FULL COST PRICING: A NEW WINE IN A NEW BOTTLE*

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In 1939 R.L. Hall and C.J. Hitch published a paper "Price Theory and Business Behaviour", containing the results of the Oxford Economists' Research Group's (OERG) investigation into the price setting behaviour of businessmen. In the article they introduced the economic profession to the concepts of full cost pricing and full cost prices. Since then, the article and the concepts have, on the one hand, been subject to virulent criticism by the proponents of marginalism, while, on the other hand, they have been hailed as the roots of a non-marginalist theory of prices by Post Keynesian economists. However, neither side has fully come to grips with the contents of the article; the nature of full cost prices, the concern with stable prices, and the relationship of the kinked demand curve to full cost prices have not been carefully analysed. Consequently, it is not possible after forty years of debate to ascertain whether the truth lies with marginalism, full cost pricing, or somewhere between the two. The purpose of this article is to argue that the truth lies with full cost pricing and that it is indeed a new wine in a new bottle. The article will be divided into three parts. The first part is a review of Hall and Hitch's article, the second is an analysis of its seminal and revolutionary features, and the final part shows that full cost pricing can be extended and developed beyond the narrow confines within which it was originally placed.

I.

"...in pricing [businessmen] apply a rule of thumb which we shall call 'full cost,'..." (Hall and Hitch, 1951, p. 113)

To publish its research, the Oxford Institute of Statistics with the support of the Oxford Fellows from the various colleges established the Oxford Economic Papers. In the second issue, published in May 1939, there appeared the article by Hall and Hitch in which they presented the results of the OERG's investigation into the price setting behaviour of businessmen. It was in this article that they introduced to the economic profession the concepts of full cost pricing and full cost prices. They opened by briefly delineating the essence of the marginalist theory of pricing as found in the writings of Harrod, Joan Robinson, and Chamberlin. Hall and Hitch felt that for the marginalist theory to explain the price setting behaviour of businessmen, the businessmen "...should in fact: (a) make some estimate (even if implicitly) of the elasticity and position of their demand curves, and (b) to attempt to equate estimated marginal

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revenue and estimated marginal cost" (Hall and Hitch, 1951, p. 112). However, the evidence obtained from the businessmen did not indicate that they used marginal revenue and marginal cost or the elasticity of demand to set prices. Rather it indicated "that they are thinking in altogether different terms" (Hall and Hitch, 1951, pp. 112-113), which Hall and Hitch collectively conceptualised as full cost pricing.

To gain a clear understanding of full cost pricing, it is best to start by assuming away any competitive restraints facing a businessman. In this situation, he would set his price by adding together direct material and labour costs per unit of output plus overhead costs determined at expected or standard volume output plus a predetermined (conventional) profit margin. In addition any selling and interest costs the businessman incurred were generally included in the predetermined profit margin. Hall and Hitch called the resulting price, the full cost price and the price setting procedure, full cost pricing. However because the firm lives in a competitive oligopolistic industrial environment, the profit margin added to its total per unit costs at the expected volume of output would generally be modified so that a single market price would emerge. For example, in the industrial situation of price leadership-price follower, the price leaders would set his full cost price and the price followers would match it by adding a modified profit margin to their costs. In a different industrial situation where there is no overt co-operation among the firms, a single market price would emerge when firms used the same "representative" standard per unit costs and profit margin. In the former case, profit margins would differ among the firms in the industry as their expected per unit costs differ while in the latter case, the profit margin of the firms would differ as their standard costs differ from the "representative" standard costs. What must be noted is that in either industrial situation, the full cost pricing procedure is followed although competitive constraints dictate non-conventional (or non-formal) profit margins.

Although the businessmen interviewed saw the prices set by full cost pricing as the "right price" or the price that ought to be set, there were other substantial reasons for using the price setting procedure as opposed to using the marginal approach:

1. since the businessmen did not know consumers' preferences and since they were also oligopolists and thus uncertain of their competitors' reactions to a price change, they could not carry out the necessary experimentation to determine their marginal revenue and demand curves;

2. although the businessmen did not know their competitors' responses to a price change, they feared that all price reductions would be followed while all price increases would generally be ignored;

3. because of the view that market sales would respond rather poorly to market price reductions, price leaders or other co-operative industrial arrangements would not advocate price reductions;

4. conversely, market prices would not be set where the profit margin would be above the conventional profit margin since, in the long period, it would invite entry and thus undermine the prevailing firms' existence — even though in the short period it would be a profitable manoeuvre; and
(5) frequent price changes would be costly and unpopular with salesmen and customers.

While these reasons provided a good understanding of why businessmen used full cost pricing for price setting, they were also substantial reasons for why they did not use the marginalist approach to price setting as well as for the existence of stable prices, i.e. prices whose nominal values do not change with respect to changes in the level of output. Reasons (1) and (5) eliminated the possibility and desirability of equating marginal cost to marginal revenue, while reasons (2), (3), (4), and (5) tended to establish a stable market price which included only a conventional profit margin.

At this point Hall and Hitch decided to provide analytical reasons based on the marginalist theoretic framework for the existence of stable prices. To this end they introduced a kinked demand curve for an oligopolist firm in which the kink occurred at the predetermined full cost price ($OP$) with the upper portion of the curve ($AB$) reflecting the fear that competitors would not follow price increases, i.e., it is elastic, and the lower part of the curve ($BC$) reflecting the fear that competitors would follow price decreases with market sales responding poorly to decreases in the market price, i.e., it is much less elastic. Consequently, the marginal revenue curve ($AE$, $FG$) would be discontinuous with the $FG$ segment being negative.

Now given the position and shape of the kinked demand curve and the average total cost curve excluding profits, there would exist a limited but definite range of temporary shifts in demand (i.e., an acceptable range of levels of output) which would
leave the full cost price unaffected. This is due, on the one hand, to the nature of the full cost pricing procedure and, on the other, to the nature of the kinked demand curve. In the former case, the costs used to set the full cost price are based on standard or expected output and therefore are predetermined before production takes place. Thus the actual average total costs (excluding profit) of producing a particular level of output has no bearing on the full cost price being charged. In the latter case, the kinked demand curve represents the competitive pressures the firm faces to not change its full cost price. Thus as demand, say, shifts to the right, the kinked demand curve would shift out maintaining its kink at the full cost price — e.g., see Figure 2. Consequently, by combining the full cost pricing procedure with the kinked demand curve, Hall and Hitch were able to give an analytical explanation for stable prices which was not that inconsistent with the marginalist framework.

However, it would be incorrect to assume that the full cost price would not change under any circumstances. If demand shifted far enough to the left so that the total average costs (excluding profits) associated with the amount of output would greatly exceed the full cost price, the businessman might reduce his price in an effort to increase his output so as to avoid bankruptcy. On the other hand, if demand seemed to have permanently shifted to the right so that the average total costs (excluding profits) associated with the amount of output would result in a profit margin much greater than the conventional profit margin, then the businessman would re-evaluate his full cost price so as to reduce the profit margin to the conventional level and thus prevent long period entry. If this re-evaluation did not occur then an unstable price situation would exist because of the entry of new firms. The rightward shift in demand could cause an unstable re-evaluation of the full cost price if the shift resulted in full capacity utilisation, thus giving the businessman an idea of a profitable price which was
markedly different from the full cost price. Considering costs, if wage rates and material prices which would be common to all firms in the industry changed, then the full cost price would be re-evaluated to reflect this change. This re-evaluation of the full cost price would also occur if a new technique was widely adopted by the industry. The final example Hall and Hitch gave for a re-evaluation of the full cost price was a change in the income tax, which businessmen treated as a cost.

The temporary shifts in demand also illuminated another property of full cost pricing. Given the average total cost curve excluding profits, temporary shifts in demand which do not disturb the full cost price would result in the conventional profit margin differing from the actual profit margin. For example, in Figure 2 when demand shifts so that output would be \( x \), then the actual profit margin would be zero; on the other hand, when demand shifts so that output would be \( z \), then the actual profit margin would be greater than the conventional profit margin (by virtue of the falling average total cost curve).

In closing the article, Hall and Hitch noted that nearly all firms irrespective of their size or market position used full cost pricing, thus preventing the use of marginal tools — such as marginal cost and revenue, elasticity of demand, and marginal product — to analyse normal price setting behaviour of businessmen in the short period. This was especially so since “the long-run analysis of price, as given above, applies in the short run”. Finally, they noted that the full cost pricing policy of businessmen provided a partial explanation for Dunlop's finding that the real wage varied directly with output over the trade cycle.

II.

To understand the seminal nature of the article, it is best to begin by discussing its own development. Henderson, in a letter dated 25th January 1938, remarked that the Group's work on “how far trade fluctuations are affected by the methods adopted in different industries in fixing the selling prices of their goods” would probably not produce any results worth publishing (Henderson, 1938). Ironically, at the same time Hall was contemplating a serious dilemma thrown up by the Group's findings. The findings clearly showed that prices were set by a cost-plus formula and were invariant in the face of shifts in demand. However, this should not be the case if the firm faced a downward sloping demand curve. The dilemma was resolved when Hall hit upon the idea of a kink in the demand curve. He read a paper to the Group putting forth this idea which was received with considerable interest and curiosity. Of all the members of the Group, only “Hitch saw at once... that it was an idea which needed developing”. So they agreed to collaborate and the eventual result was their article, “Price Theory and Business Behaviour”. However, before the paper was published, Hall read a rough draft of it to Section F of the British association in Cambridge in September 1938 where it was well received, although some of the Cambridge economists did not think it cast doubt on the use of marginal tools for analysing the price setting behaviour of businessmen. Thus only eight months after Henderson had made his remark, it was
quite evident that the Group had results that were very much worth publishing (Robertshall, 1979, 1980A, and 1980B; and Robinson, 1980).¹

The above scenario, while capturing the progression of events that resulted in the kinked demand curve, does not indicate why Hall was so interested in the problem of stable prices or whether the kinked demand curve provides a viable explanation for them. Moreover, the scenario does not indicate why Hall thought that full cost prices were different from marginalist prices. Finally, the scenario does not indicate the extent to which Hall saw full cost pricing as an explicit attack on marginalist price setting. Answers to these questions will not only clearly delineate the nature of the article, but also clearly indicate that full cost pricing can be seen as a much broader attack on marginalism than Hall and Hitch had originally envisioned.²

The reason for introducing the kinked demand curve was to provide an analytical explanation for stable prices based on full cost pricing procedures that was consistent with the marginalist framework. While earlier economists, such as Marshall, suggested that stable prices did exist, they did not become a major concern of economists until the late 1920s and 1930s. At this juncture, economists and politicians began seeking explanations for the continuing and ever deepening depression and many thought they had found it upon discovering the existence of prices that remained stable as capacity utilisation fell. Members of the Balfour and MacMillan Committees argued that stable wages, hence stable prices, were preventing the economy and the exporting industries from recovering. The Economic Advisory Council also endorsed this view. Moreover, economists in general were bemoaning the terrible effects stable prices were having on the economy. With this increased interest in stable prices economists began to realise that they did not have an explanation for them that was consistent with the marginalist theoretic framework. Why they realised this at this time was intimately connected with the development of imperfect competition.

Marshall, in his Principles, recognised an asymmetrical relationship between the market price and the level of output. However, with the emergence of imperfect competition, this was swept away. In its place emerged continuous marginal cost curves and continuous demand and marginal revenue curves. Moreover, without any a priori specification of the curves, it would appear that any shift in the demand curve would result in a different price. Thus, ironically, at the same time that economists became aware that stable prices needed an explanation, they were developing a theoretical framework which seemed unable to explain them. The initial solution to the problem came at the hands of Joan Robinson in her book The Economics of Imperfect Competition. She neatly delineated all the situations in which a shift in

¹In his letter, Professor Robinson (1980) writes:
"We [Cambridge economists] knew something about Hall/Hitch work before it was finally published and naturally we argued among ourselves .... We certainly did not accept, and I do not think have ever accepted, the naive interpretation of Hall/Hitch."

²Referring to an earlier draft of the article, Lord Robertshall stated that "... you certainly made it much clearer than it appeared (at least to me) why there is a more serious criticism of marginalism than I thought we originally intended" (Robertshall, 1982).
demand would not change the nominal price:

1. assume marginal costs are constant, then a shift in demand will not change the price if the price elasticity of demand of the new demand curve is the same as that of the old demand curve, i.e., the demand curves have to be iso-elastic at that price;

2. assume marginal costs are decreasing, then a shift in demand will not change the price if the new demand curve is less price elastic than the old one to an extent sufficient to offset the rise in marginal costs; and

3. assume marginal costs are increasing, then a shift in demand will not change the price if the new demand curve is more price elastic than the old one to an extent sufficient to offset the rise in marginal costs.

However, this solution was really not a solution. That is, for nominal prices to be invariant to shifts in demand, the marginal cost and demand curves have to take on specific shapes. In order for this to occur, its constituents — i.e., its marginal costs and elasticity of demand — must vary in very specific ways. However, without placing constraints on the possible shapes of the marginal cost and demand curves, the necessary variations are unlikely, thus making the existence of stable prices unlikely. That is, because the shapes of the two curves are simply given to the analysis, there is \textit{prima facie} no general reason why the "proper" curves should co-exist to produce stable prices. Interestingly enough, Robinson also dismissed any possibility that a shift in demand would result in stable prices by arguing that an increase in demand would result in decreased price elasticity given increasing or constant marginal cost in the short period. Thus it appeared that the marginalist framework could not concretely explain stable prices.

Faced with such an unpalatable conclusion, economists quickly began devising explanations for stable prices. Some economists denied that they existed; others said that the characteristics of the product, marketing techniques, or habits and customs were the basic factor which affected price stability; a final group of economists argued that monopoly power and, more generally, the structure of the industry were the primary factors which affected price stability. Since the first group of economists ignored the theoretical problem by denying its empirical existence and since the second group's arguments are irrelevant to the theoretical problem at hand, they will be ignored. However, the third group of economists did try to explain stable prices within the confines of the marginalist framework. That is, the explanation for stable prices was sought in terms of a particular firm's relationship to the industry's structure — i.e., the number of firms in the industry, the size distribution of firms, the possibility of collusive behaviour, the existence of price leadership, etc. This approach was in line with the developments in imperfect competition with its emphasis on the firm within an industry. Unfortunately, in spite of the descriptive analysis and explanation of stable prices that emerged, it did not seem amenable to the framework. For example, if all the firms in the industry colluded to set the market price or if the market price was set by the price leader, then the demand curve relevant for determining the market price would be continuous. Thus it would seem that in these "monopoly" situations
there would be no reason to expect a stable market price (Thorp, 1936; Backman, 1939-40; Galbraith, 1935-36; Phillips and Stevenson, 1974; Mason, 1964; Swanson, 1971).

Unable to provide concrete explanations for stable prices that were theoretically consistent with marginalism, the next logical step for economists was to use concrete descriptive analysis to specify the proper shapes of the marginal cost and/or demand curve so as to explain them. One result was the kinked demand curve. That is, Hall and Hitch used the findings of the OERG — *i.e.*, an oligopolistic firm ignores price increases but follows price decreases — to specify the shape of the demand curve. Hence the kinked shape of the demand curve ceased to be one of many possible demand curves facing an oligopolistic firm; rather the structural conditions of oligopolistic industries required that the demand curve take this specific shape. Combined with full cost pricing procedures it is easily seen that the kinked demand curve did provide a theoretically pleasing explanation for stable prices. Thus Hall's interest in the problem of stable prices was not, *per se*, peculiar to him, as clearly evident by the response to his arguments of the Fellows and of British economists at large at the 1938 British Association meeting; rather it was an interest that captured the intellectual energies of many economists for precisely the same reason — the need to provide a theoretical explanation of stable prices that was consistent with the marginalist framework. But what now needs to be brought out is that Hall and Hitch's explanation of stable prices was not conceptually consistent with marginalism. To do so requires an analysis of the concept of full cost prices.

One of the startling revelations Hall gained from the interviews was that businessmen did not view prices as market clearing or even designed to clear the market. Moreover, the interviews clearly showed that manufacturers set their prices via full cost pricing procedures well in advance of production. This latter revelation Hall felt undermined the relevance of the marginalist tools for pricing since they required actual movements in output and prices to be applicable. Given these characteristics, it would be easy to conclude, as Hall did, that full cost pricing procedures are different from marginalist pricing procedures; that full cost prices are different from prices set by marginalist tools; and that full cost prices are stable. However, a deeper conceptual understanding of these last two conclusions is necessary if the novel and radical nature of full cost prices is to be completely understood.

For a price to be designed not to clear the market implies that the market itself is non-clearable. That is, in the marginalist framework, market is defined as a "locality" where buyers and sellers meet and exchange a specific amount of a commodity at a specific price. In addition, these transactions occur at a point in economic time, denoted as either the market period, short period, or long period. Since the entire quantity of the commodity brought to the market is sold, we can say that the market is cleared and the market price is a market clearing price. However, if, as Hall argued, the prices businessmen set are designed not to clear the market, then the markets in which these prices reign cannot be markets which clear, *i.e.* they cannot be marginalist markets. More specifically, such markets cannot be defined in terms of a specific set of buyers and sellers exchanging a specific amount of a commodity at a specific price and
at a specific point in economic time. Rather what is implied is that the market is an abstract concept which collectively denotes all the exchanges of a specific commodity irrespective of the buyers and sellers or quantity involved, or the prices associated with the particular exchanges. This conception of market can best be illustrated by referring to an economy in which all commodities are produced means of production. For the economy to reproduce and grow through time, each of its commodities must be produced and exchanged in a continuous and sequential manner. Moreover, because there is generally more than one manufacturer/seller and buyer of any commodity, the continuous and sequential exchanges of a particular commodity will generally involve different buyers and sellers, different quantities, and possible different prices. Thus a market in such an economy is not definable in terms of specific buyers and sellers, quantities sold, or prices and, therefore, cannot be seen as a market which is clearable. Hence it is this conception of market which must be associated with prices that are designed not to clear markets.3

The implication of this conception of the market is that the market price need not be defined and simultaneously determined by a specific exchange of a particular amount of a commodity at a particular point in time.4 Rather a specific market price can now be common to many sequential exchanges involving different buyers and sellers and quantities of the commodity being exchanged. However, to be common to many exchanges, the market price cannot simply be nominally identical for each of the sequential exchanges; in addition its components must also be invariant with each of the many sequential exchanges. That is, it is possible that nominally identical market prices can emerge with each sequential exchange if the peculiarities of the exchange results in the adjustment of its components so as to leave the nominal price unchanged. But not only is such a course of events unlikely, it also means that the nominally identical market price for each of the many sequential exchanges is actually specific to each exchange and to the peculiarities of the exchange.5 Thus for a market price to be common to many sequential exchanges, not only must its nominal value be unchanged.

3This analysis of market should not be confused with the work currently being pursued in disequilibrium theory by the neoclassical economists. That body of work is trying to explain why markets do not clear, an objective that presupposes that markets should clear. That is, the fundamental premise of this body of work is that markets clear and that it is fruitful to investigate the conditions in which they do not clear (Korlas, 1980, and Drazen, 1980).
4However if market prices are affected by the peculiarities associated with each exchange in the market, then it takes on a market clearing attribute, even though the market itself is not designed to clear. Such a market price occurs in the course of price wars.
5As noted above, Joan Robinson delineated the three cases in the marginalist framework in which changes in demand would result in an unchanged nominal price. However, only when marginal costs were constant and the new demand curve iso-elastic at the price would the new nominal price appear to be a “common” price. In the other two cases, the constituents of the unchanged nominal price would alter as demand shifted thus making the existence of the unchanged nominal price dependent on the peculiarities of the particular exchange. But since the “common” price case is also dependent on the peculiarities associated with each exchange in that it is dependent on the new demand curve to have the “proper” price elasticity, it is not, in fact, a common price. Thus the marginalist framework can not account for common prices.
with each exchange but its components must be unaffected by the peculiarities of the specific exchange. Hence, for such a market price to exist, it must be established prior to production and exchange; that is, prior to the specific events surrounding a specific exchange. Moreover, if such a market price is established, it acquires the “property” of not being designed to clear the market. That is, if the market price is common to any exchange in the market and specific to none, it cannot be a price which “clears” the market. Thus it is easy to conclude that this common market price is the non-market clearing price that businessmen set, or, in Hall and Hitch’s words, is the full cost price.

To conclude that, as a theoretical concept, the common market price, i.e., full cost price, was different from marginalist prices, Hall and Hitch had only to point to its non-market-clearing property and to the fact that it was set before production commenced. However there was another substantial yet subtle reason for the difference between full cost and marginalist prices of which Hall and Hitch were only dimly aware. Because a common market price is unaffected by any specific exchange, it is also unrelated to the actual per unit costs (either total or incremental) associated with any specific exchange. That is, the actual per unit costs associated with the quantity of commodities involved in a particular exchange will have not any effect on the full cost price or any of its components. Hence the indirect relationship between price, costs, and output in the marginalist framework cannot be found. It is in this respect that full cost prices are conceptually distinct from marginalist prices. In addition, it is this lack of output-cost-price relationship which give full cost prices their characteristic stability. Such a radical break from the existing Weltanschauung concerning price, costs, and output was not clearly perceived by Hall and Hitch. However, the absence of any analysis of actual per unit costs with respect to different flow rates of output and the explicit depiction of an invariant full cost price in the face of different output/total average costs indicates the extent to which they did perceive the break.

While full cost prices are a theoretical possibility, their actual existence requires that additional constraints be placed on the prices that can exist for sequential exchanges within the market. Because many sequential exchanges involving different buyers and sellers can occur in the market, the possibility exists that not only can every exchange have its own particular price but that a single seller’s actions in a particular exchange at a particular point in time can affect all subsequent exchanges even when the particular seller is not present. A most obvious example is a seller lowering his price for a particular exchange thus forcing all sellers involved in exchanges to lower their prices. The key to the existence of stable, hence full cost, prices, Hall and Hitch felt, lay in identifying the constraint which eliminated or reduced inter-firm price competition and thus prevented the prices from being associated with the quantities associated with a particular exchange. In referring to the interviews, they identified the constraint by the well-known phrase “that businessmen follow price decreases but

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Henderson in a letter to Harrod argued that the reason prices stayed far above prime costs in industry was that prices were quoted before production. This aspect, Henderson noted, spanned competitive and semi-monopolistic industries. Moreover, Henderson stated that price setting before production affected the applicability of marginalism to industry (Henderson, 1936).
ignore price increases". In turn, they argued that the constraint is inherent to the market in that it is based on the firm's propensity for survival and growth and on the inherent unresponsiveness of market sales to market price changes. Thus, given this constraint, firms within the market will establish explicit or implicit rules which result in a single market price to be used in all exchanges. Consequently, Hall and Hitch concluded that not only do stable or full cost market prices exist but that they are pervasive throughout the economy.

Taken together, the preceding paragraphs imply that stable prices cannot be explained by marginalism. However, Hall and Hitch did not accept this verdict; they felt that stable prices could be "explained" within the context of marginal cost and demands while, at the same time, arguing that they were different from marginalist prices. The key to their argument was the kinked demand curve which they implied was "conceptually" the same as an individual firm or market demand curve. However, a critical analysis of it will reveal that its existence is not based on the preference structures that underlie the firm or market demand curve and which are given to the market; rather it is based on inter-firm competitive behaviour. Thus Hall and Hitch failed in their attempt to explain stable prices using the conventional tools.

The above analysis of full cost or common market prices throws new light on two related controversies that have plagued full cost pricing since its conception. The first controversy is over whether full cost prices are long or short-period prices. Because full cost prices are common to many sequential exchanges, they do not reflect the particularities of each exchange as would a short-period marginalist price. Therefore, they cannot be considered a short-period price, even though they are based on a given set of plant and equipment. On the other hand, full cost prices are not long-period prices since the latter are based on unrestricted re-organisation of the underlying plant and equipment. Rather it would appear that full cost prices require a new and possibly conceptually novel time category which captures the property of a common price to many sequential exchanges in the context of given plant and equipment. Such a time period, to be provisionally called a pricing period, not only displaces both the short and long-period time categories of the conventional analysis but it also completely undermines the second controversy that haunts full cost pricing — whether full cost prices are profit maximising prices.\footnote{Because full cost prices have attributes that are associated with long-period prices, Hall thought that businessmen set long-period prices directly. Thus he concluded that his analysis of long-period prices, \textit{i.e.}, full cost prices, also applied in the short period. However, Hall is not theoretically correct in this case. Because in the marginalist framework, short-period output is conceptually different from long period output, it makes no theoretical sense to say within the same framework that long-period prices rule in the short period. But his attempt to characterise full cost prices in this manner indicates just how different Hall felt that full cost prices were from marginalist prices. (Hall and Hitch, 1951; and Rotherthall, 1980A).}

The profit maximising controversy emerged nearly simultaneously with the publication of Hall and Hitch's article. In response to the article, Austin Robinson, who reviewed the first two issues of the \textit{Oxford Economic Papers}, argued that while the evidence adduced there "... throws grave doubt on the usefulness of calculations of
maximum revenue, more particularly in the short period..."; it was still possible to say that long-period profits were maximised if the percentage mark-up over direct costs could be thought of as related to the elasticity of demand (Robinson, 1939). Hence, not only did full cost prices maximise profits, they were also not inconsistent with marginalism. Once made, the argument was widely accepted by economists with the consequence that full cost pricing was simply seen as marginalism in a different vocabulary (for example, see Koutsoyiannis, 1975; and Scherer, 1980). However, this entire line of criticism is undermined once it is realised that full cost prices are not long-period prices. That is, because the pricing period is not the long period, it is incorrect to say that full cost prices are long-period marginalist prices and hence that full cost prices maximise long-period profits. Moreover, because the full cost price is common to all the exchanges in the pricing period and thus is not related directly or indirectly to the costs/output specific to each exchange, the possibility of maximising profits in a marginalist manner simply does not exist. Thus it is not possible to reconcile full cost pricing with marginalism or to argue that full cost prices are long-period profit maximising prices.

III.

Since 1939, the development of full cost pricing has primarily been associated with the names of P.W.S. Andrews, P. Syllos-Labini, and H.R. Edwards. Their efforts were directed at developing a theory of pricing and prices based on full cost pricing; however, because their work, to a greater degree, was developed within a static framework and abstracted from the interrelationship of firms within the market, full cost pricing was not only left in an ambivalent relationship with respect to marginalism, but was rendered incapable of handling the complexities of price setting as experienced by firms. Ignoring the former, this final part will briefly consider two developments which broaden the theoretical basis of full cost pricing so as to make it more able to handle the complexities of price setting. Specifically it will be concerned with extending full cost pricing to a sequential production framework and delineating the relationship between market institutions and the full cost market price.

In the previous part, it was argued that the full cost price was common to many sequential exchanges and existed in non-clearing markets. In turn, it was suggested that non-clearing markets existed in an economy which fractionally and continually

*The origin of this argument, at least in Robinson's review, is found in Kahn's work on short period pricing in the 1930s. According to Austin Robinson, Kahn's research of the textile industries uncovered results that were quite different from what was coming out of the OERG investigations:

"Thus we [the Cambridge economists] knew that Hall/Hitch did not apply uniformly to all industries and we started asking ourselves in what cases it applied and in what cases it did not apply. It became obvious that many of the industries they were studying were in fact multi-product industries. In that case there was always a problem when the capacity was common to a variety of products. You needed for that purpose to know what was the opportunity cost of using your capacity for any specific use rather than another use... we in Cambridge came to the conclusion that what a firm was really doing was discovering its relation to that of the market as a whole and finding what addition to its direct costs it could load on to a product and get away with it. I was at that time on the Cambridge University Press Syndicate and that it is unquestionably what we were in fact doing. We knew what overheads our printing was able to carry and get away with" (Robinson, 1980).}
reproduced itself through time. Therefore, it is reasonable to conclude that, within the context of full cost pricing, not only should production be depicted as sequential acts, the pricing behaviour of the firm also should be presented as sustaining sequential acts of production. However, full cost pricing has not been developed with this in mind.\footnote{However there are two exceptions to this -- Eiteman, 1949 and Williams, 1967.}

To amend this state of affairs, a model which contains both full cost prices and sequential production is needed. To construct the model, assume that the firm exists and has its complement of plant and equipment and that it produces at standard volume. Now for production to occur, the firm must have enough working capital on hand to procure the necessary amount of direct and overhead inputs. Once obtained, production occurs, the output is sold, and the revenue is collected. (This period of time from the initial buying of the inputs to the collection of the revenue is called the turnover period.) If the amount of total revenue received at the end of the turnover period equals the initial expenditure of working capital for the productive inputs, the firm can repeat the process and continually do so as long as the original sum of money advanced is returned:

\[ \text{turnover period 1: } M_{w} - TC_{sv} - P_{sv} - TR_{sv} \]
\[ \text{turnover period 2: } M_{w} - TC_{sv} - P_{sv} - TR_{sv} \]
\[ \text{etc.} \]

where \( M_{w} \) is the cash advanced in the form of working capital;
\( TC_{sv} \) is total costs at standard volume output;
\( P_{sv} \) is the production of standard volume output; and
\( TR_{sv} \) is the total revenue at standard volume output.

Thus in this simple model, the firm can only engage in sequential acts of production at standard volume output if total costs equal total revenue, or, more specifically, the firm sets its full cost price equal to average total costs at standard volume output.

The model can be extended beyond the simple reproduction of the firm by postulating that total revenue is greater than total costs at standard volume output. That is, by marking up average total costs at standard volume, the firm can set a price that would cover costs and produce a profit at standard volume output which could be used to expand its scale of production. Assuming that the price is set by full cost pricing procedures, \( p = (ATC_{sv})(1 + r) \), where \( r \) is a percentage mark up for profit; that the profits in any turnover period are divided between increasing capacity and expanding working capital; that the new capacity comes on line in the subsequent turnover period; and that the standard volume output is re-evaluated when the new capacity comes on line, the above model can be rewritten in the following manner:

\[ \text{turnover period 1: } M_{w} - TC_{sv}^{1} - P_{sv}^{1} - TR_{sv}^{1} = q_{sv}^{1}[(ATC_{sv}^{1})(1 + r)] = TC_{sv}^{1} + \pi_{11} + \pi_{12} \]
turnover period 2: $TC_{sv}^2 + \pi_{11} = M_{sv} - TC_{sv}^2 - p_{sv}^2 - TR_{sv}^2 = q_{sv}^2 [(ATC_{sv}^2)(1 + r)] = TC_{sv}^2 + \pi_{21} + \pi_{22}$

etc.

where $q_{sv}^i$ is the standard volume output of the $i$th turnover period;

$\pi_{11}$ is the portion of profits of the $i$th turnover period set aside for working capital; and

$\pi_{12}$ is the portion of profits of the $i$th turnover period set aside for expanding capacity.

The implication of the model is that a firm must employ full cost pricing procedures if it is to grow through sequential production. More generally, both the simple and sophisticated model clearly imply that full cost pricing procedures, hence full cost prices, are not simply consistent with a sequential production framework; rather they are synonymous with it. Therefore full cost pricing can be extended beyond the narrow static framework in which it was originally developed.

The significance of extending full cost pricing to a sequential production framework is that it can now explicitly accommodate a variety of complex and important decisions that affect the setting of the full cost price. One complex and important decision concerns the financing of investment projects. Whether the projects are financed internally, by long-term borrowing, by issuing new stocks and bonds, or by some combination of the above, the decision directly affects the size of the mark up and, hence, the full cost price for both the current turnover and the future turnover periods. A similar situation, concerning the relationship between cost changes and corresponding changes in the full cost price, can also be readily dealt with.

In part two, it was noted that both full cost prices and exchange specific prices could exist in markets designed not to clear. It was also argued that the latter price was generally absent while the former was pervasive in the economy because firms adhered to the simple rule of following price decreases while ignoring price increases. However the rule obscures the role which social forces play in the determination of the full cost market price; that is, the rule does not indicate the role which market institutions play in the determination of a common market price. To rectify this omission in full cost pricing, the relationship between market institutions and the common (full cost) market price will be approached with respect to firms' investment decisions.

To maintain its existence in a capitalist economy, the firm must continually invest in plant, equipment, and product innovation in order to maintain its cost competitiveness and to grow. In making its investment decisions, it must, in a decentralised economy, look to the market for the necessary information, such as sales trends, stock movements, state of orders, or market shares. Because each of the indicators are singularly dependent on the prices charged in each act of exchange, the existence of prices that are based on market conditions specific to the exchanges can
not generate the information needed by firms for making investment decisions. On the one hand, buyers cannot make long-term buying plans, such as the buying of investment goods or consumer durables, based on the goods' relative prices since these relative prices could change in a haphazard unpredictable manner; on the other hand, if the total sales of the firm are associated with many different prices, then it could not make long-term sales predications based on sales trend, stock movements, state of orders, or market share. Consequently the information needed by the firm to make investment decisions would simply not exist.

To eliminate fluctuating exchange specific prices, firms develop codes of behaviour and market institutions to enforce them. For example, to eliminate secret price shading and therefore the possibility of price wars, a rule against price cutting would be propogated throughout the market and backed by market institutions such as open price systems, price notification schemes, cartels, trade associations, or price leader. Specifically, to eliminate fluctuating exchange specific prices, firms would establish codes of behaviour and market institutions that would generate a single market price which would remain unchanged for many exchanges. As a result, sales trends would provide the information firms need to make long-term investment decisions, since the price/quantities combinations which make it up would not be related to short-term market conditions. Thus not only is the institutionally determined full cost market price stable over time and common to many exchanges, it also generates the investment information the firms require since the indicators would reflect the permanent market conditions (Richardson, 1965, 1966, and 1967).

In extending full cost pricing to a sequential production framework and by connecting it to market institutions, it not only has been expanded beyond the narrow confines in which it was originally conceived, its theoretical basis has also been broadened so as to make it more able to handle the complexities of price setting. For example, the notion of destructive price competition and the advocacy of price fixing agreements by businessmen can now be easily handled. That is, destructive price competition leads not only to lower prices for each exchange in the market, it also makes prices exchange specific. Thus the firm will not only be unable to obtain the information needed to make investment decisions, its ability to be a going concern is appreciably weakened. Therefore, in these circumstances, businessmen advocate price fixing agreements as a corrective measure. So it can be concluded that full cost pricing is indeed a new wine in a new bottle and that it may be served with a variety of exotic foods.

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