

PRICING POLICIES IN
RETAILING AND MANUFACTURING BUSINESS

by

Peter E Earl.*

Paper read at Economics Association Conference
on Entrepreneurship and the Theory of the Firm
Stirling, 13 September 1980.

* This paper has benefitted from discussions with
Brian Loasby and Richard Shaw but responsibility
for the arguments and any errors it contains
rests entirely with the author.

1. Introduction

The purpose of this paper is to present an introduction to the theories of long run profit maximization in oligopolistic markets suggested by the late Professor P.W.S. Andrews. With the exception of Andrews and Brunner (1975) his major works (in particular, Andrews (1949, 1964), Andrews and Brunner (1952) and Andrews and Friday (1960) have long since ceased to be in print owing to a conspicuous lack of interest in them by the economics profession. It is hoped that this paper will help to generate a revival of interest in the work of this neglected economist by showing that the theories he constructed after talking to businessmen about their practices are full of insights not to be obtained from theorists who rarely venture into the real world.

The paper is divided up as follows. In section 2 there is a consideration of the theory of imperfect competition that is usually used to explain the practices of manufacturing and retail firms and discussion of Andrews' objections to it. Section 3 presents Andrews' theory of the price behaviour of manufacturing firms in oligopolistic markets for such things as component production and the production of branded goods for retail chains. Section 4 is an extension of his theory to cover differentiated products and the complications caused by frequent technical advances. Section 5 is concerned with Andrews' theory of retail pricing and explains why in a highly competitive industry different shops may charge different prices for physically identical items, also considering some of Andrews' thoughts on Resale Price Maintenance. Finally, section 6 presents a brief summary and conclusion.

2. The Failings Of The Theory of Imperfect Competition

The theories of the perfectly and imperfectly competitive firm have become core components of any economist's upbringing. The former is usually reserved for discussions of agricultural and other primary production markets where physically identical commodities are produced by large numbers of enterprises and sold in well organized commodity auction markets such as the London Metal Exchange or the Chicago Grain Exchange. Andrews felt the theory of the perfectly competitive firm was acceptable as a guide to how such markets worked so long as it was always recognised the customers of such firms were not individual consumers but commodity dealers and wholesalers who then sold their produce to other firms. He was, however, not at all happy with the theory of the imperfectly competitive firm.

This had been developed by Joan Robinson (1933) to show why industries were not monopolised by single firms which had been lucky enough to move fastest down ever-falling cost curves where these existed, gradually knocking out other firms by undercutting them. The growth of such firms, Mrs Robinson suggested, was prevented after a time by downward sloping demand curves that contrasted with the horizontal demand curves faced by the individual price taking firms in perfectly competitive markets. Once firms became of significant size through enjoying economies of scale it was suggested that they could affect the price for the industry by adjusting the volume of output they offered on to the market. Hence it was felt reasonable to postulate downward sloping demand curves.

The theory of imperfect competition is usually characterized

with the aid of the two diagrams, figures 1 and 2. Figure 1 shows the short run equilibrium of the firm (P_0, Q_0) and also, if there are barriers to entry by new producers, the long run position of the firm fortunate to earn supernormal profits because, at the output level where marginal cost and marginal revenue are equalised, average costs are less than average revenue.

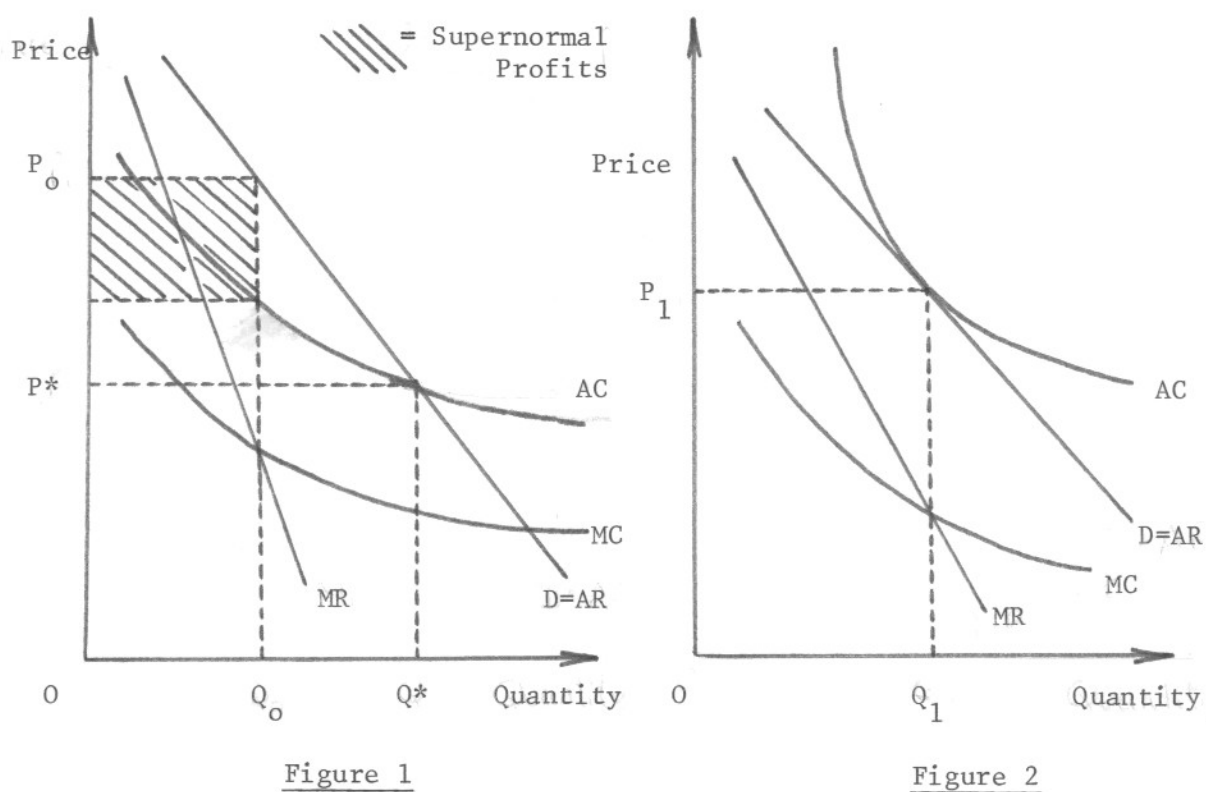


Figure 2 shows what is often called the 'tangency solution'; the long run equilibrium of the firm after entry has taken place. The extra production of firms attracted into the market by the high profits causes the prices in the industry to fall and individual firm demand curves to shift to the left until average costs and average revenue are equal and there is no incentive to enter the market. At this point of AC/AR tangency the new

marginal revenue curve necessarily cuts the marginal cost curve and profits are maximized given the changed market conditions.

Never one to shout the merits of capitalism, Mrs Robinson looked at her equilibrium diagrams and pronounced that competition didn't seem to work to the benefit of the customer in such markets. Figure 1 showed that instead of giving consumers the benefits of falling cost curves firms were extracting supernormal profits from them by restricting output and raising prices above the level necessary to ensure viability. Figure 2 showed that even if these profits did get eroded by new entry the consumer was still losing out because firms then produced with spare capacity, wasting resources because there were too many firms in the industry. If prices had been lower in the first place (e.g. p^* in Figure 1) with average revenue and average cost equalised right from the start both the supernormal profits and the waste of resources in idle capacity would have been avoided. Mrs Robinson suggested that it was inherent in the capitalist system that things should not turn out this way.

Many years later Kaldor suggested that the excess capacity problem was particularly common in retailing and services and suggested that selective employment tax should be introduced in these sectors to knock out marginal firms by raising their average cost curves above their demand curves, thus freeing resources for use elsewhere and causing the demand curves for more efficient firms to shift to the right until a new tangency solution was reached. Another influence of the theory on competition policy was the examination by the Monopolies Commission of markets for the presence of excess profits caused by barriers to entry. When companies

were taken to court by the Commission or when they wished to lobby for changes in the laws of competition they often hired Andrews to present their case since his work, which had not influenced his fellow economists nearly so much, suggested that these policies were likely to be misplaced because they were based on a defective theory.

Through talking to businessmen Andrews formed the impression that the imperfect competition theory contained the following defects :

- a) The short run pricing behaviour leading to the P_0, Q_0 result on figure 1 assumed that firms were very shortsighted or that entry was difficult. Managers repeatedly told him that it was not worth raising prices to increase short run profits because the long run typically came pretty rapidly: other firms with a capacity to produce duplicate products would soon start to undercut them. Although it is common for economists to stress the importance of barriers to entry Andrews thought that his colleagues' studies were misleading because they always talked of brand new producers entering markets. Entry could easily come from established firms with a common technological bases invading markets if other producers got prices wrong. E.g., it is very easy for a producer of cars to start making fridges and cookers since these are assemblages of steel pressings and electrical components.
- b) Firms did not seem to set prices by finding the output at which marginal costs and marginal revenues were equal and then producing no more than that; nor did they recalculate such equalities when demand conditions changed, they simply changed the quantities they sold and only changed prices if cost conditions changed. It was

meaningless to suggest that such marginalist calculations should be performed once it was recognized that demand curves were not given for all time or that there was no sudden movement from the given short run position of figure 1 to the 'inevitable' long run position of figure 2. Today's demand conditions depended on yesterday's price and today's price affected tomorrow's demand. Clearly firms had to compare alternative pricing strategies if they were interested in maximizing profits through time. A 'snatcher' type policy of the kind implied in figure 1 would only make sense if the company was to be sold in the near future to someone who did not realise that its high current profits were being achieved at the expense of its long run position.

c) The main value of trade is between firms as a group rather than between firms and the consuming public. Firms will often want regular deliveries of components or ancillary services, in contrast to consumers who may individually enter particular markets very irregularly. Thus businesses which produce intermediate inputs will be keen to get repeated orders and will set their prices with, again, long run considerations in mind. They will also be aware that, because of the possibility of many other firms providing an identical service, not only must they set a price that no one else will find it worthwhile to undercut but they must also make sure that if they are lucky enough to pick up other business they do not find themselves unable to supply their regular customers. An inability to deliver the goods to regular customers who need a constant through-put will inconvenience them in a very costly way. They will then turn to other producers and goodwill will be lost, possibly forever. The British Steel Corporation have recently

discovered how important regular deliveries are to their customers or, rather, former customers, who now deal with foreign producers because of the B.S.C.'s lengthy strike.

Firms will always be hoping to pick up extra business, possibly from rivals who have made mistakes and have not been able to supply enough output or have set excessively high prices as well as with the general expansion of their sector of the economy.

To ensure that they can satisfy them without disappointing their regular customers they will thus keep a margin of spare capacity to ensure rapid delivery or, if waiting lists are a conventional feature so that advance orders reduce business risks, ensure that their waiting lists get no longer than those of potential producers of similar products. For Robinson and Kaldor, spare capacity is a long run result of a short run snatching policy and is a waste. For Andrews it is a prerequisite of long run goodwill attracting and preserving policies that lead to maximum long run profits. Customers benefit by greater predictability of prices and less need to shop around to keep checking that they are not making mistakes.

Andrews' objection to the theory of price and quantity setting suggested by Mrs Robinson should be seen as saying not that it was necessarily impossible for firms to perform marginalist calculations at the start of each period but that this was not a sensible thing for them to do if they wanted to maximize profits over the long run. In oligopolistic markets where competition was possible from extra production by existing producers possessing similar facilities such marginalist calculations were inevitably overshadowed by the problems

of the future that might arise from the policies of the present. The objections that led Andrews to reject the existing theory lead very easily to the construction of an alternative theory of competitive oligopoly.

3. The Pricing of Manufactures

Andrews' theory of price determination is a theory of entry preventing pricing and may be stated very simply: prices are set according to the conjectured opportunity costs of potential producers of duplicates of the product being supplied. It should be added that products which are not pure services are usually a mixture of a physical product and service-like characteristics such as reliability of quality, an after-sales maintenance facility and a friendly sales staff. At the price determined according to such conjectures the firm sells as much as it can and changes the price only when the expected costs of potential producers change and not because demand conditions change. It ensures that it has enough capacity available in any period to be able to satisfy all of those whom it regards as regular customers and its expected increase in potential long term customers. Given its capacity it will have some expected 'normal' level of capacity utilisation and its price can be expressed as a mark up on its costs at its normal output. Though the firm may thus talk of a mark up on its costs it must be remembered that the size of the mark up is determined by the costs of other, potential producers. The costs of the firm in question, to which the mark up is added, are its average

paying out costs (A.P.O.C.). These include all the causes of payments to factors that the firm cannot avoid making if it is to produce a particular volume of output, i.e. fixed interest payments, rates, factory rent, costs of overheads, costs of production labour and materials and the conjectured necessary payments to shareholders to prevent the company from being taken over and a new management team being installed. What is left over can be used to develop new products, buy new machines, buy other companies, install new carpets in managerial offices, and so on. So long as the A.P.O.C. do not rise, the more the firm sells the more profits it must make at the going price. Thus profits rise in a boom and fall in a depression.

Diagrammatically the above arguments may be shown as follows (figure 3).

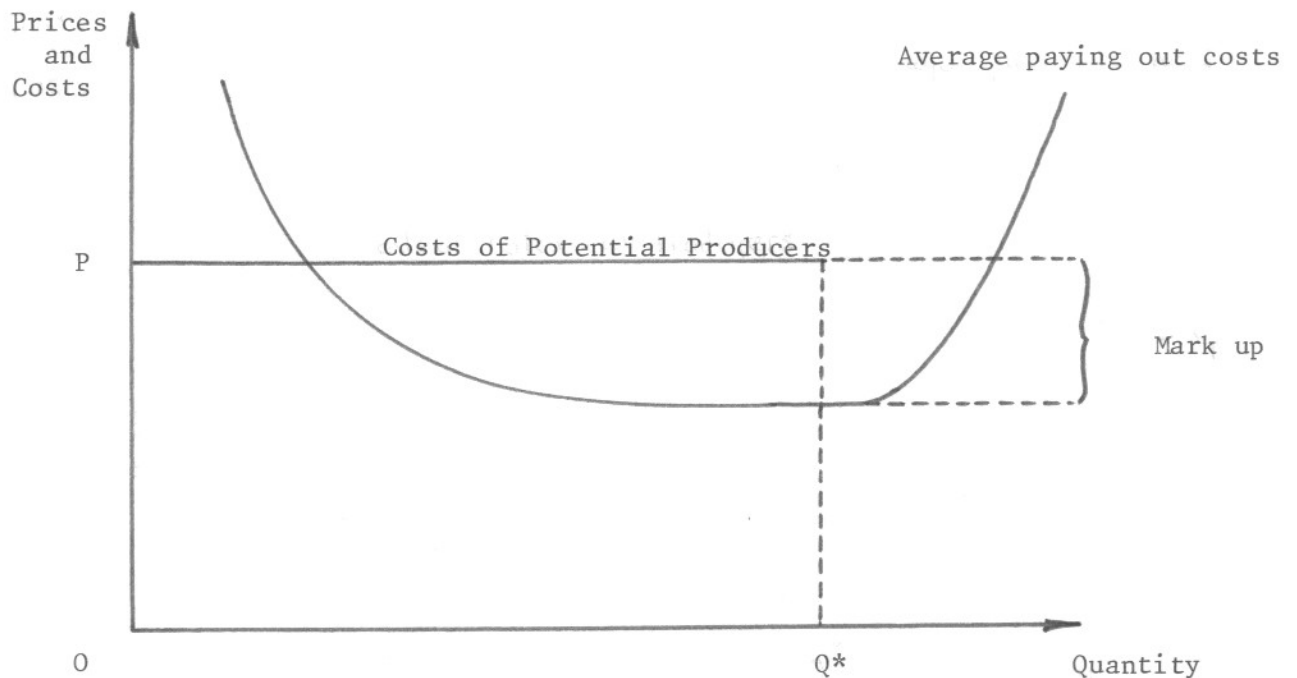


Figure 3

The average paying out costs curve rises only because at present the firm has a limited stock of machinery and it will be necessary to use old machines, left in reserve, or pay workers overtime if demand is much higher than Q^* , its expected normal volume of output. The horizontal line from P must not be confused with the horizontal demand curve of the perfectly competitive firm: it is not a demand curve, it represents the maximum price that the firm thinks it can charge without provoking production by rivals, existing and potential. In Andrews' theory of the firm there are, strictly speaking, no demand curves, only cost curves. If the firm is lucky it will sell more than Q^* ; if not it will sell less. If costs are given Andrews' theory is a theory of an equilibrium of price but not of output. The latter depends on shifts in goodwill.

An example will help give the feel of the theory. Suppose Marks and Spencers, who do not own producing capacity, want to sell skirts of a particular kind. Clearly, a skirt producer will not get or keep a contract from Marks and Spencers if it quotes a price higher than that which someone else might quote for the same carefully specified product. However, if it is lucky to get the job of producing skirts for the St Michael brand, it will be given repeat orders for these skirts and for new patterns so long as it always charges a competitive price. If Marks and Spencers charge too high a price, then the skirt producer may lose orders (c.f. section 5 below) but if a new boutique chain starts up and wishes to sell similar products, the skirt producer may be lucky enough to pick up goodwill from the boutique chain to counteract the reduced demand from Marks and Spencers. Just as

consumers change the products they buy, so firms that buy from other firms change their buying patterns as their fortunes change: the market is in a constant state of disequilibrium. It should be added that Marks and Spencers also require the goodwill of their producers (Richardson, 1972) for if they initially over-order and cause their producers to invest in new plant that, it turns out, cannot be used they will be the kind of customer that firms can do without.

Where technical progress and the effects of learning cause the costs of actual and potential producers to fall, then prices will fall too or quality will be increased to the benefit of the customer and in contrast with Mrs Robinson's view that falling costs lead to increased monopoly power.

If firms adopt entry preventing pricing policies because they are aware of the prevalence of potential competition entry may still occur with rival firms offering duplicate products - the rise of the independent petrol suppliers (Shaw, 1974) being an obvious example of this. This kind of entry usually occurs because existing producers misjudge the costs of potential producers and the price rapidly falls to the 'correct' level as the former find themselves losing sales to the latter. The total volume of trade will be expanded by the entry of the new producer and it will be his hope that his addition to the capacity in the market is no larger than the market's increased volume if he assumes that he will only be as successful as the average producer in attracting goodwill while the market price is falling. If, despite the high profit margins of existing producers, the would-be entrant expects that the fall in price which his additional supply would cause would not leave him enough room in the market to cover his opportunity costs, then he will not bother to enter.

4. Pricing with Technical Progress and Shifts in Fashion

One of the reasons for the lack of popularity of Andrews' ideas may be that economists noticed that in some markets the high profits being earned by some firms did not cause entry by producers of duplicate products but with substitute differentiated products. An obvious example is the market for cars: Leyland's new Mini-Metro is not a physically similar car to the Ford Fiesta with a slightly different name such as, bearing in mind Leyland's productivity record, the Leyland Siesta or Fiasco. Ford, likewise, did not copy earlier 'super-minis' but examined their good and bad points and tried to produce a superior and vice free car in the same general price range. Now, the point to be noticed about this kind of market is that there is a strong fashion element and rapid technical progress with regard to minor details so the life of a particular model may usually be no more than five or six years. This may lead some economists to suppose that a 'snatcher' kind of marginalist pricing policy will be the one which maximizes profits on producing such products, even if Andrews' model explains how the prices of bought-in components will be determined. The contention of this section will be that such a view would be incorrect and that, again, strategic considerations are important.

Consider the problem of price determination faced by General Motors and Volkswagen (who seem to have been first to realise that the small hatchback car might fill a niche in the market) as they launched, respectively, their Chevette/Kadett and Golf ranges around 1974/5. They would have been able to form conjectures about the likely cost positions of potential producers of similar products and the time it

would take for them to retool (18 months - 3 years). But the rate at which these producers would enter the hatchback market would not bear a simple relationship to their (GM's or VW's) costs and profit margins. If they kept prices down towards the cost to their rivals of producing a duplicate product they would inflict much more rapid losses on their rivals than if they adopted a low volume, higher price and profit margin strategy. The former strategy, insofar as conventional small saloons are substitutes for hatchbacks, would cause, say, Ford to lose more sales of Escorts and face emptier production lines and higher average paying out costs than would the latter strategy. It would thus give Ford a big incentive to try to design a superior product for the same price or at a lower cost to steal back some of the lost profits on their existing small saloon range. The other strategy would not cause such an immediate pressure to replace the existing product but would, owing to its higher immediate profits, provide a lure towards rapid entry offsetting Ford's sunk cost reasons for trying to avoid making model changes for as long as possible.

The foregoing arguments suggest that where close substitutes exist for a new market niche the entrant cannot escape the fact that a perfect entry forestalling pricing policy will not be possible. A high price/low volume strategy provides a profit incentive to entry; a low price/high volume strategy provides a loss avoidance incentive to retaliation by entry with new models, even if very low profits are being earned on the product that attracts sales away from close substitutes. The demand curves for different years are inextricably tied together. This cannot be ignored where production is carried out with highly specific machinery in huge integrated plants. If demand takes a time to pick

up as the product becomes fashionable, and is bound to fall off ultimately as substitutes appear, then it may pay to plan for waiting lists when demand is at its peak. Keeping prices down will not generate high profit margins in this part of the product's life cycle and this, coupled with the reduced rate of gains of sales from rivals as customers find the waiting game not worth playing, will slow down the appearance of new substitutes. However, car producers choosing this kind of entry delaying strategy must be very careful to ensure that their dealers manage the waiting lists to ensure that regular fleet purchasers of company and hire cars are not frustrated and do not remove their goodwill.

The kinds of dynamic considerations discussed in this section suggest that firms will not maximize profits by equating marginal costs and respective marginal revenues for each year that their particular products are being sold. Rather, they will need to try to find the price/cost relationship which they expect will cause demand to be spread out over the period in question in such a way as to generate the profits stream that they find most valuable from their present, forward looking, viewpoint.

5. Retail Pricing

If there is any industry in which both entry and exit are frequent and rapid it must surely be retailing. Local authorities have an important part to play here as they can help to ensure that premises are occupied at all, or by the businesses that are most profitable, by varying their rates charges. However, given that it

is a very competitive industry it is perhaps surprising that identical goods may be sold at widely different prices. Conventional theorists explained this by pointing out that standards of service differed and two shops could not stand on one site, so each product was slightly differentiated and had its own little downward sloping demand curve.

Andrews found the conventional analysis of retailing most unsatisfactory and reached conclusions about how he felt things really worked which led him to suppose that attempts to justify the virtual banning of Resale Price Maintenance were based on unsound reasoning. Firstly, he found the argument about location inadequate after pointing out that consumers were not paralysed and often actually liked walking around shopping centres to explore what was available. While he did not presume that consumers would be perfectly informed, he had no reason to suggest that they were not canny shoppers either, emphasizing the importance of window shopping and contact between consumers in the social setting as means of acquiring information. As he saw it it did not matter that all consumers might not be careful shoppers to ensure competition would hold prices down for even if only 10% were avid seekers of bargains a shop which could attract all of these by offering lower prices than elsewhere would acquire a comfortable share of the market. The failure of identical commodities (identical with regard to after sales and demonstrating facilities, etc.) to sell for identical prices in a given locality had to be explained in a different way.

Andrews' starting point was to suggest that the unit of analysis in retailing should not be the individual commodity but the basket of things bought on a particular shopping expedition. Many goods from a

given shopping basket would be stocked by a number of shops, each of whom would be trying to get the consumer to use themselves rather than their rivals. If on average they all set prices to deter other shops from catering for their kind of customer they would have no way of ensuring their success except by chance. Somehow they had to differentiate their 'product' to attract new consumers, particularly those who were young or newly arrived in an area. The ease of entry meant low margins so they could not all cut all of their prices to attract them without this destroying their profits. Recognizing that an overall price war was not in their individual interests if they wanted to stay in business in the long run, shops could instead attempt to win customers by offering some goods cheaper than their rivals and some more expensive while keeping the price of the typical shopping basket no higher than anyone else would offer. Additionally, they could try to increase their range of products in different ways from each other, stocking things usually sold by specialist shops to encourage the consumer to use them for his or her main purchases.

Clearly, shops attempting to differentiate will not all offer the same loss-leader or range expanding policy and a policy which is conspicuously successful will rapidly be copied causing its inventor to seek a new strategy. The pattern of prices will thus be changing continuously yet, inflationary pressures on costs and retailing innovations aside, the price of the average basket of goods will not change so long as shops have judged correctly the costs of their potential competitors.

The foregoing theory applies especially to general stores, supermarkets and department stores and suggests that there will be many cases where producers of particular brands will, themselves, be unwilling to impose any form of Resale Price Maintenance - if their brands become loss-leaders they will sell bigger quantities to the supermarkets and it is the latter who bear the losses. However, producers of specialized ranges of products not purchased on everyday shopping expeditions may view things differently and have good reasons for wishing to possess the legal right to refuse to supply shops that do not sell their products at their recommended prices (which, of course, will be determined in the manner discussed in sections 3 and 4 above).

Firms offering specialized ranges of products will be aware that these will only sell if someone can be persuaded to stock them as a group and that the profits to be made on a single item in the range must not be allowed to dominate at the expense of the whole group. The obvious example of this is the book trade. Specialist books are usually cross-subsidized on average by the profits from more general best-selling works. If supermarkets were allowed to charge any price they liked for books, and could get supplies, they could use these as loss-leaders and the pure bookshops would have to lower their best-seller prices to match them. This would lead to a reduced ability in the bookshops to afford to carry stocks of books with less certain sales, causing the number of bookshops to fall and, since they would be less easily available, the number of books sold to fall. Since smaller print runs entail higher average costs the net result would be higher prices of all but best-sellers and the latter would

seem even better sellers in supermarkets as a result. It is not at all clear, therefore, that the public would gain in such cases of complementarity if resale price maintenance could not be used by the producers of ranges of goods to protect their long run profits. Thinking always in terms of individual goods this was a problem that other theorists, with greater influence over government policy, failed to see. It was fortunate that the book industry had Andrews to present its case when competition regulations were being changed.

6. Conclusion

Competition should not be regarded as inefficient or 'imperfect' in industries characterized by falling cost curves for the threat of potential competition from firms with a similar production base will keep prices down in line with costs. Mindful of the possibility of losing their markets firms do not choose prices and outputs by equating marginal costs and marginal revenues in each period. Instead they set their prices with a mark up on costs that is limited by their conjectures of the opportunity costs to others of producing copies of their products and sell as much as they can at these prices. They change prices only when their would-be rivals' costs change. This view of the competitive process suggested by Andrews has two topical spin offs.

Firstly, it is fortunate that O.P.E.C. members think like Andrews and not like conventional theorists for otherwise present oil prices could be much higher than they are. O.P.E.C. members are aware that to raise prices further at present would reduce their

future market by encouraging energy-saving investments (see Wilson, 1979). Secondly, it is unfortunate that the present government believes that restricting the level of demand by a monetary squeeze restricts rises in prices directly. If prices are set according to costs a cut in demand that does not dampen inflationary expectations of workers will only reduce the rate of inflation indirectly by causing the exchange rate to rise and reducing the relative costs of foreign competitors. An incomes policy and expansion of demand would seem much more sensible than a policy of causing unemployment from which neither firms nor workers benefit.

References

- Andrews, P W S (1949) Manufacturing Business (London, Macmillan)
- Andrews, P W S (1964) On Competition in Economic Theory (London, Macmillan)
- Andrews, P W S and Brunner, E (1952) Capital Development in Steel (Oxford, Basil Blackwell)
- Andrews, P W S and Brunner, E (1975) Studies in Pricing (London, Macmillan)
- Andrews, P W S and Friday, F A (1960) Fair Trade: Resale Price Maintenance Re-examined (London, Macmillan)
- Richardson, G B (1972) The Organization of Industry. Economic Journal 82, September, pp.833-896.
- Robinson, J V (1933) The Economics of Imperfect Competition (London, Macmillan)
- Shaw, R W (1974) Price Leadership and the Effect of New Entry on the U.K. Retail Petrol Supply Market. Journal of Industrial Economics 18, September, pp.65-79
- Wilson, T (1979) The Price of Oil: A Case of Negative Marginal Revenue. Journal of Industrial Economics 27, June, pp.301-315.