The Fate of an Errant Hypothesis: The Doctrine of Normal-Cost Prices

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The concepts and interrelationships that make up the theories of a particular research program are subject to continuous change and reinterpretation. The idea that they have unique, clearly defined meanings is an impression fostered in elementary textbooks, but it is just an illusion. Practitioners continuously adapt, change, emphasize, and reinterpret in order to be able to use the theories to answer new questions. Indeed it could be argued that the very fruitfulness of a research program, not to mention its survival, depends on the flexibility of its component theories. Even venerable and well-established theories are reinterpreted in the light of changing interests and world views (Black 1976). If every generation rewrites its history, it also reinterprets its scientific theories. Since the interpretations change in the course of normal science, areas of agreement always coexist with often intense disagreement over the content, nature, and implications of other areas (Gilbert and Mulkay 1984).

In economics, as in other disciplines, controversy can arise if an anomaly appears such as, for example, some new empirical finding that conflicts with economic theory. If, as well as the anomaly, an alternative hypothesis which can explain it is available, then theory change may result. However, if the discipline’s leading practitioners are not convinced that the new hypothesis is better than the old, then such a change will not occur. Still the anomaly must be dealt with, and this can be done in a number of different ways. It can be argued, for example, that the anomaly is only apparent—a reinterpretation of

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current theory will make it disappear. Alternatively, or in addition, the
new hypothesis may be interpreted as compatible with the current the-
ory and some of its key points may be co-opted. If this happens, the
challenge from the newcomer is deflected. Thus the old theory is not
only retained but is strengthened because it can now accommodate the
apparent anomaly.

Such a procedure is a theoretical response to an errant hypothesis.
Other types of responses, which serve to reinforce the theoretical re-
sponse, may also be elicited. There can be a political/ideological re-
sponse, where non-scientific motives are attributed to the proponents of
the rival hypothesis; or an institutional response, which can take the
form of pressure to reduce the flow of research grants to a rival hy-
pothesis’ supporters and/or of attempts to have its supporters dismissed
from their professional positions.

This paper is a study of a particular challenge to the theory of im-
perfect competition developed by Joan Robinson (1933) and Edward
Chamberlin (1933)—a challenge which elicited all three responses just
mentioned. The challenge took the form of the emerging normal-cost
prices doctrine and the specific challenger was P. W. S. Andrews who,
in his Manufacturing Business (1949b), pointed to an anomaly—the
theory’s assumptions were inconsistent with empirical findings and so
its conclusions were wrong—and provided an alternative theory, his
type of manufacturing business which included his theory of normal-
cost pricing. Andrews objected to the theory of imperfect competition
both on empirical and methodological grounds. Manufacturing busi-
esses, he argued, did not actually maximize profits; that is, they did
not equate short-period marginal revenue and short-period marginal
costs when deciding on price and output as imperfect competition the-
ory assumed, but instead based prices on normal costs. Further, these
businesses’ pricing decisions were made in the light not only of exist-
ing competition from businesses making close or identical substitutes,
but also in light of potential competition from businesses using similar
technology. The latter could enter the industry far more effectively and
quickly if prices were too high than completely new firms could. As
well as these empirical objections, Andrews objected to the method-
ological procedure of extending the static aspects of Marshall’s theory
of industrial markets instead of the dynamic ones. This procedure, he
thought, was a step in the wrong direction. It made industrial equilib-
rium depend on each and every business being in equilibrium and resulted in the theory of the firm replacing Marshall's industrial analysis. Marshall's industry equilibrium, Andrews argued, was compatible with firms of different sizes, with firms that were willing to supply more or less at prevailing prices, whereas the industry equilibrium implied by the theory of the firm was not. Marshall's was appropriate to the facts of manufacturing industries, the neoclassical theory of the firm was not (Andrews 1949b, 1951a, 1952b, and 1953b).

The emerging normal-cost prices-doctrine had two components, the full-cost principle and the theory of normal-cost pricing. The former was first introduced by Hall and Hitch in "Price Theory and Business Behaviour" (1939); the latter was developed by Andrews in his theory of manufacturing business. As presented by Hall and Hitch, the full-cost principle was a theoretical analysis of empirical findings that appeared to contradict the marginalist approach to pricing and the assumption of short-period profit maximization. Working from his own empirical investigations of manufacturing business, Andrews went beyond the principle and developed a theoretical alternative to imperfect competition theory which had a firmer empirical basis.

At the time Andrews was writing, neoclassical price theory consisted of three subtheories: the theories of perfect competition, monopoly, and imperfect competition. The last had been developed to cover the types of firms which the dichotomy perfect competition/moneopoly did not capture. The marginalist approach to pricing and the assumption of profit maximization were common to all three components of price theory. Thus an attack on any one implied an attack on price theory as a whole. Moreover, the conclusions of imperfect competition, that firms operated with average total costs above the minimum, that


2. For Andrews, the theory of perfect competition was only applicable to international spot markets for particular goods such as grains and some mineral products. However, to deal with manufacturing industries and manufacturing firms the neoclassical price theorist had to employ the theory of imperfect competition. Note that neoclassical price theory did not include the behavioral, managerial, or extended marginalist theories that are widely used today. These arose in the 1950s and early 1960s, in small part in response to the marginalist controversy in the U.S., but largely for independent reasons (Lee 1984a and Mongin 1992). It also did not include the no-entry pricing theories of P. Sylos-Labini (1969) or H. R. Edwards (1962) as these were partly based on Andrews's ideas.
prices were higher than marginal costs, and that, in some instances, firms could enjoy monopoly profits were similar to those of monopoly and implied a welfare loss to society as a whole. At the time, the approach to pricing, the assumption, and the conclusion were all thought to be testable. Finally, the analysis of static equilibrium had become the hallmark of scientific economics by 1950, and by rejecting this Andrews appeared to be undermining the professional economists’ claim to scientific status.\(^3\)

The heated exchanges in the professional journals between those who argued that firms’ pricing decisions involved the balancing of revenue and costs which resulted in profit maximization and equilibrium prices and quantities and those who argued in favor of some kind of full-cost/normal-cost pricing reflected the seriousness of Andrews’s challenge. Curiously enough, neither Hall and Hitch nor Andrews played a very active part in the controversy (see below). The end result of the controversy was the “domestication” of Andrews’s errant hypothesis by interpreting it as equivalent to marginalism. Short-period profit maximization was replaced by the more “benign” form of long-period maximization where advantages and disadvantages are balanced in some appropriate way\(^4\) (Mongin 1990–91, 1992), and the theory of the firm remained an essential part of the neoclassical research program (Fulton 1984; O’Brien 1984; and Woo 1986).

The remainder of this article is divided into five sections: the first deals with the reaction to the empirical evidence concerning pricing procedures, the second with the theoretical reaction to the full-cost principle and the development of the monopoly–full-cost pricing model. The third, fourth, and fifth sections consider the three kinds of responses to Andrews’s theory: theoretical, ideological/political, and institutional. The reaction of Andrews’s supporters, particularly to the institutional response, is also discussed. The last section sums up the discussion.

\(^3\) Andrews felt that the concept of firm equilibrium was antithetical to good economic reasoning. He therefore deliberately and explicitly rejected the analysis of the equilibrium of the firm (see Andrews 1952g, 74 and 1964b, 92n.). However, he did sometimes give the impression that he thought manufacturing businesses maximized profits in some nonmarginalist, nonequilibrium manner.

\(^4\) The move towards long-period profit maximization was just one of the many defensive moves made by neoclassical economists during the marginalist controversy—see Lee 1984a and Mongin 1992 for a discussion of the defensive moves made in the American version of the controversy.
Reaction to the Empirical Evidence

The developers and followers of the theory of imperfect competition felt that it not only provided a more realistic model for explaining firms' pricing policies and behavior in the market place than did perfect competition or monopoly, but also provided a way of making welfare statements about the British economy (Harrod 1936; and A. Robinson 1982 and 1984). Abba Lerner developed his concept of the degree of monopoly to directly analyze the short-period social inefficiency of monopoly (Lerner 1934 and 1977). In addition, James Meade advanced the argument among the Fabian socialists, and later in government circles, that firms in imperfectly competitive industries misallocated resources because they set prices that deviated from marginal costs. Consequently, it was believed that these industries should be nationalized while, in all other cases, the market mechanism should be allowed to prevail. For the maximization of society’s welfare the nationalized industries would be required to produce at the point where short-period marginal costs equalled the price (Durbin 1985; Meade 1945 and 1949; and Ruggles 1950). This justification for the introduction of socialism through the discreet nationalization of industry was not only championed by the young rising stars in the British Labour Party, such as E. Durbin and H. Gaitskell, but was also appealed to economists and the youth of the day who were looking for a democratic way of instituting socialism without at the same time creating a large unresponsive bureaucracy of economic planners and eliminating consumer choice (Durbin 1985). One can easily imagine a so-inclined lecturer boldly drawing marginal cost and revenue curves and then saying, “Aha! In imperfect competition the firm equates marginal cost to marginal revenue. Thus the firm’s price is higher and its output lower than under perfect competition. Does this not explain why, in our rationalized, monopolistic manufacturing industries, we have massive unemployment, excess capacity, and the exploitation of labor?”5 It was

5. The impact of an exciting lecturer on his/her pupils is well known, even if the subject matter is economic theory. Still, the fact that former Oxford students can remember quite vividly the exciting lectures given by Harrod and Meade on supply curves, cost curves, long-period prices, marginal revenue, international trade, and the gold standard is extraordinary. For example Gordon Johnson (who graduated from Oxford in 1933) states that by “far the best lectures I attended on economics at Oxford were those by Roy Harrod. He made a deep impression on me, both as a man and a lecturer, an impression which the magisterial setting of the Great Hall at Christ Church where he lectured helped to accentuate” (Johnson
no wonder that students took the theory of imperfect competition and its implications seriously.

For a couple of decades economists and their pupils have devoted most of their attention to these [imperfect competition] theories in that part of their work which relates to the firm. If I may judge from my own experience and observation, we took the theories very seriously. We felt that some vastly important aspects of business behaviour had been revealed. Our attitude to private enterprise became more critical. Our scepticism about the possibility of improving its performance grew more marked. Our whole approach to economic affairs was materially affected. In some cases even our political outlook was changed. (Wilson 1952, 42; also see Andrews 1952b and 1964a; Robertson 1956; and Lerner 1977)

Implied in all this was the belief that firms actually employed marginal-pricing methods when setting prices, determining quantities to produce and the amount of labor to employ, and maximizing profits. It is clear that J. Robinson, in unguarded moments, thought that at least the enlightened businessman did so (O’Brien 1984; and J. Robinson 1933, 56–57). Moreover, Kahn’s research into the cotton and wool industries, and A. Robinson’s involvement with the Cambridge University Press Syndicate, acquaintance with the shipping industry, and general knowledge about real-life firms convinced Cambridge economists that firms did in fact employ, either unconsciously or more directly through trial-and-error methods, marginal-pricing methods, A. Robinson’s 1950 and Kahn’s 1952 disclaimers notwithstanding (E. A. G. Robinson 1941; A. Robinson 1950, 1982, and 1984; Kahn 1952 and 1989; and Lee 1984c). The young Oxford economists, at least until the establishment of the Oxford Economists’ Research Group (OERG), were also confirmed marginalists and believed that firms actually used marginal-pricing methods (Roberthall 1979). As Harrod noted, “The economist in considering possible consequences of a given change, a fall in prices . . . has usually assumed that entrepreneurs will adapt themselves by proceeding along lines of greatest advantage (e.g., by equating marginal cost to marginal revenue)” (Harrod 1939, 3).

1983). Thus it is not surprising that the major exponents of marginalism at Oxford made a lasting impression on their pupils concerning its usefulness in examining firm behavior in the U.K. economy.
The pricing evidence collected by the OERG and presented by Hall and Hitch in their 1939 article challenged these beliefs. Andrews argued (1949b) as well that his empirical evidence showed that manufacturing firms employed normal-cost pricing procedures, but went further by claiming that in doing so firms were acting rationally. Consequently, to the adherents of imperfect competition, Hall, Hitch, and Andrews were mounting a serious empirical attack on their theory; for if firms did not use marginal-pricing methods, and adhered to a different form of rationality, then it would be impossible to claim that the theory of imperfect competition had anything to say about the real world or that welfare would be increased if firms produced to the point where marginal costs equalled price.

The pricing evidence clearly could not be ignored and economists reacted to it in two distinct but opposing ways. One group viewed Andrews’s claims with a great deal of skepticism. This was in part because he was forced to keep the details of his empirical studies confidential. Many economists leapt at this as a reason for doubting his conclusions or, at least, their generality. Moreover, because Hall and Hitch did not provide a detailed account of how they elicited the information from the businessmen or include a copy of their questionnaire in their article, many economists (e.g., A. Robinson 1939; Fog 1948; Streeter 1949; and Kahn 1952) disparaged their results as simply being the Oxford game of twenty questions, while others, such as M. Kalecki (1943), claimed they mistook the “full cost language” for the actual process by which businessmen set their prices. Finally, because Andrews also did not include any account of his research procedures in Manufacturing Business, economists such as R. S. Edwards (1952) could claim that his empirical analysis of pricing was faulty, since Andrews had assumed that prices were based on conventional cost statements and thus had completely missed the informal and

6. In part, this was due to the small number of firms involved and in part, due to the request of some businessmen not to make the material public in order to thwart a possible move to nationalize their firms (Lee et al 1986).

7. Bellamy provides an example of this reasoning. “The general view of Andrews’s known work, or at any rate such work as was known about whether published or not, was not high. The view expressed to me, at least within the Institute of Statistics, was that he said his material was confidential and that he could not give sources and evidence for his conclusions, and that therefore other scholars could not check the evidence. There was therefore some scientific reluctance to accept conclusions drawn from uncheckable evidence” (Bellamy 1981; see also Hicks 1981; and Burchardt 1949).
unrecorded stages in the price-fixing processes (Lee 1981; and Lee et. al 1986).

The second group of economists accepted the empirical evidence as well founded but argued that, in describing the procedures used by manufacturing businesses, Hall and Hitch and Andrews were not presenting anything really new in that it was common knowledge that manufacturing firms used normal-cost pricing procedures.8 “Mr. Andrews has made some interesting remarks about the behaviour of costs, both technical and managerial, although it cannot be held that he has said anything dramatically new.” (Silberston 1951, 428; also Pearce 1981). Such views were echoed by other economists and quickly became a common opinion, at least in the Oxbridge-LSE triangle (R. S. Edwards 1952; Maclaurin 1950; and Richardson, 1981).

Of the two views, the latter became widely accepted by economists in the mid-1950s, especially with respect to the pricing procedures used by manufacturing firms. The reason behind this was that Hall, Hitch, and Andrews in fact had not described anything that was dramatically new; there had been many previous reports and studies made in the U. K. which described normal-cost pricing procedures and stated that firms employed them. For example, a number of government reports emerged from investigations carried out under the auspices of the Profiteering Act (1919–20) which described for various products normal-cost pricing procedures and the institutional conditions the firms devised to maintain the resulting normal-cost prices (see P. Ford 1951 for summaries of these reports). Moreover, the Balfour Committee on Industry and Trade had found that firms used normal-cost pricing procedures.9 Finally, a number of government reports emerged after the Second World War, especially from the Monopolies and Restrictive Practices Commission, which contained descriptions of normal-cost pricing procedures (e.g., see Great Britain 1955, 1956, and 1959). Related to the government reports were publications describing the pricing methods used by the War Office and the Ministry

8. Of course this objection does not mean much per se. The real issue was whether or not full-cost or normal-cost pricing procedures could be predicted by, or at least shown to be compatible with, marginalist assumptions.

9. An example of the kind of normal cost pricing procedures delineated by the Balfour Committee follows these lines: “Costs of production are usually built up with the following main factors: (a) materials, (b) wages, (c) percentage additions to cover factory and general overhead expenses. To the costs is added a percentage to provide profit... It is then stated that the overhead expenses are based on estimated output” (Great Britain 1928, 174–77).
of Food during the Great War and by the Ministry of Supply and the Board of Trade in the Second World War to fix and regulate prices. The procedures described in these publications were not materially different from those described by Andrews and, moreover, were very similar to those used by firms in peacetime\textsuperscript{10} (Lloyd 1924; Hargreaves and Gowing 1952; and Walkden 1957).

Other examples of normal-cost pricing procedures can be found in the U.K. cost accounting and economic literature. R. S. Edwards (1937) wrote an important article in which he reproduced excerpts from a rare book on cost accounting that was published in 1878 describing several normal-cost pricing procedures (see Lee 1985b). The importance of the article was that it showed that firms had been using a variety of normal-cost procedures since at least 1850. As for the economic literature, the most outstanding publication prior to 1949 was by C. C. Saxton (1942). In his book, Saxton described the normal-cost pricing procedures used by manufacturing firms at the outbreak of the Second World War and suggested that these procedures had been used continually throughout the interwar period. Articles by Hague (1949) and Fogarty (1943) also appeared; Fogarty noting that landlords used cost-plus procedures when fixing rents and prices, and after 1949 a number of pricing studies of British industries, including Blackwell (1954), Pearce (1956), Pearce and Amey (1956–57), Lydall (1958), and Pool and Llewellyn (1958), documented the prevalence of normal-cost pricing procedures.\textsuperscript{11}

Faced with such a preponderance of studies and reports supporting Hall and Hitch's and Andrews's empirical claims—more than thirty such studies appeared between 1939 and 1960, economists' doubts as to the empirical validity and generality of their work began to disappear (see, for example, Horwood 1953). This process quickened when Hall and Hitch's and Andrews's methods of investigation became

\textsuperscript{10} An example of the government using price-fixing methods that were similar to those used by firms can be found in the War Office's attempt to control the wool, textile, and leather industries. In both cases the schemes developed, and the costing and pricing procedures used within the schemes, were similar to those used by the Imperial Tobacco Company for their goods (Lloyd 1924, 286).

\textsuperscript{11} During this same period, a number of economic studies appeared showing the existence of normal-cost pricing procedures in countries outside the U.K. For example a former student of E. H. Phelps Brown, who was a member of the prewar Oxford Economists' Research Group, documented the existence of normal-cost pricing procedures in Australia (Cook 1981; Cook and Jones 1954; and Cook et. al. 1956). For a summary of many U.S. studies (and others as well), see Lee 1983.
known through public and private channels (Andrews 1952a, 1952c, 1953b, and 1953c; Harrod 1952 and 1953). It is of interest to note here that D. C. Coleman, in his multivolume history of Courtaulds, concluded that Andrews's account of normal-cost pricing procedures was indeed an accurate description of the pricing procedures used by Courtaulds:

The method of pricing [taking average cost—as calculated from detailed costing data—and adding what the market would bear] was certainly that described in P. W. S. Andrews, Manufacturing Business . . . . The book was indeed a product of an inquiry financed by Samuel Courtauld and it drew heavily upon the costing practices of Courtaulds and other rayon firms. I have found no marginal-cost calculations amongst the Courtaulds’ costing data of this period, nor any significant attempts to convert money costs into real costs. (Coleman 1969, 343)

Reaction to the Full-Cost Principle

The first theoretical reaction to the normal-cost prices doctrine was directed at the full-cost principle. The reaction was predicated on the assumption that the theory of imperfect competition was “valid.” That is, economists simply assumed that firms faced downward-sloping firm demand curves and had marginal-cost curves, and that the concepts of price elasticity of demand, maximization, and static equilibrium were relevant to the pricing behavior of the firm. Consequently, economists blithely employed the tools and concepts of imperfect competition when devising arguments to demonstrate the compatibility of the full-cost principle with marginalist pricing procedures and profit maximization.

The principal argument, developed in the decade following the debut of the full-cost principle, consisted of interpreting the full-cost principle in terms of the conventional monopoly pricing model.12 The use of

12. Two secondary pronouncements or arguments for the compatibility of the full-cost principle with marginalism were developed during this same time period. The first was suggested by C. Clive Saxton (1942) in his book on price determination. He showed that British firms did not employ marginalist pricing methods but rather employed normal-cost pricing procedures, and that the two were not compatible. However, at the end of his book, Saxton qualified his conclusion. “The marginal analysis with the necessary amendments has been shown to be applicable to the productive situation of some firms who in fact do fix the price of their products, and it may be fairly regarded as of general application if considered in a
the model for investigating firm behavior and prices existed during the latter part of the 1930s (e.g. see Broster 1937, 1938a, 1938b, and 1939), although it was not widespread. In 1937 J. Robinson suggested to Kalecki that he try to provide a theoretical explanation for the constancy of labor’s share of national income over time, which had been uncovered by A. L. Bowley and C. Clark. The next year Kalecki published that explanation in an article in *Econometrica*. On the assumption that marginal costs were constant, and using Lerner’s degree of monopoly, Kalecki argued that the degree of monopoly was not only equal to the inverse of the price elasticity of demand of the firm’s demand curve but also to its gross profits. Combining Lerner’s degree of monopoly with the mark-up pricing procedure he developed, Kalecki developed the following mark-up pricing equation:

\[
p = mc \left[ \frac{1}{1 - 1/e_d} \right] = mc \left[ 1 + \frac{1}{1/e_d - 1} \right] = mc (1 + k)
\]

where \( mc \) is marginal costs; 
\( e_d \) is the price elasticity of demand; and 
\( k \) is the markup for gross profit and represents the degree of monopoly.

With the mark-up pricing equation, Kalecki could now provide an explanation for why labor’s share of the price, of the firms’ total revenue, and of national income remained constant in the short period, in the

somewhat broad and not a precise sense” (Saxton 1942, 166). In an article written for the express purpose of helping marginalism to deal with the full-cost principle more successfully and systematically, K. Rothschild developed, more fully than Saxton, an argument for their compatibility. He argued that the firms in easy-entry oligopolistic markets would set prices in a manner that took into account the impact of present prices on future entry and hence on future prices and profits. Thus firms would add a “normal” profit margin to costs in order to set prices that would not invite entry and would maintain these prices in face of short-term variations in demand. Because such prices included an element of security—i.e., consideration was given to the long-term viability of the firm—these full-cost prices were not inconsistent with profit maximization. “If we have monopolistic competition with oligopolistic elements . . . then the percentage added to costs will be determined by ‘normal’ or ‘conventional’ profits, because the fear of encouraging new entry will be predominant. Thus the ‘full-cost principle’ which so startled Hall and Hitch in their inquiry, because it seemed so opposed to the principle of profit maximization, is a perfectly logical outcome of the market situation with which they were primarily concerned . . . once we give due weight to the security considerations” (Rothschild 1947, 454). D. C. Hague (1949–50) proposed a similar argument—however he called the security element an “anti-worry premium”—to make the full-cost principle compatible with marginalist pricing methods and profit maximization. Although clearly pointing the way to what Lee (1984a) has called extended marginalism, the arguments of Rothschild and Hague were not generally adopted by British economists, but were taken up primarily by Americans.
long period, and over the business cycle. The following discussion will be confined to Kalecki's treatment of the firm in the short period. Since Kalecki had taken marginal costs as constant, and assumed that input prices were given, the fluctuations in the firm's output would not disturb labor's share of the price or of total revenue if the degree of monopoly (or the price elasticity of demand) was unaffected. He then proceeded to state that this was the case, arguing that the determinants of price elasticity of demand, such as changes in industrial concentration and technical change, could be taken as stable in the short period. However, in constructing this explanation Kalecki also provided an explanation for the stability of prices when output fluctuates. That is, if marginal costs are constant and the degree of monopoly is given, then variations in short-period output will not affect the price. Shortly thereafter, J. Dunlop, who was studying at Cambridge at the time, developed Kalecki's explanation of price stability into a more general analysis of price flexibility based on variations in the degree of monopoly. Thus the behavior of the degree of monopoly was central to the conventional monopoly pricing model with respect to explaining price stability (Kalecki 1938; and Dunlop 1938, 1939; see also Kriesler 1987).

The versatility of the monopoly pricing model was well known to the Cambridge economists; therefore it is not surprising that A. Robinson (1939) employed it in his review of Hall and Hitch's article. In the review, he suggested that the markup over average direct costs could be treated as a proxy for the price elasticity of demand. In addition, he suggested that the elements of indirect costs and margin for profit that were included in the full-cost price might reflect competitive market forces. In short, A. Robinson conveyed the impression that the full-cost principle was not incompatible with marginalist pricing methods or with the maximization of profits (a position that was also voiced by the Cambridge economists when Hall read an earlier version of "Price Theory and Business Behaviour" at the 1938 British Association meetings held in Cambridge [Rotherham 1980]), and this may explain why he did not discuss the principle in his monopoly book which appeared in 1941.

Subsequently other economists followed Robinson's lead and further developed the conventional monopoly pricing model in response to the full-cost principle. One step in the development was the introduction of constant marginal costs. That is, it was argued that average direct costs
were constant and thus coincided with marginal costs—a view that was widely held by economists at the time and apparently supported by the empirical evidence (Saxton 1942; Bellamy 1981; Kalecki 1943; Worswick 1944; Barna 1945; and Streeter 1949). The second step, many times taken in conjunction with the first, was to argue that the gross margin over average direct costs was largely determined by market forces and could thus be seen as a proxy for the price elasticity of demand. For example, Worswick (1944) clearly made this connection while Kalecki (1943) argued that the principle was indeterminate because the amount added for profit was not well specified, so that the relative composition of indirect costs and margin for profit could vary over the business cycle and in response to changes in the level of competition. Other economists, such as T. Wilson (1948) and P. Streeter (1949), argued that the margin for profit was flexible with respect to variations in demand, while L. Rostas (1948) offered empirical evidence supporting it. Thus, by 1950 all the elements existed for constructing a conventional monopoly pricing model, in which profits were maximized by equating marginal cost to marginal revenue, that was also consistent with the full-cost principle.

The form that the conventional monopoly—full-cost pricing model took was,

\[
p = (cadc) (1 + g) (1 + r)
= (cmc) (1 + k)
= (cmc) [1 + 1/(e_d - 1)]
\]

where \(cadc\) is constant average direct costs;
\(cmc\) is constant marginal costs;
\(g\) is the percentage markup for average indirect costs at expected, historically estimated, or normal output;
\(r\) is the percentage markup for profit; and
\(k\) is the markup for gross profit and equals \(g + gr + r\).

Given the model, various strands of argument that had emerged prior to 1950 could now be clearly articulated. The first was that, as a formal exercise, it was possible to represent full-cost pricing procedures in terms of a simple monopoly pricing model in which prices were set to maximize profits by equating marginal costs to marginal revenue. The second argument was that, if the full-cost principle was to be truly nonmarginalist, then its price must always reflect full costs, including conventional profits, irrespective of the state of sales or competitive
pressures in the market (Bruce 1953 and J. Robinson 1953). To most economists this implied the following: 1) if demand declined, the full cost price must increase because g must increase, with r remaining constant, in order for the firm to recover its full costs (Kalecki 1943, 1954; Kahn 1952; and Horwood 1953); 2) if demand increased, the full cost price must fall because g must decline, with r remaining constant, in order for the firm to recover its full costs; 3) the allocation of overhead costs among the firm's products must be the same; 4) the markup for profit must be the same for all the firm's products; and 5) a percentage change in average direct costs must result in the same percentage change in the price. The third argument was that, if the conventional monopoly pricing model was to absorb the full cost principle, then both g and r must be flexible so as to reflect variations in demand and competitive forces in the market if k was to be a proxy for the price elasticity of demand (Streeter 1949). In this context, economists argued that the full cost price had marginalist attributes if the full cost price was stable in face of variations in sales (which implied that both g and r were flexible), if the allocation of indirect costs and the markups for profit were different among the firm's product lines, and if changes in average direct costs were not precisely translated into changes in the full cost price (A. Robinson 1950; Andrews 1951b; Pearce 1956; Ahmad 1956; and Bellamy 1981).

13. That this characterization of the full-cost principle was completely at odds to what Hall and Hitch wrote and reported in their article completely escaped the attention of most economists. In particular, Hall and Hitch never claimed that the full-cost price was unaffected by the forces of competition or demand; to argue otherwise and then use the evidence presented by Hall and Hitch to minimize, dismiss, or refute the full-cost principle, as Kahn did in his 1952 review of the article, is unpardonable and perhaps dishonest. For further discussion of this rhetorical trick, see Mongin 1990–91, 1992.

14. This formalization of the monopoly–full-cost pricing model for the period 1939–50 is difficult to document directly. It is clear that Danish economists had articulated the formal model by 1945–48 and had utilized it when examining the full-cost principle (Zeuthen 1945; Myrvold 1948; Brems 1951, 1990); but their writings had no impact on economists in the U.K. and elsewhere. On the other hand, Rostas (1948) described a monopoly–full-cost pricing model but did not articulate it formally. B. M. Cheek (1949), in an article in The Economic Record, explicitly dealt with the "full-cost theory of prices" that was in the air at the time, but his discussion was not always clear. In addition, economists drew upon the full-cost principle and Kalecki's mark-up pricing and degree of monopoly to propound a Keynes-inspired new iron law of wages in which a rigid k would translate a general money wage increase into a rise in prices necessary to keep the real wage constant; but the formal model on which the law was based was rarely presented along with the discussion (Bellamy 1981; Burchardt 1944; Worswick 1944; Barna 1945, 1950; and J. Robinson 1949). Moreover there were references to the model in the U.S. literature (Lee 1984a), and perhaps L. Tarshis's
Once the monopoly—full-cost pricing model was developed, it was widely used by British economists to deal with the full-cost principle. One of the best known but somewhat unorthodox applications of the model to the full-cost principle was carried out by P. Wiles. Wiles accepted the proposition that firms utilized full-cost pricing procedures when setting their prices and that such prices maximized their long-period profits. But, if this was the case, then the firm must actually be "equating marginal something with marginal something else" (Wiles 1982). Therefore, "to solve an apparent hopeless contradiction between economic theory and practice" (Wiles 1950, 515), he defined a new marginal cost curve—which he called the long-run marginal cost curve (partial adaptation)—that took into account that under the full-cost principle the firm sets a long-period price that ruled in the short period, but at the same time maintained the same organization of plant and equipment. Using this new curve, Wiles argued that when the firm set its full-cost price it was in fact equating its long-period marginal revenue curve, which was the short-period marginal revenue curve discounted for the risk of loss due to profiteering, to its long-period marginal cost curve (partial adaptation). Thus in this context the firm was not only maximizing its long-period profits, but at the same time setting a price which did not involve the equation of short-period marginal revenue and marginal costs. So, by using the monopoly—full-cost pricing model, Wiles was able to employ marginalist tools to show why, although they could not explain short-period prices, they could explain long-period prices. More importantly, in his model Wiles was able to merge the facts of the full-cost principle with the theoretical deductions of the theory of imperfect competition, thus enabling economists to make welfare statements about the real world (Wiles 1950, 1954).

However, after 1950 the full-cost principle did not by itself occupy the attention of British economists as it had done during the previous
decade, except for Kahn's (1952) rather distorted and negative critique of Hall and Hitch's article. While this was due in part to the victorious ending of the marginalist controversy in the U. S. (see Lee 1984a and 1984b), it was primarily due to the emergence of Andrews's theory of the manufacturing business and specifically his theory of normal-cost pricing, which most British economists viewed as either identical to the full-cost principle as they understood it or as a simple extension of it. Thus, after 1950, British economists turned most of their attention to Andrews, since he appeared to be the new proponent of the non-marginalist interpretation of the full-cost principle.

Reactions to Andrews's Theories:
The Theoretical Responses

A major theoretical issue with regard to Andrews's theories of the manufacturing business and normal-cost pricing was that of compatibility—were they consistent with (or equivalent to) marginalist methods of pricing and profit maximization? The final answer economists gave to the question was a resounding yes. To reach this answer in light of the apparently obvious differences between the theories, they turned to the monopoly–full-cost pricing model. When dealing with pricing, Andrews described the normal-cost pricing procedures as adding a gross costing margin, which included normal average indirect costs and a costing margin for profits, to constant average direct costs. However such a description could, in the eyes of most economists, easily be described in terms of a markup on constant average direct costs, or on constant marginal costs. Thus Andrews's normal-cost pricing theory was seen to bear a strong resemblance to the monopoly–full-cost pricing model described above. Andrews could have avoided this identification if he had argued more loudly than he did that the entrepreneurial motives for pecuniary gain were based on a rationale different from the one underlying neoclassical profit maximization. He also could have avoided the identification if he had provided a better delineation of the gross costing margin and the costing margin.15 In particular, he should have made it clearer why he thought that, as a quantitative measure of the degree of competition facing the firm, the gross costing margin was quite different from the degree of monopoly.

15. The gross costing margin consists of the costing margin and normal average indirect costs. The costing margin is for profits and is determined by the firm.
Moreover, since the costing margin was directly determined by the firm, it was also essential that he provide a clear antimarginalist explanation of its determination. However, Andrews did none of these and so, by default, left both the concepts and the desire for pecuniary gain open to a marginalist subjective interpretation in terms of the monopoly pricing model (Andrews 1951c; Leyland 1950; Davies 1950; Lee et. al 1986; Townsend 1986; and Black 1981).

Andrews could still have escaped the grasp of the monopoly–full-cost pricing model if he had explicitly and strongly repudiated the marginalist interpretation of the full-cost principle as presented in terms of the monopoly pricing model. In particular, he needed to make it clear that a nonmarginalist interpretation of the full-cost principle need not be, and indeed was not, the interpretation given to it in the monopoly–full-cost pricing model. However, Andrews neither repudiated this interpretation of the full-cost principle nor significantly distanced himself from it in public. That is, the marginalist interpretation of the full-cost principle, especially the notion that firms always set their prices equal to their average total costs plus a margin for normal profits irrespective of the state of sales or competitive pressures in the market (which implied that firms never made losses), was quite at variance with Hall and Hitch's version; but Andrews made almost no attempt to correct the (willful?) misunderstanding. Moreover when, in some published articles, economists equated his theory of normal-cost pricing specifically, or his theory of the manufacturing business in general, to the full-cost principle as interpreted in terms of the monopoly–full-cost pricing model, he responded in private but did not try to set the record straight with public rejoinder. Consequently his theory came to be viewed in the eyes of most economists as, at best, a more elaborate version of the full-cost principle, especially after A. Robinson's (1950) and Kahn's (1952) critical reviews of his work16 (Andrews 1951b, 1952a, 1952b, 1952c, 1952d, 1952e, 1952f, 1953a, 1953b, and 1953c).

16. As has been demonstrated elsewhere (Lee 1983 and 1985b), full-cost and normal-cost pricing procedures are basically the same—both are based on the same cost accounting conventions. Thus it is not surprising that economists, when comparing the two pricing procedures, saw no real difference between them, favored the older description, and referred to both procedures as full-cost pricing (e.g. Ahamed 1956; Davies 1950; Silberston 1951; Robertson 1956; and Laffer 1953). In fact Hall himself (Roberthall 1979) did not think there was much difference between the two procedures. However, when trying to differentiate his theory of normal-cost pricing from the neoclassical version of the full-cost principle, Andrews did not make it sufficiently clear that he was reacting only to this version (see above) and not to what Hall and Hitch actually said.
The first response to Andrews's theories based on the monopoly-full-cost pricing model came in A. Robinson's (1950) review of *Manufacturing Business*. Drawing both on his extensive knowledge of firms and industries, and on extensive theoretical discussions with his Cambridge colleagues concerning price formation in duopoly and oligopolistic settings, Robinson argued that, although Andrews's description of the pricing ritual was correct, the ritual was not inconsistent with profit maximization; rather, where competition was almost perfect and new competition free and rapid, it was a reasonable account of rational action for long-term profit maximization by the firm. That is, in the theory of imperfect competition, long-period equilibrium for the firm occurred when its profit-maximizing price equaled its average total costs, including normal profits. To reach this equilibrium state, Robinson argued that the firm must set prices that maximize its profits in each of the short periods leading up to the long period. For firms to do this, their use of normal-cost pricing procedures must in some way take account of the existing market forces. More specifically, using the monopoly-full-cost pricing model and his theoretical background Robinson argued that adding the gross costing margin to average direct costs when setting the price did in fact take into account the relevant market forces and, moreover, was a result of a "balancing process" that was perhaps indistinguishable from equating marginal cost and marginal revenue. Thus Robinson concluded that normal-cost pricing was fully consistent with marginalist pricing procedures and profit maximization.

For many economists, including those at Oxford, Robinson's arguments were unanswerable and the applicability of the monopoly-full-cost pricing model to Andrews's theories of the manufacturing business and normal-cost pricing seemed quite appropriate (e.g., see Chamberlin 1952; Ford 1981; Hallett 1981; and Bellamy 1981). Kahn (1952), for example, employed similar arguments in his discussion of Andrews's work. In addition, A. Silberston (1951, 1953a, 1953b) claimed that the gross costing margin would depend on the firm's subjective evaluation of the market, for example, on the shape and position of its demand curve, and thus he reached the same conclusion as Robinson: there was little difference between Andrews's theory of the manufacturing business and the theory of imperfect competition. However, Robinson's review did elicit a contrary response from M. J. Farrell (1951) who pointed out that, where market demand in the future
was not independent of present price, the long period could not be thought of as simply a series of short periods. Thus, as long as the theory of imperfect competition claimed that firms maximize their profits in the short period as well as in the long period, it was not possible to claim that Andrew’s theory of the manufacturing business was consistent with it. However, because Farrell did not question Robinson’s interpretation of the gross costing margin, Robinson was able to respond, using an argument similar to the one employed by Wiles, that the long- and medium-term elasticities that were relevant to the making of decisions, and the demand curve relevant to the short period, included “suitably discounted all the various repercussions of the future upon the present” (A. Robinson 1951, 431). Thus, by resorting to “implicit theorizing” (Leontief 1937), Robinson was able to make Andrew’s theory compatible with the monopoly pricing model. By constructing a firm demand curve which enabled the firm to engage simultaneously in long-period pricing and setting prices in the short period, Robinson ensured that the monopoly—full-cost pricing model could capture Andrew’s theories of the manufacturing business and normal-cost pricing.  

One important outcome of A. Robinson’s review was that he saved the firm demand curve from certain destruction. That is, if, as Andrew argued, short period and long period are interconnected, then short- and long-period demand curves cannot even theoretically be conceived of as independent. By merging the two curves through implicit theorizing, A. Robinson rescued the firm demand curve for use by future economists. A second important aspect of his review was that it played an transitional role in shifting economists’ perceptions of the time orientation of imperfect competition theory back to its original long-period perspective. That is, J. Robinson and the Cambridge

17 Andrews did not respond to A. Robinson’s review or later to Kahn’s criticisms because Harrod informed him that the editorial policy of The Economic Journal was to discourage controversy, especially with regard to book reviews, but if he insisted, he could have a page or two (Andrews 1952c and 1953b. A. Robinson 1989). However, Andrews, accepting Harrod’s advice on the matter, declined this opportunity to respond because “this would not be sufficient, since any reply, especially to Professor Robinson, whose article has such serious internal inconsistencies, must be point by point; a reply which simply dealt with one or two points would be open to serious misrepresentation—e.g. that I had ‘avoided’ the other points as Harrod points out. I have decided to wait until I can deal systematically with the whole ‘Cambridge’ position, in the light of the development of indigenous theories” (Andrews 1952c). Andrew’s response to the “Cambridge” position came twelve years later with the publication of On Competition in Economic Theory in 1964.
economists saw the theory of imperfect competition as being primarily concerned with long-period equilibrium. However, when other economists used the theory in the 1930s and 1940s to explain firm behavior regarding the fixing of prices and maximizing profits, it was, by some obscure twist of fate, commonly argued that it was necessary for the firm to equate short-period marginal cost and marginal revenue and thereby maximize short-period profits without regard to long-period consequences. But, with the emergence of the full-cost principle and Andrews’s theory, which emphasized that firms set prices based on long-period considerations and deliberately did not try to “maximize” short-period profits, economists started to change their views about how firms behaved. What began to emerge was the opinion that the short-period imperfect competition picture of the pricing process made sense only as a picture of behavior in an economy where all firms were trying to milk their customers today of all they could get without worrying about whether they would have any customers left tomorrow (Wilson 1948; Simons 1939; Andrews 1949b, 270; and Maneschi 1988). Consequently, beginning in the middle 1940s, some economists began arguing that firms maximized long-period instead of short-period profits (Rothschild 1947; Fog 1948; and Hague 1949–50). Therefore by the early 1950s numerous economists, not only A. Robinson, Silberston, and Kahn, had commented on the overriding importance of long-term considerations when setting both short-period and long-period prices; A. Robinson’s contribution to this transition was simply to forcefully reiterate the Cambridge position by tying it to his critique of Andrews (e.g., Davies 1950; Streeten 1951; Wilson 1952; and Farrell 1952).

The end of the transition came with the publication of Harrod’s 1952 essay “Theory of Imperfect Competition Revised.” Harrod interpreted Andrews’s theory of the manufacturing business solely within a long-period monopoly–full-cost pricing model. Emphasizing potential competition as a constraint on setting short-period prices, Harrod argued that firms set full-cost or normal-cost prices which included only normal profits that could be sustained both in the short period and in the long period. Such prices, he went on, occurred at the point where the firm’s long-period marginal revenue curve and the short-period marginal cost curve intersected. Thus the gross costing margin was clearly equated to the price elasticity of demand and must be determined by market forces. Once the relationship was explicitly established, it be-
came an accepted theoretical principle among economists and one that needed no empirical verification or support. And the result was that the monopoly–full-cost pricing model could also incorporate Andrews's theory of the manufacturing business so long as the model was interpreted in a long-period context, and long-period profits were maximized.18

The significance of Robinson’s and Harrod’s arguments concerning the determination of the costing margin was not lost on economists. As in the United States (see Lee 1984b), articles and books emerged after 1952 which explicitly used the long-period monopoly–full cost pricing model with a market determined gross costing margin to specifically absorb the normal-cost prices doctrine in general, and Andrews’s theory of the manufacturing business in particular, into the theory of imperfect competition (e.g., see Bruce 1953; Ahmad 1956; and Cook 1981).

**Reaction to Andrews’s Theories:**
**The Ideological/Political Response**

The theoretical issue was not the only reason that British economists reacted so strongly to Andrews’s contribution to the doctrine of normal-cost prices. The ideological and political climate of the time also played a role. Robertson (1956), in his review of the controversy surrounding Andrews’s work, suggested that no little part of it could be understood as a conflict between those who looked at the businessman with a sympathetic eye and those who did not. Beginning with the Great Depression, the ideological climate in which the British business community operated began to shift to pro-labor. This was no more evident than in the academic community. J. Robinson argued in her book, *The Economics of Imperfect Competition*, that cartels and rationalized

18. The absence of empirical testing of the monopoly–full-cost pricing model simply indicates the extent to which economists believed without question that businessmen engaged in marginalist reasoning in the technical sense when making decisions based on balancing advantages and disadvantages in some appropriate way. This almost religious belief in benign marginalism, as P. Mongin (1992) calls it, ensured that no direct empirical testing of the model took place during the controversy or during the subsequent forty years. This lack of empirical testing may also have been an unconscious attempt to avoid the "Broster problem"—the empirical testing of the monopoly pricing model and finding that it produces prices which were fifty percent greater than the prices actually set (Broster 1938a), or that the model did not "work" because the price elasticity of demand was less than one (Broster 1939).
industries reduced economic welfare and exploited labor. She also argued, as did others such as Meade, that firms deliberately restricted their output in order to keep up their prices and hence their profits, A. Robinson's 1950 disingenuous disclaimer notwithstanding (J. Robinson 1943, 1949; Meade 1936; and A. Robinson 1950). Kalecki's mark-up pricing model with its concept of the degree of monopoly became quite popular as well with economists (and students) who looked on business with a critical eye because of the welfare implications it carried (Wilson 1948). Moreover, many economists, such as G. D. H. Cole, Durbin, Gaitskell, G. Shove, Kahn, Meade, and J. Robinson, were involved with the New Fabian Research Bureau, Society of Socialist Inquiry and Propaganda, and other labor and socialist think tanks and educational organizations (Durbin 1985). Economists and other academicians also joined socialist labor clubs, such as "the pink luncheon club" in Oxford (Hargreaves 1973), and spent time reading Karl Marx's writings. Finally, many left-wing European economists had migrated to Great Britain during the 1930s to escape the rise of fascism and had become associated with many universities. The Oxford Institute of Statistics, in particular, became the home for many of them, including Kalecki, J. Steindl, and F. Burchardt.19 Thus by the late 1940s many academic economists had shifted significantly to the left, with most being "anti-monopoly" and sympathetic to Kalecki's concept of the degree of monopoly, "in the climate of the time, which was strongly anti-monopoly in 1945, as it had been among my own student generation before the war. I was naturally sympathetic to a concept like the degree of monopoly, based on gross mark-up on prime costs" (Bellamy 1981; also see Davies 1950 and Wilson 1948 and 1952). Utilizing the theory of imperfect competition and Kalecki's degree of monopoly, economists advocated the nationalization or the public control of monopolistic industries and the use of marginal-cost pricing in state-run enterprises. In other situations, economists used the theory and degree of monopoly to condemn selling costs and advertising as methods that increased monopoly profits, decreased com-

19. For a case in point, All Souls College, Oxford, established a research fund which was used to bring German scholars out of Nazi Germany. The first beneficiary of this fund was F. A. Burchardt, who was much influenced by Marx and became a left-wing Keynesian in the 1940s. On the other hand, E. F. Schumacher became a Marxist while interned at a camp, along with Burchardt and other present and future members of the Institute, on Prees Heath near Whitchurch on the borders of Shropshire and Wales (Wood 1984).
petition, and increased the misallocation of resources. They also used them to counteract arguments that trade associations might be efficient and price reducing and thus should be encouraged by the government as part of its postwar reconstruction plans. Lastly, economists utilized them to support the Labour Party’s campaign against restrictive trade practices which, they argued, were inhibiting the Government’s attempt to achieve full employment. They thus supported the passage of the Monopolies and Restrictive Practices Act in 1948 and the Patents Act in 1949 (Durbin 1985; Wood 1984; Booth 1986; J. Robinson 1949; E. A. G. Robinson 1949; Gowing 1985; Gribbin 1978; Kaldor 1950; and Wilson 1948).

Andrews, on the other hand, argued that, because the proposed price policies and legislation were receiving their justification from a theory that bore no relation to the reality of the business world, they were inappropriate. Further, if such policies and legislation were implemented, they would damage not only the firms affected but also the whole economy. Such policies and legislation represented attacks on the business system that he thought were primarily political in origin; moreover, he believed that their claim of being based on economic reasoning was completely specious. In particular, Andrews was profoundly antagonistic towards the practice in welfare economics in which it was the accepted procedure to use untested hypotheses in order to produce untestable conclusions—conclusions that were nevertheless pressed home in the advocacy of political consequences. Competition, even when firms were large, few, and engaged in advertising, was a far more effective force for controlling businesses’ behavior and promoting economic welfare than the theory of imperfect competition allowed or the degree of monopoly suggested (Andrews 1949a, 1949b, 1949d, 1952a, 1952b, and 1953b; also see Little 1950; Davies 1950; and H. R. Edwards 1952 and 1982).

20. In particular Andrews noted that the degree of monopoly cannot be the standard of reference for the competitiveness of a market or for economic welfare if the firm’s average direct costs were constant (which his research told him was generally the case). He also remarked that the marginal-cost pricing rule suggested for nationalized industries made little sense if all the firms in the industry had constant average direct costs. However, it should be noted that Andrews was not the only critic of the welfare conclusions being derived from the theory of imperfect competition. From inside the neoclassical camp, both Little (1950) and Wilson (1952) argued that the theory bore little relation to the facts, and thus undermined the significance and importance of its welfare conclusions (Wilson 1982). The response of economists to Wilson’s arguments was that he was advised to stick to the trade cycle.
Because he seemed to be arguing that competition among a few firms produced the same economic and welfare results as perfect competition, Andrews was viewed by his academic colleagues as being an apologist for the business community (Steindl 1981; Lee 1985a; Bellamy 1981; H. R. Edwards 1982; and Streeten 1951 and 1986). As a consequence, his work was seen as biased and untrustworthy. “My memory is that his [Andrews’s] pricing theory was held in little esteem in Oxford. This may have been influenced . . . by his position as a renegade socialist who was a very strong supporter of capitalism and businessmen in what was at that time a predominantly left-wing economics faculty” (Clegg 1981; also see Wiles 1982; and Irving 1978). Thus some economists judged the adequacy of Andrews’s theory of the manufacturing business and especially his normal-cost pricing theory, not by how well they described and analyzed the behavior of the manufacturing firm, but by whether or not they portrayed the businessman and the manufacturing firm in a favorable light (J. Robinson 1977, 11).

Concern over the ideological content of Andrews’s theory of the manufacturing business led economists by imperceptible steps to dismiss it as of low quality and to label him a poor theorist (Richardson 1981; Little 1981; and Streeten 1986). Similarly we find comments that his work was “full of dark sayings,” unfathomable, untheoretical, or simply nonsense (J. Robinson 1953, 590; H. R. Edwards 1982; Worstwick 1986; and Hallett 1981). This was, however, to be expected from economists steeped in habitual modes of thought, and who saw the theory of imperfect competition as empirically based, or who were taken with Kalecki’s microanalysis. The mixture of certainty and un-

21. It is of some irony to note that Andrews was busily trying to collect money for the widow of the well-known British socialist, Evan Durbin at the same time that he was labeled a capitalist lackey. More to the point, as a young man, Andrews was far to the left, a pacifist, supporter of the League of Nations Peace Pledge Union, anti-Franco, an antimonarchist, and in some ways an anarchist. He distrusted accepted wisdom and any power group. His approach to economics was positive not normative, but he reacted against economists who judged businesses without regard to the facts. This approach can be easily misunderstood, as it was in Andrews’s case (King 1988).

22. On the other hand, this did not prevent the same economists from engaging in ideologically motivated research, which they thought to be unbiased and trustworthy. See for example Streeten’s (1951) attack on Andrews’s position that competition was more widespread and stronger than was postulated by the theory of imperfect competition.

23. This is not to say that the reaction to Andrews was entirely political in nature. Some economists, especially at Cambridge and Oxford, were critical of Andrews and his work because they considered empirical analysis of business, something which they did not do, un-academic. However, it is difficult to determine how widespread this view was (Lloyd 1989).
certainty, statics and dynamics, industry and firm in Andrews’s theory was certainly unacceptable, and perhaps truly unfathomable, to economists who were persuaded of the benefits of the partial equilibrium static approach (O’Brien 1984). This attitude was further reinforced by Andrews’s refusal to relate his theory in a positive manner to the theory of imperfect competition, or to express it in conventional diagrammatic or mathematical terms that would have allowed his colleagues to relate what he was saying more easily to the generally accepted theories (Ford 1981; H. R. Edwards 1982; and Wilson 1982). In addition, Andrews’s emphatic denial that the theory of imperfect competition had anything to say about the real world, and that economists’ assertions to the contrary were nothing less than intellectual fraud, certainly made him appear in the eyes of many orthodox economists as a poor economist with a grudge. However, because of their welfare implications, some of Andrews’s arguments were incorporated with the monopoly–full-cost pricing model when it was used to make welfare statements about the economy which were more favorable to business. This occurred when the political climate of opinion changed in the late 1940s and early 1950s with the resurgence of the Conservative Party. In particular, Andrews’s empirically based view that competition was more widespread and intense in the manufacturing sector than imperfect competition suggested, was adopted by many economists who wanted to argue that there was little misallocation of resources where prices were higher than minimum average total costs and excess capacity existed. Thus, in the emerging conservative, business-oriented climate, the model went a long way to remedy the inadequacy of the theory of imperfect competition as a branch of welfare economics (Wiles 1950; Harrod 1952; Wilson 1950, 1952 and 1982).

The Institutional Response and the Reaction of Andrews’s Supporters

Perhaps surprisingly neither Hall and Hitch nor Andrews put up a strong resistance to the marginalization of the full-cost/normal-cost principles. Hall had left Oxford in 1947 to become Director of the Economics Section of the Cabinet Office and later of the Treasury and was thus busy advising Chancellors of the Exchequer on the macroeconomic management of the economy until 1961 (Cairncross and Watts 1989), while Hitch abandoned academia for the RAND Corporation in
1948. Andrews, as noted (above, n. 17), heeded Harrod’s advice and did not reply in The Economic Journal to the criticisms of A. Robinson, Kahn, and Silberston. Nor did he respond in public to other economists’ criticisms and their attempts to marginalize his theory.  

The institutional response may explain, at least in part, Andrews’s refusal to reply publicly. He may very well have wished to maintain a low profile in light of attempts to withdraw institutional support from him. For, at the time, Andrews was not only being subjected to strongly worded verbal criticism (King 1988), he was also being subjected to an attempt to prevent the renewal of his Nuffield fellowship by J. R. Hicks and N. Chester (Andrews 1964a; and Richardson 1981, 1986). Not only Andrews himself, but his close associates were also being subjected to institutional pressure. It was made clear to Elizabeth Brunner, his life-long collaborator, that she had no hope of promotion unless she distanced herself from Andrews, while his graduate students were made to feel positively disadvantaged in their career prospects by their association with him (Brunner 1979).

24. It might be argued that Andrews’s reluctance to respond to his critics could be attributed to self-doubt or the need to devote his energies to business projects which would produce the fees needed to keep his sons at public schools (see King 1988). However, these two arguments cannot be squared with the evidence—that Andrews had lectured on the “Cambridge position” (e.g., during the 1950 Hilary term he gave lectures on “The Theory of Price: Marshall and After”) and had already written and presented publicly a general critique of the “Cambridge” position in his Netherland lectures and in his paper on the legacy of the 1930s in economics (Andrews 1952a, 1952b). Thus the time it would have taken Andrews to integrate his general critique with specific statements responding to particular comments made by Robinson, Kahn, and others would have been minimal. Hence the reason for his failure to respond to Robinson and others must be found elsewhere. King also suggested that Andrews may not have wanted his revolution to succeed anyway, that like Cayley, “he knew he was right and cared only a little who else knew” (King 1988, 206). The following quotation from Collingwood, a philosopher whom Andrews greatly admired and who had a strong influence on him—especially, we can assume, his view that all science investigations are essentially historical—may provide another clue to Andrews’s attitude. “About answering critics: I have never made, and shall never make, any public answer to any public criticism passed upon my work. I value my time too highly. Now and then I have thought it civil to comment briefly, in a private letter on criticism made by letter, or on printed criticism of which the author has sent me a copy. Such comments are, of course, not replies, and in no circumstances should I authorize their publication” (Collingwood 1939, 56 n.).

25. According to Brunner, “His pupils, who acknowledged his influence, felt they were positively disadvantaged in career prospects: Don Lambert told me he felt ‘out on a limb’; Harold Edwards, who had Andrews as his supervisor on his first main visit to Oxford, changed to Hicks for his second brief visit; I. M. D. Little repudiated Andrews and all his works; it was made clear that there would be no promotion for me unless I moved, etc. etc.” (Brunner, 1979).

The most significant of the attempts to build a bridge between Andrews and the neoclassical economists was that of Brunner. She wrote an article when moves were being made to prevent Andrews's fellowship from being renewed. This article, in which she tried to put Andrews's theory into neoclassical terminology, was deliberately designed to deflect that attempt (Brunner 1952). The article was favorably received by Oxford economists and, combined with the support of H. Clay, an old Marshallian and a former Warden of Nuffield College who was skeptical of the more recent developments in price theory, did help him retain his Nuffield fellowship. More importantly, economists as well as generations of students (King 1988) found Brunner's description easy to understand, and the former believed that it justified their view that Andrews's work was not very different from the theory of imperfect competition. "Mr. Andrews' Manufacturing Business is full of dark sayings, but Miss Brunner... makes the 'normal-cost theory' intelligible. Though couched in the form of an attack on imperfect-competition analysis, it seems to come to pretty much the same thing... The difference is rather in tone and emphasis than in analysis" (J. Robinson 1953, 590; see also Silberston 1953b). The irony of this was that the conviction of most economists

26. It may be that Andrews saw the establishment of the Journal of Industrial Economics in 1952 as a vehicle for the ideas of his present and perhaps future supporters. Therefore its establishment could be regarded as a public institutional response on Andrews's part. He was editor of the journal until his death (Andrews 1952h).

27. Brunner has noted that Andrews was not altogether sympathetic to any attempt to put new wine in old bottles, but in this case it did enable Andrews to live to fight another day (Brunner 1975, ix).
that there was no difference between Andrews's work and the theory of imperfect competition was strengthened by his supporters' attempts to achieve recognition for Andrews's work. The controversy over the normal-cost prices doctrine came to an end with its absorption into the theory of imperfect competition (Andrews 1964a; Brunner 1952; Wilson 1982; Ford 1981; Townsend 1986; and King 1988).

Conclusion

The first response of neoclassical economists to the empirical findings that manufacturing businesses used normal-cost pricing and not marginal-pricing procedures was to dismiss them as procedurally unsound. However, as more and more evidence was presented, the response changed to acceptance—the findings were true but nothing new. Still, the fact that businesses did use some kind of normal-cost pricing procedures made it important to find an interpretation that would make the practice compatible with the marginalist assumptions of price theory. This was achieved, to the satisfaction of the leading economists at least, by the process described in the second and third sections of this paper by which the full-cost principle and Andrews's theory of manufacturing business were integrated into the long-period monopoly—full-cost pricing model. In this model, the assumption is made that firms attempt to maximize long-period profits rather than the short-period profits of the original versions of imperfect competition theory. Long-period profit maximization is a more benign, far less restrictive form of marginalism than short-period maximization.

Not only this, in the process of absorbing normal-cost pricing into neoclassical price theory, the assumption of profit maximization ceased to be testable in principle or in practice. It became part of the hard core of the theory and as such was impervious to contrary empirical evidence (Mongin 1990–91).

The theoretical response to Andrews's work was accompanied by a political/ideological response which resulted in Andrews being labelled as a mere apologist for big business, and, as such, his welfare conclusions labelled biased. This label was very damaging at a time when many economists held left-wing views and favored government intervention into the economy to correct the misallocation of resources predicted by imperfect competition theory. When the political climate
changed, Andrews’s suitably marginalized arguments were taken up to show that the misallocation was not so great after all and that his welfare conclusions had not been all that wrong.

The domestication of the normal-cost-prices doctrine, which was completed by 1955, may have been aided by Andrews’s refusal to argue against it publicly. It was certainly aided by his supporters who, in a successful attempt to prevent Andrews from losing his post as a Nuffield Fellow, wrote articles in which Andrews’s ideas were translated into the language of neoclassical theory. This made it easier for other economists to interpret Andrews’s theory as a supplement to imperfect competition theory and not as a viable alternative to it.

The absorption of the normal-cost-prices doctrine into marginalist theory and the view, which resulted from making the profit-maximization assumption untenable, that studying decision-making processes was no task for a theoretician, made Andrews’s ideas seem irrelevant as far as price theory was concerned. They lost any potential value they might have had for throwing light on the manufacturing sector and mention of them was relegated to footnotes. With the acceptance of the marginalist interpretation, the controversy faded away and the belated publication of Andrews’s full-scale critique of neoclassical theory in 1964 caused only the mildest of flutters in academic dovecotes.

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