CHAPTER II

THE COUNTER-ATTACK

Against these criticisms, Machlup produced a most notable defence of marginalism.[1] It was partly a fierce counter-attack upon the empiricists - in respect of wage employment relationship, it was sharply critical of Lester's methodology and formulations; in respect of price and output policy it was a defence against Hall and Hitch, and Harrod. In part, Machlup's article was also a re-statement of marginalism, with refinements added to the orthodox text-book version.

In a general attack upon the empirical researchers, Machlup cites several reasons why they have been misled into attacking orthodox theory. In the first place, the terminology of the economists and that of businessman need not be the same. If the businessmen do not know the concepts and terms used by the economists they cannot be expected to think in those terms. Thus the essential terms, which the text-book writers use to describe business behaviour may not exist in the businessman's vocabulary. But this, Machlup argues, does not entitle the researcher to conclude that the text-book explanations of business behaviour are unrealistic or false because the technical terms used to explain the behaviour need not form any part of the thinking process of the individual. "A mental process in everyday life may often be most conveniently described for scientific purposes in a language which is quite foreign to the process itself."[2]

The questionaire method will rarely yield useful results because the questions can seldom be framed such that it is able to translate businessmen's ideas into that of the economists and vice-versa. This necessitates therefore, knowledge of the "technology, customs and jargon of the trade" before one can ask the right set of questions. It will be impossible for any particular set of questions to be formulated so as to fit any large number of businessmen in different field.

Answers given by businessmen to questions about their motives and reasons for their actions might be suspect for various psychological reasons, and may have misled their researchers.

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[1] F. Machlup: "Marginal analysis and empirical research". American Economic Review Vol. 36A. September 1946.

[2] Ibid. Page 537.

Explanations given may be often subconsciously designed to appear plausible and ethically responsible to the interviewer and society at large. This bias is also reinforced by the fact that " decades of regulatory experiments and a long history of court decisions have emphasised the average cost principle as a just basis for pricing". This source of bias exists although most of the rationalisations may be subjectively honest and truthful. Machlup's contention is that it is impossible to disengage the actual from the imaginary reasons by analysing written replies to questionaires, and for support, he quotes a conclusion from George Katona, who states that "only detailed interviews can probe into the motives behind business decisions".

Thirdly, a confusion over the meaning of the word "average" may have contributed to the belief on the part of some economists, that businessmen follow the average cost theory of pricing. Average cost in the sense of unit costs as a function of output was said to be sometimes confounded with the average of costs as they fluctuated over time. Similarly with revenue, That firms do indeed calculate the average revenues and average costs to take care of variations over time, is a practice not inconsistent with the marginal revenue and marginal cost principles, and cannot be taken to mean that the firms pricing decisions are on the average cost basis rather than the maximum profit rule. The firm may, for instance, in considering increases in output, be faced with a situation where "the marginal changes of revenue and cost as functions of output will have to comprise any changes over time that will affect revenue or cost."[3]

Machlup maintains that the businessmen may be following the marginal caculus without using any of the expressions "marginal cost" and "marginal revenue", The statement:-

> "At the increased volume of output marginal cost will be this much and marginal revenue that much."[4]

expressing the marginal calculus of variations may be expressed in a different but perhaps practical way. "The increase in business will change average cost from this to this much, and average price from that to that much; it will therefore change profits by changing the margin of so and so much, times an output of that much."[5]

To divide the two sets of figures, total costs and receipts, by their respective output figures so as to multiply the differences between average cost and revenue by the same figures of output is not incorrect. Although average costs figure so largely in the statement, it had no place in his actual decision. The reasoning involved - when not only the current but also the potential average

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[3]Ibid. Page 539.

[4]Ibid. Pages 539-540.

[5]Ibid. Page 540.

cost (average cost at a different production volume) and also the change in total receipts are considered - is true marginal calculus and not average cost reasoning.

Fifthly, Machlup stated that some accountants as a result of a two-fold misunderstanding believe the marginal principle to be an unsound rule for the setting of prices. They reason that firms, by a general application of differential cost considerations might forget the necessity of recovering their overheads in some branch of their business. The firm obviously cannot be expected to remain in business if they habitually sell their output at a price below full-cost. According to Machlup, this reasoning shows a two-fold misunderstanding of the marginal principle.:

(a) "that marginal cost does not "include" fixed overhead charges need not mean that it will always be below average total cost; indeed marginal cost may equal or exceed average cost. (This will always be true for volume of output at or beyond "optimum capacity" of the firm.)

(b) To use marginal cost as a pricing factor need not mean that price will be set at the marginal cost level.

Adherence to the principle does not mean that price is or ought to be fixed to equal the marginal cost. This comes about only in the exceptional case of perfect competition where price is not "set" but "given" and beyond the control of the firm; and marginal cost will be equal to price as a result of the firm finding its optimum output with a perfectly elastic demand. In the normal case of monopolistic competition, the firm will charge a price where marginal revenue is equal to marginal cost and this price must be above both values.

Only in the case where the average cost rule is used as a cartel device, will adherence to the marginal principle sacrifice profits, because it would mean abandonment of the price-fixing arrangement. The effect of such price agreement will be generally upon the elasticity of the expected demand. If the businessman believes he ought to stick to the price-fixing arrangement, it is usually because he fears the consequence of such break-away on his long-run demand and revenue. If he considers price cutting, he will expect his demand curve to be less elastic because of the risk of retaliation.

Sixthly Machlup proposed that businessmen when they set prices according to average cost might be using it "as an aid in guaging the elasticity of the long-run demand for its product",[6] - implying that the businessmen indulge in marginalist considerations.

[6] Ibid. Page 544.

Since the elasticity of demand for any particular product depends on the availability of substitutes or the elasticity of supply of competing goods, and these in turn depend on the actual or potential cost of production of the firms concerned, Machlup feels the best guide to the likely response of their supply and therefore of consumers demand for their own products is a consideration of average cost data, "and usually the best clue that a firm has of the production cost of its competitors, is its own production cost corrected for any known differences of conditions". The firm will then weigh the consequences on the demand for its own product if it raises price above average-cost. He has to fear his existing competitors who will expand their sales at his expense, and/or new entrants attracted into the industry by the generous profit margin above average cost. Under such circumstances he will know that he stands to lose too much business and had better stick fairly close to a price based on average cost. The explanation of the empiricists that adherence to this price is because of some emotional attachment to the full-cost principle seems entirely off the mark.

Next Machlup warns of the dangers of using businessmen's answers as evidence against the validity of marginal analysis. This procedure of price-setting might include probably hundreds of reasons, the selection of a few of them for presentation to the inquirer is influenced by the prejudices or old theories... . A more fruitful enquiry would be to ask the businessmen not to explain the price they actually charge but to explain why they had foregone alternative price policies. Machlup suggests that questions such as "why not more?" and "why not less?" could extract more meaningful answers, if their answers could be cross-examined to isolate the influences of unnecessarily complicating variables.

In respect of the Hall and Hitch enquiry, Machlup further suggests that such a cross-examination would have brought out the fact that moral or quasi-moral views on maintaining the current price were in fact coupled with opinions that any deviation would cause an unnecessary sacrifice of profits. He also submits that the Hall and Hitch enquiry, rather than prove that the businessmen's observance of average-cost pricing was inconsistent with the profit maximisation principle - had shown that the businessmen were pre-occupied with marginal revenue considerations - "they had paid much attention to demand elasticities.

Machlup argues that the empirical researchers had been misled into losing confidence in the marginal analysis because of the absence of numerical data about the magnitudes involved. He argued that because the estimates were not exactly known, there is no reason to believe that they do not feature in pricing decisions. Referring to his earlier point, Machlup reiterates that the construction of an analytical description of a process is not the same thing as the actual process; and therefore we should not expect to find in practice the same definite numerical estimates that are part of the analytical description. Elsewhere he presents an analogy to illustrate the nature of the subjective estimates which the businessman takes into account in his pricing process. What the businessman does is analogous to driving a car. A scientific explanation of a driver's decision to overtake a car must involve actual and exact data such as the relative speeds of the vehicles, the visibility , the condition of the road, etc. But the driver performs these same operations without the reckoning of such exact data. So does the businessman in his pricing process. Hence the absence of numerically expressed estimates need not disprove the correctness of marginal analysis.

According to Machlup, Lester's questionaire suffered from (a) the inherent weakness of the method and also (b) defects in formulation. The defect in his procedure could be put down to the fact that "statistical studies of the relationship between wage rates and employment in large samples of individual firms or industries would be nearly useless because we have no way of eliminating the simultaneous effects of several other significant variables, especially those of a psychological nature".[7] The moods and anticipations of the businessmen will condition their reactions to changes in wage rates, and while economists may be able to translate these moods and anticipations into certain shape or shifts of the marginal productivity functions, the questionaire researchers have no way of evaluating these conjectural data by purely statistical investigations.

Lester's procedure of asking the businessmen to rate the given factors in terms of percentage importance of each, Machlup criticised as being impossible of yielding significant results. The term "importance" was not explained, and if it meant its responsibility for changes in the volume of employment, could refer to any of the following:-

(a) the frequency of its variations
(b) the extent of its variations
(c) the effect of its variations.

The ratings given cannot be significant because the variable listed as the least important could be just as strategic as any other variable with higher importance rating. By way of an analogy, householders may give higher percentage ratings to non-price influences on the consumption of spinach, e.g. the number of children, charges in the family income, etc., and it cannot be concluded from the poll that price is an unimportant factor influencing spinach consumption.

Of the variables listed for rating, item (d), i.e. variations in profits or losses of the firm comprised all the other variables, and what was even more significant, all the variables listed except for (f) the unspecified item and (d) the all-inclusive item, are essential variables in marginal analysis.

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[7] Ibid.

From his questionaire on variable cost, Lester concluded that company output and employment policy are based on the assumption of decreasing marginal variable cost up to full capacity operations. Machlup counters by saying that the answers to the questionaires were based on an undefined concept of "plant capacity". Economic theorists use different definitions: (a) it could mean that output where short-run total cost per unit is a minimum, implying decreasing average total cost up to 100% plant capacity or (b) it could mean the output at which average variable cost per unit is a minimum, in which case it implies decreasing average variable cost up to 100% capacity". Lester's conclusion that most of the manufacturing firms in the industries covered by his survey apparently have decreasing unit variable costs within the range of 70-100% of capacity production, could have been merely a self-evident conclusion implied in the definition of capacity used by his respondents. Machlup holds that Lester's deduction does not follow from the premises. In addition text books do deal with the firms reactions under conditions of decreasing marginal cost. Under the following conditions:
(a) an indivisibility of the firm's physical plant facilities combined with either or both (b) a low elasticity of the demand for the firm's product and for (c) a low elasticity of the supply of labour to the firm, the firm may restrict the employment of labour to a volume within the phase of increasing physical productivity per unit of labour. The same conditions are likely to result in decreasing marginal net revenue productivity of labour. "(a) makes the phase of increasing physical productivity of labour in the firm a practical possibility; the other conditions (b) or (c) make that phase relevant for actual operations by providing the pecuniary incentive to operate the plant inefficiently. Condition (b) will cause marginal net revenue productivity of labour to be diminishing in a range of employment in which average or even marginal physical productivity of labour are still increasing.

In his questionaire on adjustments of the firm to changes in wage rates, Lester asserts that "most industrial plants are designed and equipped for a certain output, requiring a certain work force. Often effective operation of the plant involves a work force of a given size". Lester's earlier reference to "unused plant capacity" would mean that a firm is operating within the phase of increasing returns and is therefore operating insufficiently out of choice. "Effective operation" on the other hand implies employment at or beyond the point where diminishing returns set in. Machlup charges Lester with not being clear as to which way he wants to argue. Lester is also said to hold a commonly mistaken view "that substitution between capital and labour can occupy only in the form of installation of new or scrapping of existing machinery, and that it is supposed to occur "readily" and would therefore be "timed" with the wage changes".

A glaring contradiction is said to exist between his opposing conclusions in the two questionaires. In his first questionaire, Lester was able to conclude"that industry does not adapt its plant and processes to varying wage rates in the manner assumed by [illegible] the other questionaire, "introduction of labour-

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A glaring contradiction is said to exist between his opposing conclusions in the two questionaires. In his first questionaire, Lester was able to conclude"that industry does not adapt its plant and processes to varying wage rates in the manner assumed by marginalists". From the other questionaire, "introduction of labour-saving machinery" was the second most significant adjustment mentioned. The two conclusions are, as Machlup says, irreconciliable.

Machlup further holds that the second questionaire far from justifies Lester's conclusion. That "deliberate curtailment of output" was given a low percentage rating was not surprising as output adjustments, (where competition is not pure) to higher production costs take place by way of changes in selling cost. Employment reducing adjustments - labour-saving machinery, price increases and deliberate output curtailment - taken together indeed dominates the importance ratings of the firms.

Some Refinements to Marginalism

In addition, Machlup's paper focussed attention on several aspects of marginalism, which are easily overlooked or misunderstood. These are,

(1) Firstly, the role of historical antecedents in the determination of the firms product, output-employment and prices is important and its existence is recognised by marginalism. The past is seen "as shaping the actual conditions under which the firm operates ... developing the routine of its responses to changes in conditions and ... impressing it with experiences which have taught it to size up and anticipate these changes as the basis for its decisions".[8] Machlup points out that marginalism is only the framework of explanation of the firm's adjustment to changes in conditions, data, etc., occurring over time, and which marginal analysis takesas"given". The role of the past is also instrumental in rendering repeated calculations on the part of businessmen unnecessary, and a large part of their actions become routine, after "a sizing up" of the total situation. On the basis of hundreds of previous experiences, the businessmen have developed certain "hunches" resulting in "rules of thumb" for various situations. But these rules of thumb are ultimately based upon principles consciously considered at some time in the past.

(2) Secondly, Machlup asserts that the marginal concepts - marginal cost, revenue, etc - should be taken to refer to subjective estimates and conjectures. And the firm's actual decisions are based upon these estimates. These estimates might diverge from the actual magnitudes, if the latter can be computed

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[8]Ibid. Page 521.

by outside observers.

(3) Although for pedagogic reasons, the demand and cost curves might be drawn showing a wide range of price and output variations, the businessman in reality, according to Machlup, considers only a narrow range of possibilities. A businessman will "rarely bother pondering the probable effects of a price increase or a price cut by 50%, but he may easily think about what a 10 or 15% price change might do to his sales".[9] But this is not in fact detrimental to the marginal calculus.

(4) The time range of anticipations upon which the curves are based was next clarified. After a restatement that "past experience is always in the background of anticipations in the future",[10] Machlup points out that anticipations alone are the relevant variables in the marginal calculus of the firm. The relevant period of cost anticipations are determined by the duration for which demand conditions are expected to prevail. If demand conditions warrant an adaptation of equipment, long-run cost will be taken into consideration in the determination of output. The relevant period for demand is also subject to similar considerations. For example, if a price increase damages goodwill and affects future profits, the firm will weigh their future effects against the short-run benefit. The firm therefore does not maximise profits for the short-run only. Anticipations of the sort mentioned show that firms did not necessarily have their horizon in the near future.

Machlup also favoured a broader definition of revenue and cost. Non-pecuniary considerations motivating a businessman do not make his conduct uneconomic as he might still be maximising his satisfaction by preferring to compensate a reduction in profits by some non-pecuniary satisfaction. This satisfaction could be translated into the revenue data of the marginal calculus. Thus non-pecuniary rewards or sacrifices could be added to make up an all-inclusive marginal calculus of the firm. But he detects a methodological defect in the proposal. It would be methodologically sounder to favour the more narrow definitions because "if whatever a businessman does is explained by the principle of profit maximisation ...

[9] Ibid. Page 522.

[10] Ibid. Page 523.

the analysis acquires the character of a system of definitions and tautologies, and loses much of its value as an explanation of reality."[11]

[11] Ibid. Page 526.