price cutting by the established industry leader, it can cease to hold its outputs at levels that the established leader dictates or to follow it in setting prices. At that stage, the locus of price leadership, or, more generally, industry leadership, will be uncertain. Eventually, the faster growth of the financial strength of the more efficient firm should enable it to take on the undisputed mantle of the industry leader.

Concentration and market power

I suggested above that, in addition to financial strength and efficiency, buyer or seller concentration is necessary if there is to be a concentration of power in the market. For if a firm accounts for a very small proportion of sales in a market, it can hardly threaten the survival of either its competitors or its customers. The customers of such a firm — no matter how efficient and financially strong it might be — could spread their custom among other suppliers in the event of a price rise or a refusal to supply. The other suppliers would thus face a small proportional increase in demands. Unless the industry is in the midst of a boom in demand, other firms are likely to be able to meet these relatively small increases in demands either by operating plant and equipment more intensively, or by running down stocks, or by re-ordering their customers who are queueing for future outputs, or by allowing the queues to lengthen slightly. Thus, a firm which tried to lead prices upwards would have little power to force its customers to accept price rises unless its market share were so large that
its refusal to sell would lead to substantial excess demand at any lower price. Moreover, if a small firm were to reduce its prices, then, even if it had unlimited financial resources and superior cost efficiency, unless it also had substantial production and sales capacity so that it could meet a substantial proportion of the demands previously going to other firms, those other firms would not suffer serious reductions in demands and cash flows in the short run. In the long run, however, the financially strong and cost-efficient firm could grow more quickly than its competitors, thereby obtaining the production and sales capacity required to exercise market power. In other words, the growth of such a firm would be tantamount to the creation of seller concentration.

The effect of buyer concentration is symmetrical to the effect of seller concentration. The firm accounting for a large proportion of demands for a commodity is able to create substantial excess supply in the market either by curtailing its own throughputs for a period of time or by integrating backwards in production. Alternatively, the concentrated buyer can give its custom selectively, refusing to buy from firms that do not accept the buyer’s prices. If there is substantial operating leverage in the production of the commodity and/or the buyer has greatly superior financial strength than the sellers, the survival of the sellers will be threatened before that of the buyer. This is the essence of market power. The third tactic, selective allocation of custom by the concentrated buyer, can take several forms.

One of these forms is obvious. The buyer simply engenders price competition among the sellers in the market. Since the reward is clear and can virtually be guaranteed by the buyer, individual sellers will face stronger temptation to cut prices than in less certain circumstances in which each seller tries to undercut the competition without any guarantee of the custom of particular buyers. The additional demand generated by a price cut which is not determined by a concentrated buyer could be lost when competitors meet the lower price.

A second means by which concentrated buyers can secure low prices involves an elaboration of the first. I know of
several cases in which a large buyer has offered a small producer a contract to buy all of the producer's output for an extended period of time at, perhaps, a generous price. In consequence, the producer gives up his goodwill relationships with other buyers in order to satisfy the contract. When the contract expires, the buyer offers a new contract at a price which is well below the prevailing market price. The seller who does not accept this price is left with plant and equipment and no demand, since the buyer can always place his custom elsewhere. If the producer is subject to considerable operating leverage, he will have little choice but to accede to the new and unfavourable terms if the firm is to survive.

Effects of an absence of market power

The foregoing arguments imply that industries in which production processes do not typically involve high degrees of operating leverage are not likely to have an undisputed industry or price leader, simply because there will not be much market power to be concentrated in one firm even if one is relatively wealthy. In such markets firms will still seek to avoid price competition because of its uncertainty-creating effects. The means by which price competition is avoided in the absence of a price leader are various. Often, manufacturers' and traders' associations will be the vehicles for price-fixing agreements. Competitors who are members of these associations simply meet and agree upon prices or, if commodities are not highly standardized, they might agree on common mark-ups on costs, or they might notify one another of bids for individual contracts. Often, trade associations act as clearing houses for information which is germane to the pricing decision. Such information includes costs, costing procedures, current mark-ups or prices, information about market conditions and the like. In countries with legislation prohibiting price agreements or other restrictive practices, the activities of trade associations often provide the means for evading the provisions of such legislation. The role of trade associations in price competition avoidance in the United Kingdom has been well and fully discussed by O'Brien and Swann (1968).
With no concentration of market power in an industry, arrangements for the avoidance of price competition are unstable, since no effective policing of arrangements can be entered into by more or less equal competitors. While all producers collectively will be better served if none of them engages in price cutting, every competitor will have an incentive to cut prices secretly — perhaps by giving secret discounts off list prices — in order to increase market shares. As I have pointed out, however, such discounts are unlikely to remain long unsuspected, since a sudden, unexplained increase in the market share of any one firm will lead immediately to suspicion of price cutting.

8.3 MARKET POWER AND OPERATING LEVERAGE: TWO EXAMPLES

It will lend concreteness to these arguments if we consider two industries in similar circumstances at much the same time except that in one of them production involved batch processing with scant operating leverage, and in the other indirect production costs were very substantial in relation to total costs, so that operating leverage was significant.

The batch-processing industry is the British soap industry. In that industry Unilever and Lever Brothers have at one time or another held a market share of up to 60 per cent, but neither one of these, nor any other firm, has ever been able to exercise clear and undisputed leadership in pricing or any other competitive practice. This has not been for want of trying.

In 1867 the Soap Makers' Association was formed with the intention, in part, of regulating prices and of ensuring that no members' prices were changed unless all members acted in concert. By 1893, however, the chairman of the association, W. D. Knight, complained that the 'history of our Association is a history of exploded agreements' (Edwards, 1962, pp. 137–8). Lever entered the industry in 1885, and, by spending large sums on advertising his branded product directly to households (whereas other producers sold effectively unbranded soap through wholesalers),
he quickly became the largest manufacturer of soap products in the United Kingdom. However, after a time other producers began imitating Lever, and competitive selling expenditures took on a momentum of their own. Although they were not ruinous in the way that unbridled price competition might be, it is clear that Lever at least would have liked to get agreement among producers to reduce selling expenditures. He was never able to secure such an agreement to restrict what he considered to be excessive goodwill competition. And, indeed, episodes of competitive price cutting have not been unknown in the soap manufacturing industry.

The early experience of petroleum refiners in America was similar to that of British soap manufacturers. In 1872 they formed the National Refiners' Association, with John D. Rockefeller as its first president. The aim of the association was explicitly to stem falling prices and rising outputs in the industry. It was not long, however, before Rockefeller concluded that such associations were mere 'ropes of sand' and that other means must be found to control prices and outputs.

The means which Rockefeller found arose from the size of his refining operation. Rockefeller was able to obtain rate concessions from the railways which transported his petroleum by promising to ship a large minimum volume of refined oil per day. He then invited other refiners to share in this rate concession as part of a wider agreement including price and output control. As Chandler wrote of this episode, 'The control of transportation provided a weapon to keep out new competitors and a threat to prevent those who joined Standard from dropping out of the cartel' (Chandler, 1972, p. 321). But what made Rockefeller's arrangement a weapon or a threat? It is at least arguable that the very high operating leverage associated with the refining of petroleum rendered it impossible for refiners to survive for very long in the face of restricted inputs of crude oil or the inability to transport and sell refined petroleum products. Thus, by 1876 — within fifteen years of the inception of the American oil refining industry — Rockefeller and his associates controlled prices and outputs
for the whole industry. In 1881 they controlled nearly 90 per cent of American refinery capacity. This position was attained in part by pricing some competitors out of the market and in part by instilling fear in remaining competitors of the ability of Rockefeller's Standard Oil group to crush them at will.

If one is to look for differences between Lever's and Rockefeller's experiences in seeking to control competitive pressures in their respective industries, the differences in technology appear to be the most important. For both men entered highly fragmented industries in which individual firms operated in regional markets; both men were entrepreneurs of undoubted brilliance, who radically changed the characteristics of the markets in which they bought and sold. And yet Rockefeller was able to discipline and take over his competitors quickly, so that he came to control prices, production and the competitive practices in the market, a position which Lever and his successors were never able to attain. I suggest that the reason for this difference is that the threat to the survival of firms from a price war or from any action which restricts throughputs is far more immediate when firms produce subject to high operating leverages consequent upon high fixed costs than when they produce using low-fixed-cost plant and equipment. This was precisely the difference between the production technology of petroleum refining and that of soap manufacture.

8.4 MARKET POWER IN INTERMEDIATED MARKETS
AND THE NEO-CLASSICAL PARABLE

Production technology is a clear determinant of the magnitude of shortage costs, but it is not the only determinant. The technology of exchange is also important, and for precisely the same reasons. If exchange technology entails substantial indivisibilities in the short run and substantial economies of specialization in the long run, then if any economic agent is able to deny these economies to competitors, suppliers or customers, that agent can, as a result, reduce the cash flows of those firms.
I argued in chapters 5 and 6 that intermediaries will be able to function in a market only if they can enhance the cash flows of their customers and suppliers as a result of economies of scale in exchange. The other side of this coin is that an absolute advantage in exchange deriving from scale economies also gives the intermediary substantial market power. That is, if the intermediary can secure the advantages of scale economies in exchange, but neither his customers nor his suppliers can do so, then the intermediary will have the market power to set both his bid and offer prices and to control the volume of commodities traded in the market. For if the intermediary refuses to buy from or sell to agents who cannot secure economies of scale in exchange, these agents will incur far higher transactions costs than their competitors who buy from or sell to the intermediaries. Unless they can secure higher prices from their customers or pay lower prices to their suppliers in direct exchange — and this is exceedingly improbable in the long run — the firms with which intermediaries refuse to trade will suffer seriously impaired cash flows which, in the fullness of time, will drive them from the market.

The conditions in which intermediaries will have such market power are clear from the analysis of chapters 5 and 6. The commodities in which they trade will be compact, durable and standardized, and there will be a large number of producers and a large number of users of these commodities, none of whom is able to secure economies of large-scale exchange.

If there are producers or users of a commodity who trade on a scale approaching the minimum efficient scale in exchange, the absolute cost advantage of intermediaries will be less than when all producers and users are too small to secure significant scale economies in exchange. Evidently, the closer the customers and suppliers of intermediaries come to minimum efficient scale in exchange, the narrower must be the bid-offer price spread required to satisfy condition (5.6) of chapter 5. This condition ensures that producers and users will find intermediated exchange to have an absolute cost advantage over direct exchange.

As the transactions scale of a producer approaches minimum
efficient scale in exchange, he will be able to specify supply prices which will just fail to induce him to integrate forward in exchange and thereby to bypass the intermediary. This supply price will presumably depend upon the prospective returns from alternative investments but, in any case, will be sufficiently high to maintain the intermediary's comparative advantage in exchange. This is to say, as the scale of production and exchange of a seller increases relative to the exchange scale of the intermediary, the seller will be able to set increasingly higher prices, which the intermediary must accept if he is to continue to trade with such a seller.

Similarly, any commodity user who approaches or achieves minimum efficient scale in the purchase of a commodity will be able to set the intermediary increasingly lower prices, which the intermediary will require to accept in order to maintain his comparative advantage in exchange.

The restricted relevance of the neo-classical parable

One striking aspect of this discussion is that its conclusions regarding the locus of price determination in intermediated markets are identical to the neo-classical parables of price taking and price making, provided that the market is identified with the intermediary. For, according to the neo-classical parable, both buyers and sellers are price takers in competitive markets but, in imperfectly (or monopolistically) competitive markets the imperfectly competitive seller or the imperfectly competitive buyer will be the price maker. But the reasons for reaching this conclusion are quite different. In the neo-classical parable, the price maker is such because he faces supply or demand functions which are imperfectly elastic with respect to price. Whatever else such an economic agent can do, however, he cannot affect the conditions of supply and demand which he faces in the factor and product markets respectively. In the present analysis, firms can affect the conditions of supply and demand by integrating vertically in exchange, or they can eliminate independent supply and demand altogether by integrating vertically in production. Thus, market power in the neo-classical parable, if it can be
said to exist at all, turns on the mathematical representations of conditions of exchange faced in factor and product markets, these conditions being exogenous to the analysis. Market power in the theory of business strategy turns on technological characteristics of production and exchange which are endogenous to the analysis.

There is one further difference to be noted here. The neo-classical parable concerning the locus of price determination includes no clear statement of the conditions in which that parable can be expected to yield correct predictions. In the light of my comments in chapter 1, we must say that the parable does not specify its conditions of application or, therefore, of its generality. In the present theory, however, the same conclusions are deduced on the assumption that the commodities traded are compact, durable and standardized, as these terms were defined in chapter 6. For it is only in such markets that we would expect — or predict — that intermediaries could function and that market power could, therefore, be distributed as required to yield neo-classical conclusions regarding the locus of price determination.

8.5 THE EICHLER-WOOD THEORY OF PRICE

It is not sufficient for an analysis of price and output determination to know only who will set prices and outputs. One must also know the determinants of the time paths of price levels and output flows. In the present context, it is natural to turn for this to the Eichner-Wood theory of price because, like the present theory of business strategy, it has technology and investment at its centre. Equally important, the Eichner-Wood price theory rests on assumptions which are broadly compatible with those of business-strategy theory, although, we shall see, they are more restrictive.

In this section I shall do little more than to restate the Eichner-Wood theory. In the following section I shall specify the limits of its applicability and consider how prices and outputs are established when the Eichner-Wood theory is inapplicable.
In section 2.6 above, I argued that management teams will always prefer to finance investment internally rather than externally unless the cost of internal finance reduces the long-run cash flow of the firm by more than the cost of external finance. The reason is that, by comparison with external finance, internal finance renders the survival of the firm less vulnerable and makes take-over raids more difficult, thereby protecting the continued employment of the members of the management team. This view underlies the Eichner–Wood theory of price.

The prices with which Eichner and Wood were concerned were supply prices. These are the prices which management teams wish to set in order to cover the costs of production and to provide internal finance for investment. Conditions of demand are not independent of the supply price in this theory. These conditions enter into the determination of supply price in so far as firms’ managers have imaginary demand functions in their minds which represent their expectations of lost sales consequent upon price rises of various magnitudes. The expected conditions of demand are important in this context because they determine the extent to which firms will use output prices to generate internal finance for investment.

The essential idea here is that firms can generate short-run increases in sales revenues by increasing prices because the conditions of demand are typically inelastic in the short run. In the long run, however, conditions of demand are typically elastic. The reasons for this difference between long- and short-run conditions of demand were discussed in chapter 4. The effect is that firms can generate funds for investment now by raising prices, although there will be a cost to these funds through foregone sales revenues in the future.

The points are easily brought together by considering a simple time profile of demands.

In figure 8.1 the horizontal line $CC'$ represents the volume of sales which a firm has achieved at some price $p_0$, and, other things being equal, would continue to sell in the future. If, however, the firm were to raise its price by (say) 10 per cent, the sales volume of the firm would fall by (say) 20 per cent in the fullness of time. The likely shape of the
time path by which that lower sales volume is reached is represented by the curve CD.

As curve CD indicates, sales volume will fall slowly in the period immediately after the price rise. The reasons typically given for this are that customers will be bound partly by existing goodwill — if any should survive the price rise — and, perhaps more important, by the need to find alternative sources of supply or substitute commodities.

The length of time required to find lower-priced supplies will depend on the cohesion of the various producers of the
commodity. If there is a clear price leader, then all firms in the industry will raise their prices together, so that the only options available to their customers in the short run will be to pay the higher prices or to substitute other commodities. As far as non-durable consumption goods are concerned, substitution could take place quite rapidly— for example, apples for chocolate bars. In the case of consumers' durables, substitution is more difficult. If, for example, there is a rise in the prices of automatic washing-machines, any substitution by consumers must be from automatic washing in the home to automatic washing in a laundromat or hand washing. If my own experience and that of my acquaintances is anything to go by, the decision to purchase a consumers' durable such as a washing-machine is undertaken in response to rising discretionary incomes or wealth. A rise in the price of washing-machines might lead to the purchase of a cheaper, slightly inferior machine but it is unlikely to result in a decision to forego automatic washing in the home altogether. Such casual empiricism is reinforced by statistical findings that the variance in demands is explained more by incomes than by relative prices. As far as producers' goods are concerned, short-run substitution is an unlikely option because the inputs to production processes are determined by the characteristics of the outputs and the plant and equipment employed.

In the longer run, however, producers can alter the technologies they employ, in so far as these are embodied in new plant and equipment, and, as I discussed extensively in chapter 4, price rises can result in entry by additional producers into the market, thereby giving users of the commodity alternative sources of lower-priced supply which previously were lacking.

In summary, the length of time between the price rise and the rapid diminution in the sales volumes of price-raising firms will depend on the nature of the commodity, the adaptability of its users and the conditions of both actual and potential competition.

The effect of a price rise on the finances of a firm will evidently depend on the rate at which demand falls. Given the time profile of demand depicted in figure 8.1, the
The immediate effect of a 10 per cent rise in price will be an increase in the trading revenue of the firm of very close to 10 per cent. This increase is represented in figure 8.2. In that figure the horizontal line $EE'$ is the trading revenue the firm might expect, other things again being equal, if its prices were unchanged. With the price rise of 10 per cent, every unit sold generates 10 per cent more revenue, so that curve $FF'$, representing the time path of revenue after the price rise, is simply curve $CD$ from figure 8.1 raised by 10 per cent relative to the line $CC'$.

![Figure 8.2](image)

*Figure 8.2*

Time profiles of sales revenues with and without price rises

It is readily apparent in figure 8.2 that the price rise at time $t = 0$ will increase sales revenue for a while above the revenue which might have been expected in the absence
of the price change. The increased revenue will last from the
date of the price rise until time $t$ in figure 8.2. Thereafter,
sales revenue will be lower than $OE$, the flow of revenue
concerning the state, lower price, and it will continue
to fall relative to that revenue. That is, after $t$ the price-
raising firm will generate less revenue at each date than it
would have done at the price of the status quo ante. However,
the extra accumulated revenue generated by the price
rise until $t$ will be greater than the total revenue lost after
$t$ until $t^*$ in figure 8.2.

Provided that the direct unit production and selling
costs do not rise as outputs fall, the gross trading profits
of the firm will have been increased by the price rise over
the interval of time from $O$ until $t^*$. Thereafter, the accumu-
lated gross trading profits will be reduced. In other words, the
price rise will have increased the internal finance of the firm
until $t^*$ but will have reduced its internal finance thereafter.

Although I have conducted the discussion here in relation
to levels of output, it applies mutatis mutandis to growing
markets, in which case $CC'$ in figure 8.1 may be interpreted
as sales volume with the growth trend removed, while $EE'$
in figure 8.2 is sales revenue with the growth trend removed,
both in the absence of any price changes. $CD$ in figure 8.1
and $FF'$ in figure 8.2 then become, respectively, sales volume
and revenue after a price rise relative to the sales volume and
revenue in the absence of price changes. In a growing market
the price rise will increase trading profits more quickly than
a constant price until $t$, but they will grow more slowly
thereafter.

It is unlikely that a price rise will reduce the growth of
demands for a firm's outputs forever. If the effect described
here is at all general, one firm or a group of firms might
raise their prices today and, at some time in the future,
firms producing the substitutes to which the price raisers'
customers might turn will seek to expand their own pro-
duction capacities and, therefore, to raise their prices in
order to increase available internal finance. Indeed, a signifi-
cant shift to other commodities might require the producers
of those substitutes to invest in capacity expansion in order
to meet the increased demands. The extent of such responsive
price rises will depend upon the distribution of any substitution. It is to be expected most when that distribution is concentrated upon the outputs of a few firms. Even apart from such responsive price rises consequent upon any substitution effect, a general upturn in the level of economic activity will lead firms to increase their prices and profit margins in order to provide internal finance for the increased investment which brings about the upturn.

In terms of figures 8.1 and 8.2, rises in the prices of substitute commodities would shift all of the curves upward and, in particular, would reduce the effects of a price rise in diminishing cash flows.

Implicit rates of interest on internal finance

It would, of course, be ludicrous to suggest that firms do or should generate all of their investment finance internally. For, as Eichner (1973, 1976) has shown, there is a cost to internal finance which can be compared with the cost of external finance. If the cost of internal finance is much greater than the cost of external finance, any increases in internal finance will diminish the prospective cash flow of the firm, and so, if the weak assumption of managerial motivation is right, investment will be financed externally at the margin. Following Eichner, I define the implicit rate of interest on internal finance as that discount rate which renders the present value of the finance attributable to a price rise equal to zero. The rate of interest on a fixed-interest bond, of course, renders the present value of the interest payments and repayments of the principal equal to the value of the loan, so that the present value of the cash flow attributable to the bond issue is equal to zero if the rate of interest on that bond is the discount rate.

It is arguable that the implicit rate of interest on internal finance generated by price rises is greater as the price rise is greater. For larger price rises give a firm’s customers a greater incentive to seek either alternative sources of supply or alternative commodities. The cost in terms of goodwill rises with the extent of the price increase. Moreover, the greater the price increase, the more likely is it that a potential
competitor will be induced actually to enter the market. Thus, in terms of figures 8.1 and 8.2, the higher the price rise, the earlier and steeper will be the decline in curves $CD$ and $FF'$ respectively and the lower the level to which they will fall. As a result, the cumulative increase in cash flows resulting from the price rise would be eliminated before time $t^*$ and the subsequent cost in terms of future cash flows foregone would be greater.

The discount rate which will render the changes in cash flows attributable to the price rise equal to zero will be greater as the early benefits are smaller and the later costs are larger. This is in the nature of discounting, since the importance of early costs and revenues relative to later costs and revenues increases with the discount rate. Thus, to reduce the present value of larger but later costs to the present value of smaller but earlier revenues will require a higher discount rate or, in other words, a higher implicit interest rate on internally generated finance.

Eichner has encompassed the relationships involved here in a diagram of considerable elegance, which I reproduce here with minor changes in notation as figure 8.3. The horizontal axis in that diagram represents additions to the flow of finance during the period of time over which the investment projects for which the finance is required is to be implemented. The vertical axis represents the rate of interest on investment funds $R$ and the rate of return $r$ expected on planned investment projects.

Curve $OF_i$ relates the implicit interest rate on internally generated additional finance to the flow of that finance during the investment period. It rises at an increasing rate for the reasons discussed above. The horizontal line $iF_e$ relates the interest rate on external finance to the net increases in debt. Presuming that the firm faces a given interest rate in the financial markets $Oi$, the curve $iF_e$ will be a straight, horizontal line. As long as the implicit interest rate on internal finance is less than the market rate of interest, firms will generate internal finance by raising prices. Once the implicit interest rate on internal finance exceeds the market rate, firms will begin to borrow. The implicit internal rate of interest is less than the market rate until the flow
of finance generated internally is $OF^*$ in figure 8.3. Any further finance which might be required will be borrowed.

Eichner determines the financial requirements of the firm from the marginal efficiency of capital schedule. If managerial ambition is weak and expectations pessimistic, then we might expect a marginal efficiency of capital schedule such as $II$ in figure 8.3. With such ambition and expectations held by the management team, the firm will require additional finance $OF'$. This is raised relatively easily by a price rise at an implicit interest rate $OR$, which is less than $Oi$, the market rate of interest. A more ambitious and confident management team will have a marginal efficiency of capital schedule such as $I'I'$. This firm will raise its prices in order to generate increased finance $OF^*$.
internally and will borrow $F^*F''$ at the market rate of interest.

According to this view, it is not the price level that is important to the firm but rather changes in prices. These price changes are determined by the financial requirements of the firm in following its investment strategy while taking competitive effects of such changes into account. Although this view is entirely compatible with the theory developed in this book, it does not go far enough because it takes no explicit account of uncertainty. This, however, is easy enough to do.

For one thing, we note that the implicit rate of interest on internally generated funds is uncertain in much the same way that the rate of return on investments is uncertain. An optimistic management team, which is confident in the strength of its relationships with its customers, will expect the implicit rate of interest on internal funds to be less than will be expected by more diffident and pessimistic managements. The same optimists are more likely than the pessimists to undertake the investments in the first place. In effect, the 'animal spirits' of the management team will determine the position in figure 8.3 of both the internal finance curve $OF_i$ and the marginal efficiency of capital schedule. Only the market rate of interest can be determined exogenously and objectively.

The confident and ambitious management team is more likely than the pessimistic team to be willing to increase financial leverage and so will be prepared to formulate business strategies which put the marginal efficiency of capital schedule further to the right. This will have the effect of generating greater financial leverage at the margin. That is, the value of $F^*F''/OF^*$ will obviously be greater as the marginal efficiency of capital schedule is further to the right, indicating thereby a greater desire to invest.

8.6 POWER AND THE EICHLER-WOOD THEORY

The price theory discussed in the preceding section applies to a wide range of markets independently of the distribution
or concentration of power in those markets. However, it cannot be applied to all markets. In this section I shall consider how the Eichner-Wood theory applies to markets with different power distributions, and then I shall consider the characteristics of markets to which the theory can be applied and those to which it cannot be applied.

It will be useful to begin this discussion by imagining a spectrum of industries with varying concentrations of market power. At one end of this spectrum will be those industries in which a single firm is the most efficient and has not only a preponderance of liquid reserves and untapped borrowing facilities but also a substantial market share. At the other end of the spectrum will be those industries in which no firm has a marked superiority in cost efficiency, none has superior financial strength and none has a substantial market share. Between these extremes will be industries in which some firms share market power while other firms are effectively powerless. The more concentrated is market power, the fewer firms will share it.

Evidently, the Eichner-Wood theory applies without modification to industries at the power-concentrated extreme of this spectrum. But once our consideration moves from that extreme, it becomes clear that those firms which do share market power must compromise on price and perhaps outputs and selling costs. For every firm will have a supply price which can be determined along Eichner-Wood lines. Since each supply price will be determined by different management teams' investment strategies, current production costs and expectations of future conditions of demand, it is hardly likely that all firms in any industry will have identical supply prices. Thus, if they are to avoid price competition, some common set of supply prices must be agreed. The closer the industry is to the power-concentrated end of the spectrum described above, the more closely would we expect the industry supply price to conform to that of the most powerful firm. But, except at that extreme, the management team of even the most powerful firm will avoid giving its competitors any very strong incentive to follow independent pricing policies. To this end the price leader will seek to determine its prices so that they provide some measure
of the internal finance required by other firms, even if these prices are in excess of the leader's own financial requirements. Furthermore, if it is the opinion of important price-following firms' managers that a price rise is not warranted by current trading conditions, or if they fear it will induce entry by a potential competitor, the price leader will usually take these views into account even if he does not share them.

One would expect the element of compromise in the establishment of industry supply prices to become increasingly dominant as industries are further from the power-concentrated extreme and closer to the powerless extreme of the spectrum. At the powerless extreme there would be compromise alone.

How are such compromises reached? Even without formal direct discussions of pricing among the managers of competing firms, there is no dearth of channels of communication between them. The trade press, trade associations, public announcements and the publication of audited accounts and annual reports all provide means whereby businessmen can make their views and needs known to one another.

Notwithstanding the incentive to compromise and the existence of clear channels of communication which can be used to reach agreement, it would be naive to suppose that there is never price competition. In fragmented markets with no centre of market power the sanctions against renegades are blunt, since there is no one firm which can limit the scale and effects of price competition once it has begun. Thus, agreements and implicit compromises will be exploded from time to time — as in the soap industry — as one firm or another, seeks a price or other competitive advantage over other firms in the industry.

The increased likelihood that compromises on price can be broken without warning will increase the uncertainty attaching to expectations of flows of internally generated funds. In consequence, it would be rational for firms in such industries to prefer the more certain flows of investment funds which can be generated externally, since the terms of loan contracts are legally enforceable in the courts. It follows that fragmentation in an industry will result
in demands for greater financial leverage than the Eichner-Wood price theory would otherwise lead us to expect.

The Eichner-Wood price theory can also be applied to markets in which power lies predominantly on the demand side.

Suppose that, for the reasons given in section 8.2, there is a firm on the demand side of the market with a predominance of power. Such a firm will account for a large proportion of purchases in the market; it will be financially strong; and its operating leverage may be less than that of any firm on the supply side of the market. In such a case the attention of the management team of the firm with market power is likely to be focused on backward integration to eliminate the market. Provided, however, that it is able to obtain the supplies it requires in the market and that the management team has identified alternative investment strategies which promise better returns, such a buyer will continue to purchase the commodity in the market. It will have sufficient power to determine the market price — but only subject to a lower limit.

The price which the most monopsonistic firm must offer will cover the costs of current production by suppliers and will yield a profit margin which enables these suppliers to obtain whatever internal finance is required for investments in growth. For if the monopsonist is growing, it will require growing quantities of inputs and so must ensure that independent suppliers of such inputs will be able to meet that growing requirement. For this reason the powerful commodity user will require to set the same price that the independent supplier would set in order to ensure his own survival and growth. And the considerations which lead to this price are no different from those that Eichner assumed in his analysis of supply price determination by a price leader.

Conditions of application: fixprice and flexprice

The foregoing discussion indicates that the conditions of applicability of the Eichner-Wood price theory are not
bound up with the degree of concentration or the locus of market power on one side or the other. These only determine which economic agent or agents will be able to decide market prices. I turn now to consider the conditions in which this theory is or is not applicable to the analysis of market price determination.

The foregoing considerations which determine the extent of any price changes are long-term in nature. For the essential aspect of Eichner-Wood price theory is that it relates the profit margin on sales to the internal financial needs of firms, where those needs are themselves determined by long-run strategic considerations and expectations. In consequence, one would not expect prices to change in response to short-run fluctuations in supplies and demands in those markets to which the Eichner-Wood price theory is applicable.

In other words, the Eichner-Wood price theory applies to what were called ‘fixprice’ markets by Hicks (1965) but not to those which he called ‘flexprice’ markets. For in fixprice markets, prices do not adjust in the short run to eliminate excess supplies and demands, while in flexprice markets they do. Thus, the conditions in which Eichner-Wood price theory can be applied are the same conditions that give rise to fixprice markets. The conditions in which Eichner-Wood price theory cannot be applied are the same conditions that give rise to flexprice markets.

Let us consider what those conditions are.

It is in the clear interest of any management team to be able to affect prices in a way which will enhance the prospects for the survival of the firm and the success of its investment strategies. These are long-run goals of the firm, and the first at least is paramount in the management team’s priorities. This proposition is essential both to the theory of business strategy developed in this book and to the Eichner-Wood price theory. In these theories, therefore, it is to be supposed that firms will seek, where possible, to give first priority to the meeting of long-run objectives even if this must be at the expense of short-run considerations. It is only when, for one reason or another, the long-run benefits which can be expected from fixprice markets are less than could be
expected in flexprice markets that we would expect the latter to prevail.

The long-run benefits of Eichner-Wood pricing policies depend on the short-run inelasticity of conditions of demand for the commodity. But suppose that the industry is fragmented or that the conditions of demand, or indeed the conditions of supply which enable demands to be met, are themselves highly uncertain. The more uncertain they are, the less certain will be the flow of trading profits which any firm in that market can expect. For at any given price trading profits obviously depend both on price and on sales volume. If demands cannot be predicted with any confidence over the period of time during which increased finance will be required, the effect is the same as when the strength of price agreements is uncertain – the internal finance generated over that period of time will itself be uncertain. In terms of figures 8.1 and 8.2, the curves representing the time profiles of demands will be shifting unpredictably. Since the time pattern of costs associated with any investment project are not easily altered, reliance on internal finance in such markets will increase the uncertainties which are associated with investment. In such circumstances investing firms will be better advised to finance investment strategies externally, so that the flow of available investment funds, and therefore the ability to complete investment projects, will be more certain.

The uncertainty-reducing advantages of external finance are more important as the costs of short-run discrepancies between supply and demand are greater. The costs of such discrepancies arise from sources already discussed in the three preceding chapters of this book. They arise from stockholding, queueing and throughput variations.

It is an important difference between fixprice and flexprice markets that in the former fluctuations in stockholdings, queue lengths and production rates take up short-run discrepancies between supplies and demands, whereas in the latter such discrepancies are eliminated by price movements which bring supplies and demands into equality. Evidently, the greater the costs associated with stockholding and queueing, the greater are the costs incurred by ignoring short-run
demand and supply fluctuations. For these are the costs which are avoided by varying prices in order to keep outputs equal to demands.

As we know from the discussion in chapters 6 and 7, the costs of stockholding are carrying costs arising from the bulk, perishability and/or specialization of the commodities held in stock. The costs of queueing are users' shortage costs arising from a high proportion of fixed costs in total production and selling costs at full capacity. While these costs militate against flexprice regimes in markets, they also favour vertical integration in production to eliminate the market altogether. Furthermore, as I argued in section 7.3, uncertainty with respect to supplies of inputs will enhance the inducement effect for the users of these inputs to integrate backwards, especially if they face substantial shortage costs as well. Accordingly, the conditions outlined above that are necessary for there to be a flexprice market in any commodity are not sufficient, since, without other conditions, they are as likely to lead to the elimination of the market. We therefore require the further condition that vertical integration in production must be un-economic.

I suggested a number of impediments to vertical integration in section 7.3. First, vertical integration might increase the shortage costs faced by the firm. This will happen if the commodity traded in the market is itself produced subject to considerable operating leverage, and especially if no one user requires the flow of outputs generated at minimum efficient scale in production. In the latter case either the transfer price within the integrated firm would far exceed the market price or, if the integrated firm sold any outputs which were surplus to its own requirements, it would face shortage costs in respect of the commodity it had previously purchased on the market. Second, vertical integration might increase carrying costs, administrative and organizational costs or transactions costs by more than any likely reduction in shortage costs.

There is a further impediment to vertical integration, which was not relevant to the argument of chapter 7. It is that forward integration is not possible because the producer
is unable to use the commodity in further production, as in the case of consumption goods.

In summary, we are most likely to find flexprice markets when the short-run discrepancies between supplies of and demands for a commodity are substantial and unpredictable, the carrying costs of the commodity are significant, and either the shortage costs in both its production and use are considerable or the commodity is strictly a consumption good.

Markets which meet this set of conditions *par excellence* are the markets for agricultural and mineral produce.

In the markets for agricultural produce, demands are closely related to population and incomes and do not vary much in the short run, while outputs vary unpredictably with the weather and the incidence of pestilence and disease. Some agricultural produce is perishable, and all of it has sufficient bulk to ensure that there will be some cost to storing it. Thus, if there is a glut, some produce will perish after a time so that even direct costs cannot be recovered, while the more durable produce will continue to incur storage, insurance and other costs until sold or destroyed. The sellers of agricultural products will obviously be well advised to accept any price they can, as long as resulting unit loss is no greater than the expected unit carrying costs until the durable commodities can be sold. As for perishable commodities, the price will economically fall as long as it remains greater than the unit cost of destroying or giving away existing stocks.

Consumers' shortage costs are obviously not a result of the operating leverage associated with any technology but rather result from the inconvenience or possibly deprivation that is contingent on shortage. Consumers, moreover, cannot typically integrate backwards in food production, since they will not be able to consume the minimum efficient scale in agricultural production. It is not impossible to be self-sufficient in food production, but it is less time-consuming to find paid employment and to buy commercially grown agricultural produce.

The outputs of mineral produce do not vary much for
technical reasons in the short run, and where they vary for other, perhaps political, reasons the variation is not linked to variations in demand. Demands, on the other hand, vary with the trade cycle, so that the relationship between supplies and demands is volatile in the sense that they do not move systematically with one another. There will sometimes be buyers’ markets and at other times sellers’ markets, but it is not easy to predict very far into the future which will arise. Since mineral produce is a direct input to the production of many commodities, shortages will result in substantial shortage costs for users with considerable operating leverage. When mines are located far from the plants in which the produce is employed as inputs to manufacturing processes, backward integration would entail the assumption of considerable transportation and organizational costs. These are not warranted unless the use of such produce by the firm is sufficient to overcome the loss of economies of bulk transactions and economies of specialization which can be achieved by a single agent selling to many users. And, since mineral produce is bulky, although usually durable, carrying costs are incurred when there are excess supplies, just as they are incurred in markets for agricultural produce.

Thus, in markets for mineral produce where there are users who cannot achieve minimum efficient scale in production and/or exchange, carrying costs put downward pressure on prices when demand is slack, while shortage costs result in upward pressure when there is excess demand but the volatility in the relationship between supplies and demands renders pricing along Eichner-Wood lines too uncertain to be relied upon in financing long-term investment projects.

This is not to suggest that there is no vertical integration to bypass markets for agricultural and mineral produce. It is to suggest that such integration takes place only when users’ demands reach minimum efficient scale in production. Food processors, for example, do integrate backwards in order to grow their own inputs to canning and freezing processes; steel producers integrate backwards into iron-ore mining; and oil refiners integrate backwards into the extraction of crude oil. But as long as there are users with
small demands in relation to minimum efficient scales of production and exchange, and as long as there is no concentration of market power among producers, there will be flexprice markets for mineral produce. And in those markets Eichner-Wood price theory will not apply. Prices will adjust until there are neither queues nor unwanted stocks.

It is important to note in this connection that prices rise as users seek to avoid shortage costs, and they fall as sellers seek both to reduce their own shortage costs and to avoid carrying costs on unsold stocks. There is no mysterious invisible hand to invoke these changes; nor need we rely on propositions of marginal productivity theory or marginal utility theory in its cardinal or ordinal versions.