CHAPTER I

THE ATTACK ON MARGINALISM

The subjective approach to value theory, pioneered by Jevons and the Austrian economists caused the widespread application of the marginal principle to the solution of economic problems. On this principle was built a coherent system of economic thought, often referred to as "marginalism". One part of this system is the theory of the Firm which seeks to explain the price and output policies of firms by using marginal concepts. For a long time this methodological approach was accepted as adequate for providing an explanation of the problem of price. But doubts with regard to the general validity of the fundamentals of price theory began to grow and spread as a result of refinements to and reconsiderations of the theory, especially in the late 1930's. These doubts led to the present controversy which we have set out to describe.

Marginal Analysis of the Firm - A Brief Summary

The text book version[1] of the theory postulates rationality on the part of the entrepreneur. This assumption can be reduced to two propositions:-

(1) that they seek to maximise profits and
(2) they operate with perfect knowledge.

The position of maximum profits is logically determinable in the face of a technologically determined production function and known cost and revenue functions. To maximise his profit, the entrepreneur will expand production up to the point where his marginal revenue is equal to marginal cost. The position of equilibrium is usually illustrated thus:-

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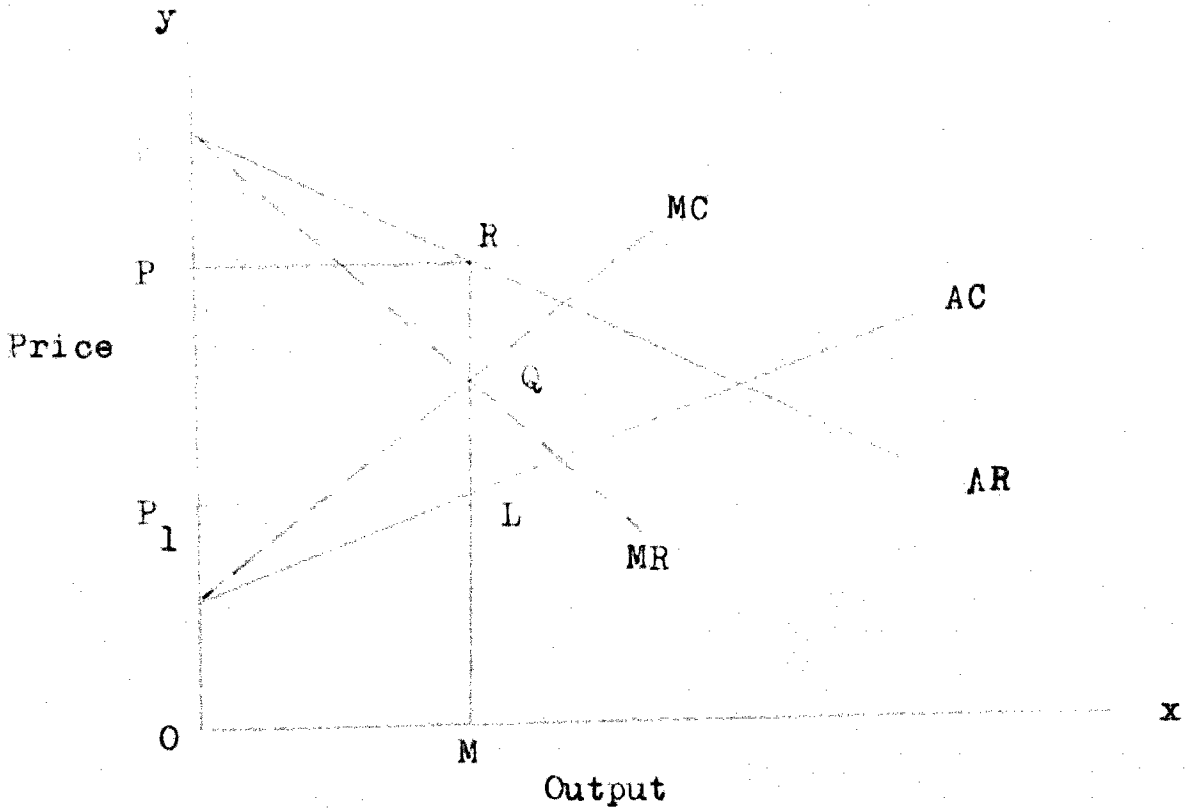
[1] The text book version suffers from being too pedagogical. In this brief summary, we shall attempt to abstract the theory from the pedagogic methods of the jaded versions.

FIGURE I

THE EQUILIBRIUM OF THE FIRM



A corollary of the rationality assumption is that the entrepreneur minimises his cost of production for any given output. This condition is fulfilled when production is so organised that the marginal rate of technical substitution between the factors equals the ratio of their market prices.

The theory next describes the equilibrium conditions for profit maximisation under clearly defined market situations. Assuming a perfectly competitive market, the firm operates under the following conditions:-

(a) there are a large number of buyers and sellers dealing with
(b) a homogenous product
(c) Firms are free to enter or leave the industry.

In the case of perfect competition in the product market, since price is given, marginal revenue is equal to price, to which marginal cost is equated. In the case of perfect competition in the factor market, marginal cost is equal to the cost of the additional factors necessary to produce the marginal unit and this is equated to marginal revenue. The industry is said to be in full equilibrium in the long-run when every entrepreneur earns normal profits, i.e. profits which are just sufficient to induce them to stay in the industry (this is only possible if we assume that the amount of normal profits is the same for all the entrepreneurs).

Under conditions of monopoly, the only rule of equilibrium within the firm is that marginal revenue and marginal costs are equated. The monopolist can be thought of as earning abnormal profits, which in the absence of free entry, may be maintained even in the long run.

The starting point of imperfect competition theories was the realisation that besides price, the entrepreneur had a certain amount of freedom of action with regard to the nature of the product and selling expenditure. The firm may earn abnormal profits, though it is likely that these will be competed away in the long run. The degree of encroachment will depend on the degree of imperfection in the market. Imperfect competition theories retain the traditional framework of analysis, but differs from perfect competition theory basically in respect of the firm's selling conditions.

Empirical Research

Since 1939 there have appeared economic writings on aspects of business behaviour (especially behaviour which can be summed up as price and output policy), which can be characterised as an attack upon the marginal analysis of business behaviour. Chief among these writings are the papers by Hall and Hitch[2], Lester[3], Gordon[4] and the book Manufacturing Business by P.W.S. Andrews[5]. These writers have in common (a) an empirical approach and (b) an attempt to discover and formulate some theoretical propositions about business behaviour. These propositions seem to be at variance with the conventional analysis in terms of marginal cost and marginal revenue.

Acute controversy has arisen between those who uphold the new hypothesis and the defenders[6] of the orthodox analysis. The significance of this controversy lies beyond just providing an adequate explanation of business behaviour, for the marginal analysis is part of a coherent system of economic thought. The marginal principle is

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[2] Hall & Hitch: Price theory and business behaviour. Oxford Economic Papers No. 2. May 1939.

[3] R. Lester: Shortcomings of marginal analysis. American Economic Review Vol. 36A. March 1946.

[4] R.A. Gordon: Short-Period price determination in theory and practice. American Economic Review Vol. 38. June 1948.

[5] P.W.S. Andrews: The theory of manufacturing business. Oxford Economic Papers Vol. 1. 1949. Also Manufacturing business. Macmillan 1940.

[6] Notably. Machlup & Stigler. Op. Cit.

pervasive within the general corpus of economic theory. The new doctrine therefore threatens the whole deductive system of marginal analysis, unless the generalisations arising out of empirical studies can be made to either co-exist, or be complementary to the orthodox system.

This paper will describe the controversy which has been taking place and will then attempt at an evaluation of the debate.

The article by Hall and Hitch arose out of enquiries undertaken by the Oxford Economists Research Group[7] to study problems relating to the Trade Cycle. Among the matters asked in the questionaires submitted to selected businessmen, were their price and output policy. From evidence garnered in this way Messrs. Hall and Hitch were able "to cast doubt on the general applicability of the conventional analysis in terms of marginal cost and marginal revenue", and they ventured to suggest "a new mode of entrepreneurial behaviour which current economic doctrine tends to ignore ... the basing of price upon the full-cost principle".

The entrepreneurs were approached by means of personal introduction, and a questionaire was submitted to them. The authors (Hall and Hitch) chose to examine the results obtained from thirty-eight of them and they were mindful of the likely bias of such an enquiry. The bias to which they were likely to be subjected were

(a) since 33 of the 38 entrepreneurs were manufacturers, there was a strong bias in favour of manufacturers.

(b) that since the approach was by way of personal introductions "the entrepreneurs interviewed were more successful and more intelligent than the average businessmen", and

(c) their sample was too small to warrant any final conclusions.

However, the authors after examining the evidence have reason to believe in "the general inapplicability of the orthodox type of analysis". They were able to show that 30 of their 38 firms endeavoured to operate more or less according to some form of pricing policy which the authors characterised as "full cost", and that they did not appear to pursue maximum profits by aiming to produce that output where its marginal cost equalled its marginal

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[7] See also R.F. Harrod: Price and cost in entrepreneur's policy, Oxford Economic Papers, May 1939, which establishes the case for the deductive method of orthodox analysis to be verified by empirical study.

revenue. Messrs. Hall and Hitch arrived at this conclusion when they were wholly unable to obtain any data about the elasticity of demand and the relationship between marginal cost and price from the businessmen, the majority of whom were found to consider "the information of little or no relevance to the pricing process save perhaps in very exceptional conditions. The basis for the authors doubt in the marginal analysis was founded on their belief that for the orthodox analysis to be applicable the entrepreneurs must in fact make some estimate even if implicity of the elasticity and position of their demand curves and also to attempt to achieve the equalities of marginal revenue and marginal cost.

The actual procedures of the firms were not identical as to their detail, but the general pattern of their pricing policy was clear enough to enable the authors to put forward their iconoclastic principle. The principle was generalised as follows:- "Prime cost per unit is taken as the base, a percentage addition is made to cover overheads (on cost or indirect cost) and a further conventional addition (frequently 10%) is made for profit."[8] The authors marshalled several reasons which initiate against changing from the price, thus fixed - departures from this price were more the exception than the rule - implying a rigidity in the full-cost price.

Among the reasons given for the abnormal departures from the conventional price were "the necessity to follow a competitive price", "depressed trade", and where price had to be reduced in order "to keep going".[9]

By and large, an overwhelming majority of the firms adhered to the full cost pricing principle for various reasons (quasi-moral reasons included). The authors list the reasons given and also the actual numbers who cited the same reason, but they warn in a footnote "that little significance can be attached to the actual numbers in each category, since in most cases, only those reasons volunteered by the entrepreneurs are given."[10] From the data the relative frequency with which the various reasons are given for adhering to or departing from full cost pricing, is not without interest. From among the 30 full-cost firms, by far the most common reason for not charging more than full-cost was "fear of competitors, or potential competitors" including the belief that others would not follow an increase in price. Amongst the reasons given for not charging less than full-cost, by far the most common reasons were that "demand was unresponsive to price" and that "competitors would follow cuts".

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[8] Hall & Hitch, op. cit.

[9] Ibid.

[10] Ibid.

The authors conclude from their empirical findings that one of the most important factors inducing entrepreneurs to adhere to the full-cost policy was a widely held belief among businessmen that the "right" price was one which "ought" to be set at the full-cost level. There was also a quasi-moral tradition that this price was "fair to competitors". The other important factors were that producers cannot know their demand and marginal revenue functions for two reasons. Firstly they do not know their consumers' preference and secondly most producers are oligopolists and hence cannot predict the reactions of their rivals to a change in price. The fear that rivals would not follow price increasesbut would follow price cuts, causes them to be wary of price changes. Prices are not lowered or raised by express or tacit agreement, because the elasticity of demand for the group of products is insufficient to make the former course pay. If prices are in the neighbourhood of full-cost, the latter course is not followed for fear it might lead to the undermining of firms by new entrants especially in the long run. Furthermore, changes in price are costly in themselves and are a source of inconvenience to salesmen, merchants and consumers. Several of the entrepreneurs also referred explicity to conventional prices to which customers are attached and that only large changes in price which are clearly profitable, are possible.

These conclusions imply an attack on marginalism on three grounds. Firstly, striving for profit maximisation is so infrequent in practice that a theory starting with the postulate of profit maximisation must produce unrealistic results. Secondly, the demand schedules with which entrepreneurs are supposed to do so much of their calculation and adjustment are in fact unknown to them, whether as objective or subjective estimates, so marginalism is inapplicable. Thirdly, even if marginal cost and marginal revenue could be equated, they could not be kept equal in the face of short run changes in the demand and cost schedules.

Of the 38 firms which the authors investigated, attention was concentrated on the 30 adhering to full-cost pricing, in principle and in fact, of the remaining 8 firms, one was a monopolist whose behaviour accorded to the text book theory. Four entrepreneurs intimated that they would take into account the elasticity of demand and would cut prices in normal times if the elasticity of demand was sufficient to make this course profitable, while the remaining three had patterns of behaviour which could not be adequately explained by either principle.

The authors classed the firm according to Professor Chamberlin's market classifications and they stated that "pure competition, pure oligopoly and pure monopoly are rarely found in the business world, and that the typical case is that of monopolistic competition with an admixture of oligopoly. The implication is that oligopoly elements are far more common than conventional theory admits. The author found it difficult to differentiate between oligopolistic firms and others,as the distinction seems entirely to be

one of degree since all the firms were conscious of the presence of competitors and the possibility of reactions to changes in their price and output policy. Where oligopolistic elements are present the demand curve may be assumed to be indeterminate, since rivals can only imagine each others probable reactions. This led the authors to introduce their kinked demand curve, a tool with which their theory of stability of the firm is forged.

The Kinked Demand Curve

The kinked demand curve was also advanced contemporaneously but independently by Sweezy[11] and therein lies the force and impact of the discovery. Both versions consider the kink to be a general condition under oligopolistic market structures. The difference between them lies in the additional thesis by Hall and Hitch that the kink exists at the average price - and that this price tends to be rigid. This paper will deal first with the common points in both formulations and then will deal with the additional thesis put forward by Hall and Hitch.

Under oligopoly conditions the reactions of rivals are indeterminate and at best can only be imagined. This gives rise to an indeterminate and imagined demand curve, where a kink is said to exist at the prevailing price, and the elasticity of demand on both arms of the kink will be different depending on whether there is an upward or downward movement of price. This difference in elasticities arises out of the different ways rivals are imagined to react to different price changes.

If one producer increases his price, his rivals experience a gain in business; thus ordinarily there would be no reaction at all. For the particular producer, his demand curve would tend to be elastic going up. If he cuts his price, his rivals, in order to forestall their losses must follow the price cut. So, it is conceivable that the demand curve for the particular producer tends to be inelastic going down.

The demand curve is also the average revenue curve, and the kink in the average revenue curve will cause a discontinuity in themarginal revenue curve at the prevailing price; and the discontinuity lies just below the kink. Several implications follow from this. The condition for short-run equilibrium, that marginal cost should be equal to marginal revenue is difficult to achieve because of the kink and the discontinuity. As the marginal cost may cut the marginal revenue between the extreme points of the latter's discontinuity the condition of equilibrium seems to be less precise.

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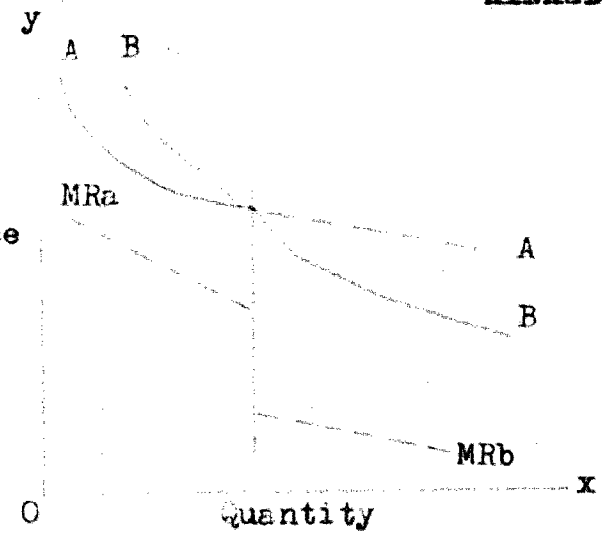
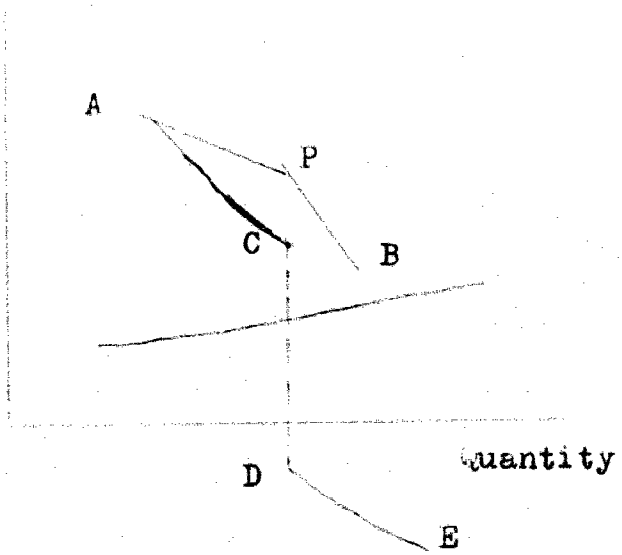
[11] P.M. Sweezy: "Demand under conditions of oligopoly". Journal of Political Economy. 1939.

FIGURE 2

DIAGRAMMATICAL REPRESENTATIONS OF THE KINKED DEMAND CURVE



2(A) Hall & Hitch Version



2(B) Sweezy Version

Marginal cost cannot be greater than marginal revenue though it may be less. Another implication may be that the marginal price of factors may not equal their marginal productivities. A successful strike, for instance, may increase wages without influencing the output if there is a kink, although the new wage may cause the marginal cost curve to go up. If different wages are paid, it follows that the wages might not be equal to marginal revenue productivity. The total revenue would still remain the same, given the price. But total cost would have increased and profits would have decreased. Therefore the marginal revenue productivity would not equal the price of labour, as its equality can only come about if the increase in wage rate is accompanied by an increase in total profits.

When a firm is dominant and assumes the role of a price leader, any change in price will be followed by the other firms. The rivals are expected to react the same way for upward or downward movements of price, hence there will be no abrupt change in the slope of the average revenue curve.

In another situation, price concessions may be granted secretly. In so far as these price concessions remain secret, they will not be matched by rivals and there will be no kink. One may however assume some amount of discrimination in such a situation, and the average revenue curve may be thought to show the average of the discriminatory prices charged, and for downward movements the demand curve will not be as inelastic as in the imagined demand curve.

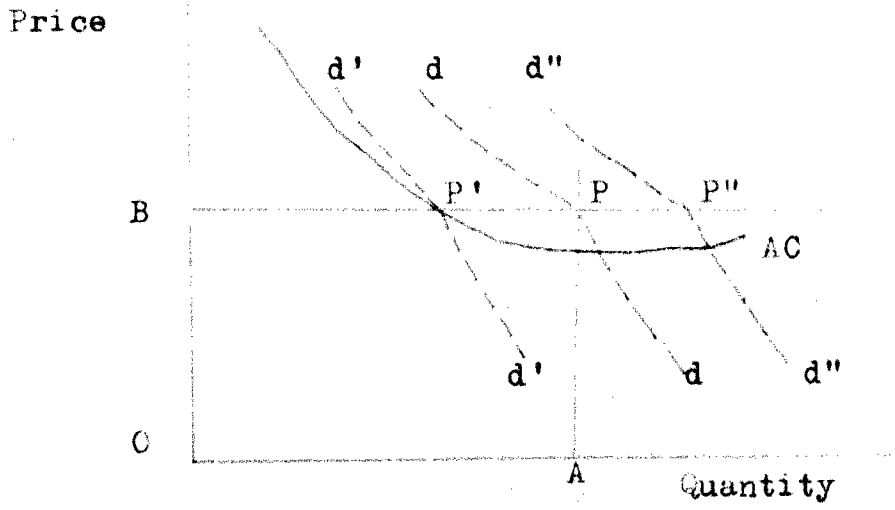
During periods of a general increase in demand, the expectations of the producers will be affected. The producers would be less ready to retaliate to a price cut when demand increases since they are less concerned about losses. Should a kink exist, it will not be a sharp one, and the discontinuity of the marginal revenue curve will be narrowed. There is also the likelihood that during this period factor prices might increase causing the marginal cost curve to go up and cut the upward portion of the discontinuity. In such conditions, the price of the product is likely to increase. The oligopolists are more likely to follow an increase in price.

A decrease in demand, as in periods of depression, can be expected to have the opposite effect. Rivals would not follow price increases but would be more likely to follow price decreases, making the imagined demand curve more elastic for upward movements in price and less elastic for downward movements. Since the change in slope is more marked, the discontinuity is increased. Factor prices may become "sticky" owing to trade union's unwillingness to accept wage cuts. The marginal cost curve retains its previous position and there is less likelihood for producers to alter their prices.

Hall and Hitch's version of the kinked demand curve carries the additional thesis that the kink occurs at the point where the price, fixed on the full-cost principle stands, and that for a wide range of marginal costs the same price will be charged - implying stability and rigidity of the prevailing price. If the movement is considerable, e.g. when demand decreases and remains there for some time, they suggest that price will be cut by "one fool who panics" and this change will be followed by others. Should cost conditions change by similar amounts for all the firms, then the authors suggest that the full-cost price will be evaluated.

FIGURE 3

FULL-COST PRICING UNDER CHANGING DEMAND CONDITION



In Figure 3, AC represents a section of the average cost curve (excluding normal profits). At output OA, profits will be as expected and will measure up to the conventional margin. Price will not be changed for a wide range of demand conditions. Only if the demand curve shifts outside the range, e.g. much too far left of d'd', then price may be cut. But should the cost curve of all firms shift in similar amounts, then the full cost price of OB will be "re-evaluated".

Marginalism in Wage-Employment Relationships

Lester's paper[12] describes an enquiry by means of interviews and questionnaires of the relationship between wages and employment from the point of view of the individual firm, and arrives at tentative conclusions which raise "grave doubts as to the validity of conventional marginal theory and the assumptions on which it rests".

After various interviews and from the written replies of 58 firms, Lester concluded that most of the executives do not make the amount of "employment they offer as a function of wage-rates",[13] and this conclusion can be explained by the following reasons. Firstly, because of the plants and the technical process of such plants which require "fixed crews", i.e. fixed labour proportions. Secondly, the businessmen generally thought that deliberate curtailment of operations and employment as an adjustment to wage increases, increase variable costs per unit of production. Thirdly the flexibility[14] of many of the plants used is extremely limited and any adjustment of the methods of manufacture to changes in the relative costs of productive resources would involve impractical measures, such as the sale, possibly at a loss, of existing facilities and the

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[12] R.A. Lester: "Short-comings of marginal analysis for wage-employment problems". American Economic Review, Vol. 36A, 1946.

[13] Ibid. Page 67.

[14] e.g. flexibility for expansion by means of changing or redesigning of equipment.

purchase of new facilities and equipment, the retraining of workers and countless other problems. Lastly, the answers of the executives gave overwhelming emphasis to current and prospective demand for their products as the most important factor in determining its volume of employment[15].

Next, Lester examined whether there was any relation between increases in labour costs and the introduction of capital improvements. Out of 44 replies, 42 replied that lower wages in the South (America) had not caused their companies to use more labour intensive plants in the South, relative to those in the North; and some stated that "'the most efficient equipment available' was used in every plant regardless of location or relative wage levels".[16] These findings coupled with those of a T.N.E.C.[17] study of wage-rates, labour costs and technological change in some companies which indicated that wage-rates may have no significant influence in the determination and timing of technological change led Lester to the conclusion that "for the most part there appeared to be little causal connection between increased labour costs and the introduction of capital improvements".[18]

Another questionaire, regarding the adjustments they would make to a sharp narrowing of the North-South wage differential in their industry, brought further replies from 43 southern firms which were indicative of the fact that wage-rates are not in fact an important influence in deciding the amount of employment which a firm offers. The most frequently mentioned adjustment by the firms was improvement in efficiency through better management incentives[19], etc. Introduction of labour-saving machinery was the second most significant

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[15] Ibid. page 65.

[16] Ibid. Page 74.

[17] "Industrial wage rates, labour costs and price policies". T.N.E.C. monog No. 5. Quoted in Lester. Ibid.

[18] Ibid. Page 75.

[19] The questionnire mentions "(v) Improve efficiency through better production methods, organisation, supervision incentives, workloads, etc." Ibid. Page 77.

adjustment mentioned. Especially noteworthy was that only 4 out of the 43 firms mentioned the deliberate curtailment of output, an adjustment stressed by conventional marginal theory. Lester appears to have a prima facie case for his main conclusion about the weakness of the direct connection between wage rates and the size of output.

A Critique of Marginalist Assumptions

Gordon's[20] article is a critical examination of the assumptions underlying the conventional theory of the firm and the extent to which these assumptions meet the test of business practice. He attempts first to sum up the major premises on which the marginal analysis is built.

> "(1) that businessmen seek always to maximise profits
>
> (2) that profits are always maximised through adjustment in a limited number of directions, and it is sufficient in many cases to consider adjustment in only one direction (output).
>
> (3) changes in the given data occur sufficiently frequently that it is humanly possible to evaluate the results of a variety of alternative possible adjustments to each new situation; and
>
> (4) the effects of dynamic uncertainty can be ignored or (what amounts to the same thing) uncertain expectations can be resolved into certainty equivalents."[21]

Gordon's contention is that the marginal analysis does not provide a satisfactory explanation of price determination in practice because of its reliance upon a set ofassumptions which in varying degrees does not hold to be true in the real world. He points to the actual conditions of "unending and unpredictable change and the existence of more 'directions of adjustment' than the business can possibly handle in the manner assumed by formal theory".[22]

As regardsthe criterion of maximum profits, Gordon states that extra pecuniary motives may influence the behaviour of businessmen far more than is generally admitted. Thus a firm's institutional

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[20] R.A. Gordon: "Short period price determination in theory and practice". American Economic Review, Vol. 38A. 1948.

[21] Ibid. Page 266.

[22] Ibid. Page 287.

environment may place upon it pressures to achieve subsidiary ends, such as the maintenance of goodwill and selling through particular distributive channels. The pursuit of these subsidiary objectives may be subservient to its primary motive of profit maximisation, and admittedly these secondary motives have an indirect effect on profits. But difficulties arise out of the sheer impossibility of establishing even conceptually, a functional relationship between profits and the various degrees of fulfilment of the subordinate objective. The degree of attainment of the subordinate objective may not be quantitiable. Furthermore, these objectives may be pursued in large discrete steps. Because of these reasons, marginal adjustments toward the secondary objective may be impossible.

Gordon suggests that satisfactory profits, a vague criterion though it may be, is a more satisfactory alternative to "maximum profits". Because of ignorance and uncertainty, and the impossible task of manipulating more variables than his mind can encompass, the business may adopt a set of yardsticks that promises him satisfactory profits and maximises the sine qua non conditions for his remaining in business.

Next, the assumption of single valued, continuous cost and revenue functions is taken to task. In the case of costs where a firm produces multiple products the costs common to their products are allocated on some arbitrary basis. The firm finds it impossible to make continuous reckoning of change in cost resulting from changes in the output of one or more products, and as a practical solution most firms follow "an almost irresistable tendency to price at an average cost basis".[23] This becomes the "yardstick" adopted to aim at safe profits, especially when the expansion of output can take place in large increments (causing bottlenecks in some departments) and resulting in discontinuity of total costs in the firm.

The businessman's ignorance of his demand situation makes the theoretical treatment of price determination yield unrealistic results. In the dynamic and uncertain business world, the businessman's great concern, on the demand side is with the probability of a constantly changing volume of sales at a given price. He is more concerned with shifts in demand rather than with the shape of the demand curve. Marginal theory is also unrealistic when it assumes that the businessman is free to manipulate price and output in his short period search for profits. Especially where oligopolistic uncertainty exists, it will be more realistic to assume that businesses have greater control and know more about other variables, such as selling expense, sales and product variation, rather than the price elasticity of demand.

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[23] Ibid. Page 274.

Gordon further mentions the inadequacy of the treatment of time and the complications of the element of time in the conventional theory. Marginal theory can tackle the problem of anticipations in either of two ways: (1) to use static tools of a single period analysis and compress the indefinite future into the present by including all relevant anticipations in the cost and revenue functions of the present period and determine equilibrium by the equality of marginal revenue and marginal cost, or (2) by multi-period analysis where the theory is made dynamic by introducing separate cost and revenue functions for each period within the businessmen's horizon. The first method of analysis suffers from being tautological as a result of broadening the scope of demand and cost functions by doctoring and changing the functions to include future expectations, without any explanation for the changes. Multi-period analysis, he admits does not suffer from this weakness but its application involves totally unreal assumptions, e.g. the assumption of detailed knowledge of the entrepreneur about his future cost and revenue function and his plans for future action within this framework. Another heroic assumption is "that uncertain expectations can be transformed into single-valued equivalents after adjustment for a factor to express the businessman's attitude toward the uncertainty involved, thus ignoring the possible independent effect of uncertainty in modifying the profits - maximisation criterion".[24]

Gordon's main thesis is that in a business world characterised by ignorance and uncertainty, marginal theory fails by assuming away the very conditions under which businessmen pursue their profits. The assumption that businessmen have perfect and detailed knowledge of continuous and unpredictable changes and manipulate their variables in a state of flux in order to maximise their profits, is totally unreal. Their real ignorance is compounded by uncertainty, which brings into the picture its own problems, e.g. the pursuit of subsidiary objectives.

Normal Cost Pricing

The article by P.W.S. Andrews[25] represents the first attempt to provide an alternative theory of price determination. His theory generalises from empirical facts and is a formulation of the "normal cost" theory. Orthodox theory, Andrews says, suffers from two main defects. Firstly, it neglects the existence of short-run reserve capacity and this has led to errors in the analysis of cost. Secondly it neglects to take time into account in the theory of demand.

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[24] Ibid. Pages 280-281.

[25] P.W.S. Andrews: "A reconsideration of the theory of individual business". Oxford Economic Papers, Vol. 1. 1949.

Andrews' theory therefore relies heavily on his analysis of cost. Prices are thought of as being dependent upon costs and output is not considered to be the result of any balancing of marginal revenue against marginal cost. Costs are seen as being of two kinds:- (a) direct and (b) indirect (overhead).

Average direct costs may be expected to remain constant for quite a wide range of output since the specification of the product will call for some given quantity of each material to be embodied in each unit of the finished product, unless output is increased by working overtime. The rising part of the average direct cost curve is not considered relevant, as Andrews treats it as normal for businessmen, irrespective of the degree of competition which his firm has to meet, to plan to have reserve capacity to allow himself elbow room to meet with contingencies and also to be ready to face an expanding market with the accretion of goodwill.

Average indirect costs fall hyperbolically as output is increased. Output may be increased beyond the limit of planned output by increasing extra costs either by adopting overtime or by installing extra units of machinery. The extra cost will cause the average indirect costs to rise abruptly to a new level from which it will again begin to fall continuously. But because of the existence of reserve capacity especially in large capacity machines and because for any short increase in output, it may be possible to carry on with the same supervision, these "overhead costs are to be seen as fixed over broad stretches of output, and certainly over the range of output which the business expects as usual".[26]

In the long run, the business is completely free to change its method of production and to adopt them specially to the production of each particular output. Accepting this definition, the business may be assumed to be so organised as to produce the output at the lowest cost. Andrews agrees that starting from this assumption the theoretical cost curve is a reasonable concept - that long run costs may be increasing, constant or decreasing. But he disagrees with the modern generalisation[27] of the long-run cost curve as being U-shaped in so far as the rising branch of the curve cannot be justified. The text book version justifies this by reference to the assumption "that management will get continously and progressively less efficient". Andrews contends that management, unlike other factors should not be subjected to the simple law of non-proportional

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[26] Andrews: op. cit. Page 64.

[27] Andrews cites the articles by Harrod: "Decreasing returns" Econ. Journal, December 1931; and J. Viner: "Cost curves and supply curves", 1931-32.

returns,[28] and suggests that the "management" average cost curve is a series of plateaux, and may be thought to fall with increases in scale up to a certain point and then to rise, though probably at a diminishing rate.

Technical costs are thought to fall until the optimum scale of plant is reached. Once this scale is reached, so long as the increase in scale takes place by duplicating the optimum combination of factors, technical factors imply constant average long-run costs of production, but if the growth in scale is by a smaller amount, then the average cost curve will be undulating. But this will only be true, on the assumption that businessmen will choose to produce at least costs. By postulating that the businessman will normally reserve some strategical excess capacity[29] in order to be flexible enough to meet any need of varying his output, not only in the short-run but also in the long-run, Andrews was able to put forward his proposition that technical costs of production will fall with increases in the scale of production.

'Adding' or taking the behaviour of these two types of indirect costs together, Andrews then puts forward the following propositions[30].

(a) that when output is large, the cost of production may be considered as approximately constant. Once the management has reached a routine level of efficiency at a very large scale of output, its efficiency will not decrease very much with further increases in output. Technical costs will not fall very far.

(b) Over any given scale of management, the business will be in a condition of decreasing long-run costs.

These conclusions are taken over as assumptions in this analysis of normal price policy.

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[28] Andrews justifies this by reference to a "plausible" proposition - that there are levels of management (page 69) and the rate of decrease in efficiency will be progressively less at each higher level (page 70).

[29] "Excess" or "Reserve Capacity" is for Andrews a much wider concept than for Chamberlin. Andrews states that whereas "Chamberlin's long-run excess capacity appears to consist of management which is not fully extended at the given scale, we should expect that in the real world reserve capacity will exist in capital and other overhead equipment". Quoted in page 74. Op. cit.

[30] Andrews: Op. cit. Page 75.

The businessman's expectation of how his costs behave is held to be crucial for his price policy. It is unlikely that he expects management will become less efficient with the expansion of his business, if he is given time to plan new administrative techniques and if growth is gradual. Following from the earlier conclusion, average long run costs of production will at worst remain constant but will probably decrease at a slackening rate with the growth of the business. Because average long-run costs will not rise, the businessman will think it safe to use his existing (short-run) costs as a basis for his long-term pricing policy".[31]

The price the businessman quotes bears a direct relation to his average direct costs, which in turn is assumed to be constant over fairly wide rangesof output."He will be able to make fairly accurate estimates of his average direct costs, and in order to get the quoted price, these will be grossed up by a definite amount ... "this addition will equal the average contribution that the businessman will require each unit of product to make towards covering the overhead costs of the business and making a profit". Thus,this normal costing margin tends to be such as to cover the average indirect costs in the long-run and also give a normal profit. This costing practice is stubbornly adhered to and departures from the practice occur only in abnormal situations and should not be treated as weakening the normal cost practice as a general rule of behaviour.

Long term competitive forces work on this costing margin. "The businessman normally thinks long run, and views the world he functions in as a much more competitive world than the modern economist is prepared to concede." Competition will ensure a single price for similar products by "stabilising gross profit margins in sections of industry which involve fundamentally the same sort of organisation". The firm which is less effieient in the use of direct-cost factors will have to be content with smaller costing and gross profit margins, and such a firm will be left with a smaller net profit per unit of output.

The businessman, thinking in long-run terms, and believing in a high degree of potential and actual competition, holds that any serious departure from the "right" price would mean the loss of his market, since he conceives of his long-run demand curve as being infinitely elastic for a certain level of price.[32]

The theory may now be summarised[33] as follows:-

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[31] Op. cit. Page 80.

[32] Andrews implies this to be the full-cost price.

[33] quotations from Manufacturing Business.

(1) "the price which a business will normally quote for a particular product will equal the estimated direct costs of production plus a costing margin."

(2) the costing margin will normally tend to cover the costs of the indirect factors of production and provide a normal level of profit looking at the industry as a whole. Once chosen, the costing margin will tend to vary, however, with any general permanent change in the prices of the indirect factors of production".

(3) given the prices of the indirect factors of production, prices will tend to remain unchanged, whatever the level of output.

(4) at that price, the business will have a more or less clearly defined market and will sell the amount which its customers demand from it.