3. Theory of the Firm

3.1 FEATURES AND DOMAIN OF VALIDITY OF THE POST-KEYNESIAN FIRM

First-year students of economics are usually impressed by the symmetry of mainstream microeconomics. Firms maximize profits, just as households were assumed to maximize utility. Having mastered the shapes of the total utility curve and that of the indifference curves in the chapters covering consumer theory, students simply have to reproduce these curves to obtain the total product curve and the isoquants of production theory. The U-shaped cost functions are then derived. It is at this stage that the instructor has to be most vigilant, for many students who have had working experience will object to the implication that average total costs (when profits are non-negative) are increasing with sales. The law of decreasing returns has to be hammered in for order to be preserved. Further confusion sets in, however, when textbook authors attempt to demonstrate the practical usefulness of the rule equating marginal cost with marginal revenue by relying on instances of decreasing average costs and constant marginal costs which have nothing to do with marginal pricing rules (see Baumol et al., 1988, p. 496; incidentally the example has disappeared from the latest edition). Nevertheless, when students enter intermediate microeconomics, these doubts about the coherence between reality and theory will be washed out by the necessity to handle the required mathematics and Lagrangians.

The object of the present chapter is to present a more realistic view of the firm and to show that this view of the typical firm is shared by all post-Keynesians. Five themes will be tackled: what are the objectives of the firm; what are the shapes of cost curves and why is there excess capacity; how are margins on costs set when pricing; what happens to prices when demand fluctuates; and is there any link with the Staffian prices of production?

To answer these questions the contributions of authors from various non-orthodox schools will be considered. Although there is no necessary
agreement on the details of the theory of the firm, these various authors share a common vision. Post-Keynesian authors, at least since the late 1960s conceive of the firm on similar grounds. The picture occasionally drawn by Kaldor and Robinson is consistent with that presented by Kalecki and the Kaleckians such as Steindl. There is also much consistency with the then contemporary views of Oxford specialists of the firm, such as Harrod, Andrews and Brunner. The same can be said of the views of American specialists of administered prices, such as Means and Lanzilotti, or even those of Galbraith and Baran and Sweezy. More recently the works of post-Keynesians, mainly Eichner and Lee, have highlighted the importance of non-neoclassical foundations of the theory of the firm, following the footsteps of Sylos Labini. We shall also see that the framework developed by all these economists is quite coherent with the notion of bounded rationality which we have presented in the previous chapter, and which is developed in the case of the firm in the so-called behavioural theories of Cyert and March. It is of course possible to find other, perhaps lesser-known, authors who have developed various aspects of the post-Keynesian theory of the firm. We do not wish to deal strictly with economic history, however, and shall stick to the ones already identified above.

I would argue that what characterizes all these authors is the recognition that prices set by firms in the short run are not market-clearing prices, and are not even intended to be so. According to Lee (1990, p. 685, 1984a, p. 156), this was the striking lesson to be drawn both from Means's administered prices and from the surveys conducted by Hall and Hitch (1939). The novel and radical feature of the classic article of the latter was that prices are not designed to clear markets. Prices are not such that they equate supply and demand schedules. In a context where supply is flexible, firms do not necessarily attempt to equate demand to the normal use of capacity when they set prices. This in my opinion is what distinguishes the markets in which firms of the post-Keynesian type operate and those in which the standard neoclassical firm still makes sense. The position taken here is that these non-clearing markets are the rule whereas the clearing ones are the exception.

To clarify matters, it might be appropriate at this stage to use Alfred Eichner's description of the four important characteristics of the relevant firm in the modern world, a firm which Eichner (1976) calls the megacorp. As its name indicates it is a large firm; management is separated from proprietorship, marginal costs are approximately constant; and the firm operates in at least one industry of the oligopolistic type. Our discussion of the characteristics of the post-Keynesian firm will thus evolve around these four characteristics.

The main point of contention, related to the non-clearing aspect of
prices, is whether or not the typical firm that post-Keynesians describe is necessarily set within an oligopolistic industry. My opinion is that it need not be, recognizing, however, that to study the behaviour of the price leader in an oligopoly may lead to more satisfactory and more determinate results than if one studies the behaviour of a small firm operating in an industry where there is no dominant actor. Besides Eichner, several other post-Keynesians have noted that oligopolies constitute their representative post-Keynesian industry. Kaldor, for instance, has indicated on a number of occasions that the industrial model he is implicitly working with is 'a kind of oligopoly-cum-price-leadership theory' (1970a, p. 3); that is, a theory where one assumes 'the prevalence of imperfect markets and oligopolistic competition, where prices are set by the leading firms, based on costs' (1978a, p. xxi).

To argue that the post-Keynesian firm operates mainly in oligopolistic industries unnecessarily restricts the range of post-Keynesian theory. Means has denied that cost-plus pricing, or administered pricing as he called it, only applies to monopoly: 'Administered prices should not be confused with monopoly . . . In general monopolised industries have administered prices, but so also do a great many vigorously competitive industries in which the number of competitors is small' (quoted in Clifton, 1983, p. 24). Similarly, we can deny that cost-plus pricing only applies to monopolies and oligopolies. It has been recognized by several economists that the phenomenon of mark-up pricing, one of the important features of post-Keynesian firms, is 'simply too pervasive across the United States economy to be attributable to oligopoly' (Okun, 1981, pp. 175–6). Rigid cost-plus pricing is observed not only in the car or the computer industries but also in retail trades in which large firms do not dominate. This was also one of the remarkable results of the survey by Hall and Hitch:

The answers also suggest that the distinction between monopoly and monopolistic competition on the one hand and monopolistic competition with an admixture of oligopoly elements on the other is not of very great importance . . . It proved to be extremely difficult in practice to distinguish between oligopolistic firms and others. The distinction seems to be almost entirely one of degree, for all firms were conscious to some extent of the presence of competitors and the possibility of reactions to changes in their price and output policy . . . Where this element of oligopoly is present, and in many cases where it is absent, there is a strong tendency among businessmen to fix prices directly at a level which they regard as their 'full cost'. (1939, pp. 30–1)

The view taken here is thus the converse of that advanced by the advocates of contestable markets (Baumol, 1982; see Davies and Lee, 1988, for a critique). All markets, with the exceptions soon to be elaborated upon, can be brought back under the umbrella of imperfect markets,
where prices in the short run basically depend upon costs, according to
some principle of mark-up or full cost pricing. Sylos Labini (1971) argues
along the lines of this definition. For him, prices in the short run in
competitive industries depend on both demand and supply, while in
imperfect markets, which he calls oligopolies, these prices only depend on
costs. Hicks (1976b, p. 417) has made the same distinction with the help of
the dichotomy between flexprice and fixprice markets. The latter are
associated with normal costs, to be found in manufacturing but also in the
primary sector where oligopolies prevail. To these, Sylos Labini (1971, p.
245) adds the tertiary sector. All this is consistent with Kalecki's opinion,
according to which the prices of agricultural products and raw materials
are determined by the interaction of supply and demand, mainly because
any increase in production requires long delays, but also because mining
products being homogeneous they are subject to speculation on futures
markets. On the other hand, finished goods and industrial products are
cost-determined because there exist reserves of capacity which allow flexi-
bility in responding to demand changes. Kalecki adds that in these
markets there must be some form of imperfect competition for excess
capacities to prevail in the long run (1971, pp. 43–5). While there is clearly
an agreement as to whether the secondary and even the tertiary sectors fall
under the domain of the imperfect market and therefore of the post-
Keynesian firm, the case of the primary sector is less clear. As to mining
products and even some agricultural goods (through marketing boards),
competition does not always prevail and we should therefore expect prices
to be fixed independently of demand. We could thus say that the represen-
tative post-Keynesian firm prevails everywhere, except in competitive
industries of the primary sector or in auction markets.

One could also link this post-Keynesian firm to the notion of reproduc-
ible goods: where products are reproducible, we should expect marginal
costs to be linear up to capacity; that is, we should observe inverted L-
shaped average variable cost curves. Commodities which are not repro-
ducible, as is the case of natural resources, or which require long delays to
increase their production—the case of agricultural goods—correspond to
the U-shaped marginal cost curves of the standard neoclassical firm. The
ability to fix prices, what Means has called administered prices, relies on
something more than monopolistic power. It relies on the shape of the
\( \text{costs inherent to the type of technology in use.} \) This is a point made by
Means (1936, p. 35) himself, when he links the presence of administered
prices, in opposition to flexible prices, to the existence of modern technol-
ogy. We can relate this to Kalecki's distinction between cost-determined
and demand-determined sectors, where 'it is clear that these two types of
price formation arise out of different conditions of supply' (Kalecki, 1971,
According to Kalecki, there is a link between cost-determined prices or fixed prices, excess capacities, constant marginal costs and imperfect competition. On the other hand, prices flexible according to variations in demand are associated with rising marginal costs and homogeneous products, the latter being an element of traditional competition. The same link between administered pricing and the modern conditions of production of reproducible goods has been proposed by Kahn in his critique of Malinvaud's model of unemployment based on fixed prices. Kahn argues that administered prices which are insensitive to demand must be associated both with market imperfections and non-increasing costs.

Fixed or 'sticky' prices are found in manufacturing and distribution, where products are not homogeneous and labour costs are constant or decreasing up to the limits of capacity...

Flexible prices are found in those markets for a limited range of primary products where products are homogeneous, demand to the individual producer is almost perfectly elastic, and costs rise with output due to fixed natural resources...

The whole notion of sticky prices, based on the studies of the real manufacturing world... cannot be squeezed into the textbook notion of homogeneous products and rising cost curves. If on the other hand, one wishes to justify the assumption of sticky prices by returning to reality, then one must assume constant or falling variable costs. (Kahn, 1983, p. 224)

We may thus sum up the issue of the domain of validity of the post-Keynesian firm by saying that post-Keynesians assert that there are hardly any markets where prices are not administered by firms. Most industries are thus to some extent imperfect or monopolistic markets, even those that at first sight might appear to be competitive. This is a precise counternpoint to the contestable market doctrine. All sectors, however, are not of the cost-determined type, although they will be assumed to be so in the macroeconomic part of the book. Post-Keynesians believe that the secondary and the tertiary sectors are under an administered price regime, with cost-determined prices that are basically inflexible in the face of variations in short-run demand. Although by no means required, it is assumed that the typical firm operates in an industry where a few large firms account for the vast majority of sales, another stylized fact (Kaldor, 1985a, p. 58). It is thus understandable that Eichner would include among the four characteristics of the typical post-Keynesian firm the large size of the firm and the associated dichotomy between management and ownership. We shall see, however, that size and the possible divorce of control from ownership are only modulating factors, rather than determinants, of the objectives of the firm.
1.2 THE OBJECTIVES OF THE FIRM

Power

If one attempted to characterize briefly the received view of the objectives of the firm, one would draw the following picture: small firms operate in competitive markets and attempt to maximize profits, more specifically short-run profits; larger firms, because they operate in imperfect markets and because their management is divorced from ownership, generally pursue goals other than profit maximization. I shall argue here that the objectives of firms are the same, irrespective of their size and of their type of control, and that these objectives are not profit maximization. To the extent that profit motives have a substantial role to play, it will be argued that profits are means rather than ends.

The question of the objectives of the firm or those of their managers has generated a substantial amount of attention from economists. Various maximands such as sales, managers' utility and valuation ratios have been proposed, not to speak of goals of the satisficing type, such as normal rates of return or market shares. Faced with this debacle of objectives, the only rational response is to assume that firms have multi-purpose objectives. This, in fact, is the view that many empirical researchers adopt after admitting that the empirical evidence is unclear (Koutsoyiannis, 1975, p. 258). Indeed, in surveys of their objectives, entrepreneurs often indicate several of them rather than the standard profit maximization hypothesis (Shipley, 1981, p. 442). Among post-Keynesians, while John Kenneth Galbraith (1975, p. 124) has claimed that it would be a serious error 'to seek a single explanation of how firms behave', Joan Robinson (1977, p. 11) has argued that firms have motivations that are multi-dimensional and that, as a consequence, 'it will never be possible to get a knock-down answer'. Besides the obvious fact that there is no reason to presume that different firms will behave identically, or that the various constituents of the modern firm pursue identical goals, the main cause of these distressful results is that the ultimate objective of the firm can only be defined in very general terms. The consequence of this is that various intermediate goals that serve to fulfill that ultimate objective will be proposed, by either the theoreticians or the business world itself.

My opinion is that power is the ultimate objective of the firm: power over its environment, whether it be economic, social or political. 'Power is the ability of an individual or a group to impose its purpose on others' (Galbraith, 1975, p. 108). The firm wants power over its suppliers of materials, over its customers, over the government, over the kind of technology to be put in use. The firm, whether it be a megacorp or a small
family firm, would like to have control over future events, its financial requirements, the quality of its labour force, the prices of the industry and the possibility of takeovers. 'The firm is viewed as being able to exercise a degree of control over its environment through R&D, market development, interfirm cooperation, entry deterrence' (Davies and Lee, 1988, p. 21). In a world without uncertainty, the notion of power dissolves and loses much of its importance. In such a world, for instance, firms always have access to all of the financial capital that they require provided their investment project is expected to be profitable. The source of financing is immaterial.

However, in a world where fundamental uncertainty prevails, firms must find means to guarantee access to financial capital, all of their material inputs, or critical information. Powerful relations allow corporations to have access to scarce information without which the firm would be immobilized. Furthermore the control over events constitutes the means by which firms can evade the inaction which pervades uncertain situations. Power allows firms to 'control the consequences of their own decisions in order to prevent their desires being thwarted by others' (Dixon, 1986, p. 588). All firms thus look for more power over their environment. At a more fundamental level perhaps, the search for power procures security for the individual owner or for the organization. Firms would like to insure their long-run survival, the permanence of their own institution. 'For any organization, as for any organism, the goal or the objective that has a natural assumption of preeminence is the organization's survival. This, plausibly, is true of the technostructure' (Galbraith, 1972, p. 170). A powerful control over events and human actors provides the conditions required for such long-run existential goals.

The notion of power, except when related to the case of the pure monopoly, has been systematically ignored in economics, with the exception of Institutionalists and Marxists. Among the former, Galbraith is the most well-known recent exponent of the importance of power in the economic sphere. As argued above, the power that firms attempt to obtain is not limited to the market sphere: it extends to the political and the social spheres. Besides the implementation of new processes, the differentiation of old commodities and the marketing of new products, firms try to escape the established market structures and to act on these structures through the lobbying of public authorities and the formation of social norms. It is amusing to note that these strategies were outlined by French economist Jean Marchal, in an article published in the American Economic Review, to which the referee objected that power struggles pertained to Europe but not to the United States, where 'we have the purest of pure competition' (Marchal, 1951). It is then easy to comprehend why Galbraith's vision of
The American industrial state generated so much negative response from his fellow economists. Galbraith has emphasized the role of power for the megacorp along the lines suggested by Marchal. One should not forget, however, that this search for power is just as important for the small entrepreneurial firm which is trying to take off as it can be for the technostructure.

The need to control environment – to exclude untoward events – encourages much greater size. The larger the firm, the larger it will be in its industry. The greater, accordingly, will be its influence in setting prices and costs. And the greater, in general, will be its influence on consumers, the community and the state – the greater, in short, will be its ability to influence, i.e., plan, its environment. More important, as organization develops and becomes more elaborate, the greater will be its freedom from external interference. (Galbraith, 1975, p. 56)

The quest for power and growth is also as valid at the level of the organization as it can be at the level of the individual working within the corporation. Whereas a successful quest for power will endow the firm with stability and permanence, it will simultaneously endow the individual with a successful career, the opportunity of promotions, the availability of higher social status and the respect of peers, all the items which comprise the upper echelons of Maslow’s pyramid of needs. Here we can understand the numerous studies which have underlined the maximization of the satisfaction of the managers, the so-called managerial theories of the firm. The gains from a more powerful corporation are not limited to the managers, however; they apply to the whole technostructure. Galbraith’s previous quote continues:

As organization acquires power, it uses that power, not surprisingly, to serve the ends of those involved. These ends — job security, pay, promotion, prestige, company plane and private washroom, the charm of collectively exercised power — are all strongly served by the growth of the enterprise. So growth both enhances power over prices, costs, consumers, suppliers, the community and the state and also rewards in a very personal way those who bring it about. (1975, p. 56)

This brings to the forefront the question of the separation between management and ownership, famous since the publication of the classic study of Berle and Means (1933), and known to Institutionalists as the Veblenian absentee ownership (Leathers and Evans, 1973). Would the managers of a company still controlled by its owners behave any differently from those of a management-controlled one? Both Eichner and Galbraith imply that they would, insisting as much as they do on the consequences of the divorce between proprietorship and management. My opinion is that there is no need to emphasize that divorce. Whether the owners are still in control or not is irrelevant: those individuals taking
decisions within the firm are in search of power; and their behaviour and motivations will reflect that fundamental fact. Incidentally, it is a bit ironic to note that, to sustain his thesis of the all-powerful technocratic structure, Galbraith (1972, p. 174) is led to cite a minority study which provides evidence of performance differentials between owner-controlled and management-controlled corporations. Most studies seem to show that there is no discrepancy with respect to growth, advertising, salaries, the variability of investment and dividends, and, most importantly, there is no differential with respect to profitability (Kania and McKean, 1976). An argument could then be made, similar to that supporting the contestable market hypothesis, that the forces of competition constrain management-controlled companies to behave as efficiently as firms controlled by their owners. It appears, however, that firms operating in concentrated industries and firms which are dominant in their markets do not exhibit any larger differentials than those operating under more competitive conditions, so that it must be concluded that 'competitive forces are unlikely to be the root cause of similarity in owner-manager performance' (Kania and McKean, 1976, p. 288, emphasis in original).

The concept of the Galbraithian technostructure thus applies with equal force to both the managerial firm and the one still controlled by its owners. In the latter, owners can benefit from the power exerted by their corporation. They can also grab part of the corporate surplus, in the sense defined by Baran and Sweezy (1968), extracted by their technostructure. There is thus no reason to suppose in this case that their behaviour would be much different from that of the managers. Consequently, when owners truly control a corporation, they benefit from the gain of power, and should seek it as much as their managers. On the other hand, when owners still control the board of directors, but without being able to share in the benefits of corporate power, one may suspect that the complexity of the operations will be such that it will be quite difficult for the owners to have much impact on the performance of the firm. In particular, the large institutional shareholders rarely attempt to modify the behaviour of management. The position of this type of owners is no different from that of the major money lenders to the firm, as will be argued later. When unsatisfied, institutional owners would rather sell their shares than tamper with management practices. The repercussions of these sales for management are minute, unless those who buy back the shares intend to make a hostile takeover.

The view of the enterprise taken here is thus one of a going concern, where the entrepreneur is the firm (Strauss, 1944). As the Institutionalists would argue, the firm has a sort of collective will, defined by tradition, the working rules, the dividend policy and so on. This is not to deny the
importance of individual leaders. True leaders succeed in instilling enthusiasm and good traditions within the technostructure. They may turn around the performance of a previously ill-managed firm. The positive contribution of these individual leaders, however, is not so much a function of the dividends garnered by the shareholders, but rather is assessed by its impact on the possibility of long-run survival of the institution. With perhaps the exception of the smallest of firms, the notion of permanence pervades the thinking of decision makers of these going concerns (Eichner, 1976, p. 22). Long-run considerations affect pricing or investment decisions, whoever controls the corporation.

**Growth**

Having been convinced of the universal validity of power as the ultimate objective of almost all types of firms, the reader may then wonder how that objective can be met. The answer is very simple: to become powerful, firms must be big; to become big, firms must grow. As a first approximation, it may then be said that, if firms attempt to maximize anything, they try to maximize their rate of growth. The compelling need to survive, says Galbraith (1972, p. 174), requires ‘the greatest possible rate of corporate growth as measured in sales’. Thus he concludes, ‘the primary affirmative purpose of the technostructure is the growth of the firm’ (1975, p. 116). This is not surprising: the larger the firm is, the easier it is to overturn market forces, and ‘the greater the scope for conscious planning of economic activity’ (Penrose, 1959, p. 15). Besides Galbraith, and also historian Alfred Chandler (1977, pp. 8–10), several economists of the managerial school have emphasized the importance of growth as the major measurable objective of the firm, Marris (1964a) being the prime example.

Growth is also a recurrent theme of post-Keynesian economics. Post-Keynesians have consistently asserted that firms maximize the rate of growth, subject to various constraints, or that the main analytical objective of the firm is to grow. Survival and growth are often associated, in opposition to the neoclassical viewpoint. This is asserted at both the microeconomic and macroeconomic levels. For the latter, for instance, Robinson (1962, p. 38) indicates that ‘the central mechanism of accumulation is the urge of firms to survive and to grow’. A similar view can be found in Kaldor (1978a, p. xvi), for whom ‘the individual enterprise – for reasons first perceived by Marx – must go on expanding so as to keep its share in the market’. The reasons attributed to Marx, but also to Allyn Young, are the existence of increasing returns to scale, which give a cost advantage to firms holding large shares of the market. Increasing returns to scale preclude the neoclassical concept of the optimal firm size. It may
be that the managerial coordination of activities becomes increasingly difficult as the firm gets bigger, but this is largely compensated by the increasing returns experienced on other inputs and through power. Growth, then, ensures economic power for those who already have it, no less than for those who strive for it. Indeed, as underlined both by Galbraith and by Eichner, growth simultaneously provides for the survival of the firm, the satisfaction of the managers and the hopes of the employees within the technostructure.

But the growth of the firm also serves as does nothing else the direct pecuniary interest of the technostructure. In a firm that is static in size an individual’s advancement awaits the death or retirement of those above him in the hierarchy ... In a growing firm, in contrast, new jobs are created by expansion. Promotion ceases to be a zero sum game in which what one wins, another loses. All can advance. All can succeed. (Galbraith, 1975, p. 116)

For the executives who exercise effective control of the megacorp, the growth of the firm over time, because of the increase in power, prestige and remuneration which it brings in its wake, is the most important desideratum ...

It turns out that those megacorps which are most likely to survive in the long run are the megacorps which have attempted to grow at the highest possible rate by continuously diversifying and expanding into newer, more rapidly growing industries. Thus it is the need to ensure survival that dictates maximum growth as the goal of the firm. Those firms which fail to expand apace with the economy are likely to find themselves at an increasing disadvantage on a number of fronts. (Eichner, 1987a, p. 360–1)

I have asserted before that the structure of control of the corporation would not have any noticeable impact on the behaviour or the goals of the firm. To acquire power, the ultimate objective, the decision makers of the modern megacorp try to expand as quickly as is reasonably possible. The objective of growth, rather than the consumption of profit, is predominant. This is true in the modern world, whatever the size of the firm and whoever controls the firm, despite the opposite view of Robin Marris (1964a). Adrian Wood, a post-Keynesian economist, has also emphasized the universality of the motive of growth, valid for the small as well as for the large firm, for the owner-controlled as well as for the management-controlled corporation:

The basic goal of those in charge of the firm is to cause sales revenue to grow as rapidly as possible ... But I do not agree with Marris that this pattern of behaviour is caused by the separation of ownership from control. Instead, I believe it to reflect the fact that (in so far as the two conflict) the urge for power is stronger than the urge for money. As a result, growth maximisation is a phenomenon which is to be observed in (all except the smallest) unincorporated firms and in closely owned companies as well as in large quoted companies with widely dispersed ownership. (Wood, 1975, p. 8)
This type of behaviour is not something entirely new, however. ‘At all stages of capitalism development the growth of the firm has been the requisite for survival among competing firms’ (Clifton, 1977, pp. 147–8). The old tycoons, so well described by Veblen, also strove for power and growth; so did the builders of the railways of the last century; and we may even presume that growth was the main objective of the small family firm of yesterday, despite being the neoclassical ideal of competition and free market. Joan Robinson has admirably well summed up this point of view in a long paragraph, and this is why it is worth reproducing it in full to conclude this subsection.

Why do firms grow? Some contemporary writers are inclined to treat growth as a specially modern phenomenon arising from the divorce between control and property in the modern corporation, legally owned by a floating population of shareholders and operated by a cadre of salaried managers; they seem to suggest that there was a past period to which the textbook scheme applied. Yet obviously the successful family businesses of the early nineteenth century must have been just as keen on growth as any modern corporation. Anyone who is in business naturally wants to survive (particularly if his own heirs and successors are involved) and to survive it is necessary to grow. When a business is prosperous it is making profits, for that very reason it is threatened with competition; it would be reckless to distribute the whole net profit to the family for consumption; part must be ploughed back in increasing capacity so as to supply a growing market, to prevent others coming in, or to diversify production if the original market is not expanding. Any one, by growing, is threatening the position of others, who retaliate by expanding their own capacity, reducing production costs, changing the design of commodities, or introducing new devices of salesmanship. Thus each has to run to keep up with the rest. (Robinson, 1971, p. 101)

3.3 THE CONSTRAINTS ON GROWTH

Now that the primary objectives of the post-Keynesian firm have been established, these objectives being growth and the acquisition of power, what of the neoclassical concern with profit maximization? What is the role of profits in the post-Keynesian theory of the firm? What is the role, if any, of the shareholders?

The Importance of Retained Earnings

The standard critique of the neoclassical theory of the firm is that profit maximization is not possible because of the lack of pertinent knowledge due to an uncertain environment. Profit maximization is then replaced by profit satisficing. Firms are assumed to set themselves threshold levels of profits; that is, minimum levels of profits or of rates of return. This view of
the firm is certainly partially valid. In particular it reflects the need for the
technostructure to provide a constant stream of dividends to the share-
holders, in order to keep them quiet. This satisfying view of profits must, 
however, be reassessed in a context of growth. The consensus opinion
among post-Keynesians is that profits are the means which allow firms to
grow. By financial necessity, profits cannot be disconnected from invest-
ment and growth. The growth objectives set by the decision makers are
constrained by the financial requirements of profitability, past and
expected. There is thus some opposition to the neoclassical view of perfect
capital markets, according to which only profits expected in the future
matter for the financing of investment projects.

The post-Keynesian view, based on the concrete reality rather than an
abstract idealized one, asserts that bankers only loan money to those who
already have it. Outside the neoclassical world of certainty or certainty
equivalence, the biblical principle 'unto every one that hath shall be given'
generally applies, as pointed out by Kaldor (1978a, p. xvi). 'Finance raised
externally -- whether in the form of loans or of equity capital -- is comple-
mentary to, not a substitute for, retained earnings' (Kaldor, ibid.). To be
financed externally, firms must prove their capacity to generate profits.
Banks and financial institutions are much more reluctant to finance deve-
loping firms than they are to finance well-established firms because the latter
have already demonstrated their ability to run successful projects and to
make profits. This is a typical example of procedural rationality. Bankers
make use of one of the rules of thumb which we have identified in Chapter
2. The uncertainty about the future, as well as the lack of relevant know-
ledge about the competence of the managerial team and about the profitabili-
ity of the project, forces bankers to rely on the performance record of the
past, that is the profits generated in the past by the firm. As will be argued in
the next chapter, this does not mean that investment is objectively con-
strained in the aggregate by a fund of savings which the firms would acquire
through their retained earnings. Rather it means that corporations can
safeguard their financial independence either by generating themselves the
funds which are necessary for their expansion projects, or by staying within
the borrowing norms which are set by the financial system. Put briefly,
growth is the objective, and profits are the means to realize this objective.

The key strategic variable becomes the level of capital expenditures derived from
the investment plans of firms, with competitive rivalry focused on relative growth
rates and relative market shares. Rather than making short-run profit maximiza-
tion an end in itself, firms see profits as a means to an end, that of enabling them to
expand over time, preferably by increasing their market share. Post-Keynesian
writers argue that the behavioral goal of the firms is to maximize the growth in
sales revenue over time, subject to a minimum constraint (industrial economi-
information that full-time staff take years to absorb. In the case of smaller firms, shareholders quickly come to understand that, without retained earnings, the expansion possibilities of the firm are severely limited, and that as a consequence the dividend pay-out must be an indicator of the wealth of the corporation rather than a truly significant revenue to the owner. The result of mingling these two causes is that dividend payments become not very different from interest payments on borrowed funds. Managers mitigate the fluctuations of dividends in the attempt to keep the shareholders happy and the stock market quiet. Managers usually keep constant the level of dividends or have them slowly increasing, assuming that shareholders do not object to the existing level of dividend payment or dividend ratio, since otherwise they would not have bought the shares in the first place (Wood, 1975, pp. 40–51). ‘On this view, dividends would be looked on as a cost to be kept at a level no higher than necessary to keep investors happy’ (Penrose, 1959, p. 28). The rate of dividends is a convention (Robinson, 1962, p. 38).

Shareholders, then, should be regarded as non-residual factor claimants against the enterprise, while dividends are its quasi-contractual obligation (Herendeen, 1975, p. 215). Both interest and dividend disbursements may thus be considered as fixed costs, the payment of which may be temporarily suspended in periods of crisis. Indeed, while interest and dividend recipients can both be considered as rentiers, the influence of the former on management may be paradoxically stronger than that of the latter (Eichner, 1976, p. 59). This is because the interest-debt holders are usually powerful banking or financial conglomerates, which have the resources to monitor the management of the firms in which they have invested. Whatever control the financial sector is able to exert over the industrial corporation (Berle, 1959), however, the fact remains that the payment of dividends is a de facto obligation of the firm, similar to its de jure obligation to make interest payments. This was recognized early on by Joan Robinson in her discussion of the rentiers, and, as seen in her previous quotation, it is clear that the argument applies equally to small unincorporated firms and to megacorps. When modelling the firm, the proper simplification may thus be to consider interest and dividend payments on the same footing; that is, to consider both type of costs as fixed costs.

An obligation to pay interest is a contractual agreement, while the amount of dividends and personal profits paid out is at the discretion of the entrepreneur; but neither the obligation nor the discretion is absolute in practice. When profits are so low that the payment of interest would lead to bankruptcy, creditors often find it preferable to compromise and keep alive a goose they hope will lay again in the future, so that, to some extent, interest payments fluctuate with earnings. On the other hand, dividends fluctuate less than earnings, for entrepreneurs are reluctant
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to reduce dividends . . . and they are reluctant to increase them . . . Thus interest to
some extent behaves like dividends, and to an important extent dividends behave
like interest. A similar argument applies to personal profits. (Robinson, 1956, pp.
247-8)

The Finance Frontier

We are now in a position to analyse the relationship between profit goals
and growth objectives in the post-Keynesian firm. This relationship, as
previously outlined, is based on the hypothesis that firms will dare to
borrow only to the extent that they have been accumulating their own
means to finance investment, and, similarly, that banks and other finan-
cial institutions will grant loans or finance share and bond issues only to
the extent that their corporate customers have been profitable in the past.
The fact that a firm can or is willing to borrow only limited amounts,
related to its previously accumulated internal funds, is known in post-
Keynesian circles as Kalecki's principle of increasing risk. Several inter-
pretations of this principle abound in the literature, and we shall stick to
Kalecki's later version of it.

The principle of increasing risk is based on the intuitive notion that the
higher the gearing or leverage ratio, that is the higher the proportion of
outside funds financing investment, the larger the potential fluctuations of
earnings net of interest payments. In general, the management of the firm
will self-impose stricter limits, being more cautious in its borrowing than
lenders about lending (Wood, 1975, p. 31). This means that firms will be
free to borrow as much as they desire within the limits that they have
themselves set, based presumably on some multiple of their retained
earnings. In periods of crises the reverse may occur. In such cases it will be
impossible for a firm to borrow as much as they would have liked to,
constrained as they are by the leverage ratio judged acceptable by the
banks. Corporate borrowers will be unsatisfied, whatever the expected
profitability of their planned investments and whatever rate of interest
companies are willing to pay for borrowed funds. In the orthodox litera-
ture, the problem facing the bank and its customer, or the capital markets
at large, is called a moral hazard. In standard terms, the supply of finance
is infinitely elastic up to some multiple of the retained earnings of the firm,
at which point it becomes infinitely inelastic. More will be said on that
topic when we discuss money and credit in the next chapter. For the
moment note that, as early as 1937, Kalecki (1937) had made clear the
presence of that moral hazard, while he later insisted upon the necessity of
retained earnings and the innocuity of the interest rate as a market
mechanism.
It would be impossible for a firm to borrow capital above a certain level determined by the amount of its entrepreneurial capital [that is the amount of capital owned by the firm]. If, for instance, a firm should attempt to float a bond issue which was too large in terms of its entrepreneurial capital, the issue would not be subscribed in full. Even if the firm should undertake to issue the bonds at a higher rate of interest than that prevailing, the sale of bonds might not be improved since the higher rate in itself might raise misgivings with regard to the future solvency of the firm. . . . It follows from the above that the expansion of the firm depends on its accumulation of capital out of current profits. This will enable the firm to undertake new investments without encountering the obstacles of the limited capital markets or 'increasing risk'. Not only can savings out of current profits be directly invested in the business, but this increase in the firm's capital will make it possible to contract new loans. (Kalecki, 1971, pp. 105-6)

A very similar prescription is offered by Davidson:

In an uncertain world, firms must guard against illiquidity while creditors fear the inability of firms to meet long-term obligations. Thus both entrepreneurs and lenders are anxious to see that some portion of investment is funded internally. In an uncertain world, therefore, internal and external finance are complements rather than substitutes and a firm's access to the new issue market will normally be limited by institutional rules about gearing ratios. (Davidson, 1972, p. 348)

We can now formalize the relationship between the total funds available to finance expansion and the realized profits of the firm, along the lines suggested by Sylos Labini (1971). Let $\Pi$ be the gross earnings of the firm, before dividends and interests are paid out. Let us call $K_r$ the capital owned by the shareholders and $K_b$ the capital borrowed through loans or bond issues, while $i_r$ and $i_b$ are the rate of return on shares and the rate of interest on borrowed capital. The retained earnings of the firm, which are in fact additions to the capital owned by the shareholders, are then equal to:

$$\Delta K_r = \Pi - i_r K_r - i_b K_b$$  \hspace{1cm} (3.1)

As a simplification, we may assume that the two rates of return are identical. This is not too unrealistic a simplification, as we have argued that the dividend pay-out is a quasi-contractual obligation of the firm. Dividend payments are a convention. It is safe for firms to adhere to the conventions, one of which surely must be the rate of interest on bonds. The enterprise must remunerate the shareholder according to the rules of the financial markets. One might thus expect market forces to keep the rate of return on shares on a par with the yield of fixed-income financial assets of a similar class (Herendeen, 1975, pp. 215-8). Under this assumption, equation (3.1) becomes:

$$\Delta K_r = \Pi - iK$$  \hspace{1cm} (3.2)
Kalecki's principle of increasing risk then tells us that the maximum amount of capital that can be newly borrowed is a multiple of the current level of retained earnings:

$$\Delta K_b = \rho (\Pi - iK)$$

(3.3)

The multiple $\rho$ is an example of a conventional rule of thumb, as outlined in the previous chapter, the convention being determined by the interaction of the lender's risk as perceived by the banks and other financial actors and of the borrower's risk as perceived by the managers of the non-financial firms. We may assume, again for simplification, that all surplus funds gathered by the firm are used to finance investment expenditures. In that case, from the previous two equations, we get the relationship between investment ($I$) and profits, that is equation (3.4) below. Dividing this equation by $K$, we get its dynamic equivalent; that is, the relationship between the rate of growth ($g = I/K$) of the company and its rate of profit ($r = \Pi/K$).

$$\Delta K = I = (\Pi - iK) + \rho(\Pi - iK)$$

$$I/K = (1 + \rho)(\Pi/K - i)$$

(3.4)

$$r = i + g/(1 + \rho)$$

(3.5)

Equation (3.5) is known as the finance constraint of the firm, and a similar constraint may be found in Marris (1964a, p. 9). It tells us that, if the firm desires to grow at a faster rate, it must collect a higher rate of profit, given the average rate of interest payable on its capital and given the proxy $\rho$ of the leverage ratio which is admissible. Incidentally, one may note that a higher rate of interest will require a higher rate of profit for growth to keep up at the same rate, while a higher permissible leverage ratio (measured here by its proxy $\rho$, representing the ratio of the funds that can be borrowed to the retained earnings) will naturally allow for a lower minimum profit rate.

Figure 3.1 illustrates the meaning of this finance constraint. The hatched area under the financial constraint curve (here a straight line) is not accessible to firms. Companies which would happen to be in this zone for some time could not sustain their rate of growth since external financing would not be forthcoming any more. Firms which stretch their financial capabilities to the limit would lie on the financial constraint curve. In the long run, firms must therefore lie either on the financial constraint curve or above it, where there is some financial leeway.

The financial constraint is, however, better known in a slightly revised
version, that presented by Wood (1975). In his formulation, the crucial parameter is the retention ratio $s_r$. The retention ratio is the ratio of retained earnings to gross profits, that is:

$$s_r = \frac{(\Pi - iK)}{\Pi}$$

(3.6)

Under this formulation, retained earnings are thus equal to:

$$\Delta K_r = s_r \Pi = \Pi - iK.$$

(3.7)

Assuming still that borrowed funds are a multiple of retained earnings, that is by combining equations (3.3) and (3.7), we get another form of the financial constraint:

$$I = (1 + \rho)s_r \Pi$$

(3.8)

$$r = g/s_r(1 + \rho)$$

Equation (3.8) closely resembles Wood's formulation of the finance frontier, one that can also be found in the macroeconomic models of Kaldor (1966) and Moss (1978). In these models it is assumed that firms
decide or are allowed to finance a percentage $x$ of their investment from external sources, more precisely share issues in the Kaldor case. Investment expenditures are thus partly financed by retained earnings ($s, m$) and partly by borrowing ($xI$), such that:

$$I = s, m + xI$$

Dividing through by $K$ and rearranging yields the expression of Kaldor's famous neo-Pasinetti theorem, but here limited to the microeconomics of the firm, and Wood's formulation of the finance frontier:

$$r = g(1 - x)/s_c$$  \hspace{1cm} (3.9)

Comparing equations (3.8) and (3.9), we see that the share of investment which is financed by inside sources, $1 - x$, is equivalent to the ratio $1/(1 + p)$, expressed in terms of the proportion of outside funds that can be matched to net retained earnings. Since equation (3.9) is strongly reminiscent of the standard Cambridge equation relating the macroeconomic rate of profit to the overall rate of growth, as we shall see in Chapter 6, it has usually been the preferred version of the financial frontier among post-Keynesian authors. A drawback of this formulation, however, is that the retention ratio $s_c$ is not entirely under the control of the firm since it depends to a large extent on the rate of interest, as can be seen from equations (3.1) and (3.6). The retention ratio cannot therefore be considered an appropriate exogenous variable that could explain the rate of profit. As a consequence, equation (3.5) should be preferred to equation (3.9) when formalizing the financial constraint of the firm, since the former explicitly takes into account the impact of the decisions of the monetary authorities.

Things can be slightly more complicated when the stock market and its valuation ratio are introduced into the picture; but even if stock market valuation ratios do constrain the behaviour of entrepreneurs, something that remains to be proved (Lavoie, 1990), the finance constraint remains the same for a given valuation ratio below which the firm must not fall (Marris, 1964a, p. 252). An alternative to the introduction of valuation ratios is to make a distinction in equation (3.5) between the rate of payment of dividends on the firm's own capital and the rate of interest on borrowed capital. Assuming that in the long run the average leverage ratio is equal to the marginal leverage ratio, we may suppose that $x$ is both the share of borrowed funds in new investment and the share of borrowed capital in the capital account of the firm. Equation (3.2) can thus be rewritten as:
\[ \Delta K_t = \Pi - [i_i(1-x) + i_x x] \]

Assuming, as before, that a multiple \( p \) of these net retained earnings can be borrowed, and making use of the fact noted above that \( (1 - x) \) is equal to \( 1/(1 + p) \), a novel expression of equation (3.5) can be derived, which takes into consideration the possible divergences between the rate of interest \( i_b \) on borrowed capital and the rate of remuneration \( i_t \) to shareholders. Equation (3.10) which follows shows that, when monetary policies are stringent and money interest rates are high, highly leveraged firms will require higher rates of profit to keep growing at the same rate as those which have borrowed little:

\[ r = i_i(1-x) + i_x x + (1-x)g \]  \hspace{1cm} (3.10)

The finance constraint is not a far-fetched notion. Fazzari and Mott have shown in a cross-section study that firms with high internal finance (net of dividend payments) have high investment. They note that 'internal finance is quite important for explaining why different firms invest different amounts at any point in time' (1986–7, p. 184). They also show the importance of interest payments and capacity utilization for investment decisions.

The Expansion Frontier

We now turn to the other major constraint facing the firm. Looking at Figure 3.1 it would seem that there is no difference between the goal of maximizing the rate of profit and that of maximizing the rate of growth. The finance constraint is not, however, the only constraint facing the firm. Companies are further constrained by what Wood (1975, p. 63) calls the opportunity frontier, also named the efficient demand-growth curve by Marris (1964a, p. 250). We shall call it the expansion frontier. Whereas the finance frontier indicated the various profit rates that were required to sustain growth strategies, the expansion frontier associates with each growth strategy the profit rate that can optimally be realized. The shape of a typical expansion frontier is represented by Figure 3.2.

In a certain sense, the expansion frontier of the firm is a denial of the orthodox view of the firm. The latter considers that firms reach finite optimal sizes, as in the case of standard U-shaped long-run total average cost curves. The grounds for this shape are the limitations in the ability of the managerial factor of production to coordinate activities within large organizations. The proposition was denied very early on by various post-Keynesians: Kaldor (1934) and Kalecki (1971, p. 105), the latter in 1937,
both argued that managerial coordination could be achieved by proper delegation of decision making and decentralization. Thus, although each plant may have a technologically defined optimal size, income distribution being given, the optimum size of a multi-plant firm is either indeterminate or infinite. Empirical evidence seems to show that there are no diseconomies of scale. In his summary of the evidence, Johnston (1960, p. 168) noted that the most notable element was 'the preponderance of the L-shaped pattern of long-run average cost that emerges so frequently from the various long-run analyses'. The limits of managerial coordination are therefore not to be found in the absolute size of the firm, but rather in its rate of expansion. There are no managerial diseconomies of scale, but there are increasing costs to growth. The negative segment of the expansion frontier as drawn on Figure 3.2 is thus due in part to the inherent difficulties of management in coping efficiently with change and expansion.

The negative relationship between the growth rate and the rate of profit is known as the Penrose effect, since Edith Penrose (1959) was the first clearly to illustrate the limitations of management in handling the speed of expansion, in contrast to the absolute size of an organization. Growing firms must integrate new managers within the organization and train them
to handle the complexities of the business. This settling-in is time consuming, in particular for existing management, and consequently it is costly to the firm. There are also further reasons, partially related to these managerial limits. When firms expand, they may do it either internally or externally. In the latter case, the diversification into foreign markets and the diversification into other products are confined by the management's lack of knowledge about these new markets or products. Indeed many self-made millionaires have lost their shirts by venturing into markets about which they had little knowledge. When firms expand internally, attempting to increase the share of their main market, profit margins and hence profit rates may have to be cut back. More likely, non-pricing forms of competition will be used, with firms engaging into costly advertising, promotion, product innovation, and research and development (Wood, 1975, p. 66). These expenditures are then likely to increase unit costs as compared with rivals, and lead to lower profits per unit.

The reader may wonder what the ascending portion of the expansion frontier is due to. Three reasons may be advanced, all mainly related to internal growth. First, investment allows for the introduction of new and more efficient means of production. Growing firms will find it easier to incorporate technological advancements as they replace their old plants or as they build new ones. It will permit lower unit costs as compared with those of more slowly growing rivals and will lead to higher profit rates. Secondly, in the oligopolistic environment with uncertainty which characterizes the real world, the profitability and survival of the firm and its control over events depend on sheer size. The control of the firm over events therefore depends on its share of the market. To grow slowly means to incur decreasing market shares, such that 'an individual firm's profit rate may also be negatively related to the rate of growth of its competitors' (Moore, 1973, p. 539). Thirdly, when firms expand through diversification, they may encounter novel products where temporary monopoly profits can be earned (Marris, 1964a, p. 251). These positive influences of the rate of growth on the rate of profit are exactly balanced by the Penrose effects at the top of the expansion frontier.

As before, the shaded area in Figure 3.2 represents the combinations of profit and growth rates which are not accessible to the individual firm. Those firms which are efficient, from the point of view of both selling and producing, will lie on the expansion frontier. Those which suffer from X-inefficiency, à la Leibenstein (1978), or which simply attempt to satisfice, à la Simon, will lie below the expansion frontier.

Assuming that firms do attempt to maximize their rate of accumulation, we can now see by combining the two frontiers that the hypothesis of growth maximization is not the same as that of profit maximization, even
in the long run. Figure 3.3 combines the finance constraint with the opportunity constraint. Profit maximization would lead to point \( R \) on the expansion curve, where the rate of profit is maximized at its rate \( r_c \). At that point, the rate of growth, \( g_n \), would be smaller than the possible maximum rate of growth, \( g_e \), given by the intersection of the two finance and expansion frontiers at point \( G \). We can see that the difference between the two types of firms, the one maximizing profit and the other maximizing the rate of growth, is that the former does not attempt to take advantage of all the borrowing leverage that is available to it, since it lies above its finance frontier. This means that the profit-maximizing firms avoid becoming engaged in investment or advertising expenditures that have low rates of return, although they could obtain the borrowed funds necessary to finance these expenditures. On the other hand, growth-maximizing firms engage in all expansion projects, provided these projects generate a rate of profit that is sufficient to provide the necessary internal and external finance. We see that, even though the profit rate plays an important constraining role both in the short run and the long run, it is still worthwhile analytically to define the firm as a growth-maximizing institution, attempting constantly to enlarge its power and control over its socioeconomic environment.
Furthermore, to conclude this section, the notion of a growth-maximizing firm provides us with some elements of a pricing theory. Although Figures 3.1, 3.2 and 3.3 have been expressed in terms of rates of profit, one could also label the vertical axis by using the margin of profit. It then becomes clear that the margin of profit set by the firm is the result of two conflicting pressures, both associated with growth maximization. On the one hand, businessmen would like to decrease their profit margin in order to steal customers from their competitors, mainly through advertising and the conception of new products. On the other hand, profit margins must be sufficiently high to generate enough retained earnings and sustain the ability of the firm to borrow from outside sources. The profit margin finally chosen must strike a balance between those two considerations (Wood, 1975, p. 86; Shapiro, 1981, p. 88).

In a world of uncertainty and of bargaining, the behaviour described above can, of course, only be approximated. To achieve their goals, firms will set targets, knowing that these targets will often not be reached and sometimes will be largely surpassed. Returning now to rates of profit, we can presume that, when setting prices, firms will use as an indicator of normal profits, that is as target rates of return, the rate of profit $r_e$ which corresponds to the maximum achievable rate of growth $g_a$ of Figure 3.3. More will be said about firms' pricing behaviour in the following section. Furthermore the relationships between accumulation, margins of profit, and realized and targeted rates of profit will be more fully developed in the chapters to follow. At this stage, what should be kept in mind is that there is no need to suppose that firms maximize profits, either in the short or in the long run.

### 3.4 COST CURVES AND EXCESS CAPACITY

#### The Shape of Short-run Cost Curves

As mentioned in the introduction of the chapter, one of the facts most at odds with business intuition and experience is the neoclassical presumption, based on the standard U-shaped cost curves, that profitable firms face increasing average costs as they augment sales. In this section, I wish to point to three stylized facts of the post-Keynesian firm that will be of fundamental importance when we discuss macroeconomics. These three facts, naturally restricted to the domain of validity of the post-Keynesian firm which we have identified in section 1, are the following: short-run average costs are generally decreasing; average variable costs, also called direct or prime costs, are generally constant; firms generally produce at
levels where there are reserves of capacity. Although those three stylized acts have been repeatedly observed — leading eclectic authors such as Cournotian (1975, p. 114) to refer to them as the modern theory of costs or modern microeconomics — they have not been incorporated in traditional economics.

As in orthodox theory, the shape of the cost curves essentially depends on the technology in use. In the traditional view, substitution between the various inputs is always possible, both in the short run and in the long run. In the short term, for instance, it is always possible to increase production by having more labour working on the same machine, thus decreasing the capital/labour ratio and therefore the marginal physical product of labour. In post-Keynesian theory, although some form of substitution can be contemplated in the long haul, through innovation and technical progress, no substitution is possible in the short run. Whether variable factors or fixed factors are considered, fixed technical coefficients prevail.

As argued by Eichner (1976, pp. 28–30), plants, or more precisely segments of plants, are designed to operate with a given crew, using the most efficient quantity of raw materials. Even where machinery is so designed by engineers that variations in the number of operators may be considered, bureaucratic rules self-imposed by management will generally lead to a standard ratio of combined inputs. Once these standards are known and get the tacit approval of the workers involved, they become work rules, enforced by collective bargaining. Of course the enterprise may wish to experiment with new combinations, by trying to find more efficient ones. However this may have nothing to do with substitution effects as such, and it does not concern the short run.

Thus emerging from those fixed technical coefficients of production is a set of plant segments, each designed to operate at a most efficient level of output per unit of time. This most efficient level of output, which takes into consideration the necessary breaks in production to execute repairs and regular maintenance, is called the engineer-rated capacity (Eichner, 1976, p. 62) or the level of practical capacity. Steindl (1952, p. 7) defines practical capacity as 'the output achieved with normal length of working time, with sufficient shut-downs to allow for repairs and maintenance, and without disturbance in the smooth running of the production process'. This practical capacity must be distinguished from theoretical capacity, which is the highest degree of production which could be attained if regular maintenance and its accompanying shut-downs did not hinder production and if no breakdown occurred while the plant or its segment was operated at a rate higher than the one designed for. While any level of output below practical capacity corresponds to marginal costs which are relatively easy to ascertain and which are constant as a result of the fixed
coefficients, levels of output in between practical and theoretical capacities are associated with the traditional increasing marginal costs. These rising costs are due to overtime payments, the damage to machines arising from the speed-up of operations, and the disproportionate reduction in the useful life of equipment as a consequence of its lack of repairs (Steindl, 1952, p. 7). The exact rise in marginal cost is fairly difficult to estimate, because the entrepreneur generally has no experience of production at those high rates of production, and he cannot measure in advance the costs induced by the intensified use of machinery and the supplementary faulty work, breakdowns or accidents that will occur as a result of this overworking (Harrod, 1952, p. 154).

A firm, unless it is of the small entrepreneurial family type, will thus be composed of several plants, each plant having a number of segments with its own practical capacity. The practical capacity of a plant will thus be the sum of the practical capacities of its segments; and the full capacity of a firm will be the sum of the practical capacities of its plants. Whereas there is no flexibility in the use of plant segment, unless one is prepared to go beyond practical capacity or unless one closes the segment on some days of the week or some weeks of the month, there is a substantial amount of flexibility at the level of the plant and at that of the firm. The reason is that management can increase or decrease production by reopening or closing plant segments or entire plants.

Figure 3.4 illustrates the relationship between marginal costs (or for that matter variable or direct costs) and the level of output of the firm, given the levels of practical capacity of its various plants or plant segments, and given the fixed technological conditions prevailing at each plant. The full capacity of the firm, FC, is the sum of the engineer-rated capacities of each segment, represented by PC. The marginal cost curve here is represented as a step function, under the assumption that various plants will not necessarily be of the same vintage, having been built at different points in time. Unless there is no technological progress, or unless technical improvements can be simultaneously embodied within the older plants, such a step function will necessarily prevail (Eichner, 1976, p. 34; Rowthorn, 1981, p. 37). However the differentials in efficiency from one plant to another might not be important, since some of the technical improvements are diffused to older plants. For this reason, and for simplification purposes, we shall assume away the upward drift of the marginal cost function and set the marginal cost as a constant in the rest of the book. The relevance of this simplification will be further discussed at the end of the section.

We are now in a position to represent the shape of the cost curves of the typical post-Keynesian firm. Assuming that marginal costs are constant
up to full capacity, it follows that average total costs in the short run are necessarily decreasing up to full capacity. Only beyond that point may marginal costs and average costs increase in the traditional manner. Figure 3.5 illustrates the cost curves of the typical post-Keynesian firm. Beyond full capacity, $FC$ on the graph, more output can be achieved only by over-utilizing the machinery of the various plants above practical capacity. This can be done until theoretical full capacity, identified by $FC_{th}$ on Figure 3.5, is reached. There is a discontinuity in the marginal cost curve because, as noted above, it is assumed that the over-extensive use of machines will drastically inflate replacement costs and because workers will most likely have to be paid overtime. Whether there is a discontinuity or not is, of course, not fundamental. What is more essential is that firms will generally not be producing at levels of output where the marginal cost — and therefore also the average total cost — is increasing. The rising portions of the marginal and the average cost curves, so fundamental to orthodox microeconomics, are for all practical purposes irrelevant to the analysis of the post-Keynesian firm, since the enterprise will avoid by all possible means winding up in this region. In general, the firm will be operating at output levels where marginal costs are constant and where unit costs $UC$, are decreasing; that is, below full capacity as we have
defined it. This means that the firm generally operates with reserves of capacity. Companies, such as General Motors, plan the presence of excess capacity, operating at rates of utilization of practical capacity which oscillate between 65 and 95 per cent, and aiming for normal rates of utilization in the 80–90 per cent range (Eichner, 1976, p. 37; Koutsoyiannis, 1975, p. 273). The normal rate of utilization of capacity is also called the load factor on the capacity or the standard operating ratio. It is defined as the percentage of total practical capacity at which the firm can expect to operate on the average over the business cycle (Eichner, 1976, p. 62). The rate of utilization at which the firm is planning to function in the coming period is the expected rate.

As mentioned above, there has been for a long time a vast empirical literature, both in the UK and in the USA, covering statistical and econometric studies as well as case studies based on questionnaires, which demonstrates the irrelevance of the neoclassical U-shaped assumption of cost curves while supporting the L-shaped long-run total average cost curve and the constant average variable cost curve (see, among many others, the surveys of Johnston, 1960, Walters, 1963 and Lee, 1986). Typical conclusions of these surveys or of original studies are that
The absolute majority of the answers supported the view that the variable costs are proportional to output [while] quite a number held the belief that variable costs were moderately regressive, at least until close to capacity (Fog, 1956, p. 46). Johnston (1960, p. 168) is of the firm opinion that 'the various studies more often than not indicate constant marginal costs and declining average costs as the pattern that best seems to describe the data'.

Less sanguine authors prefer to conclude, in defence of neoclassical economics, that, while the data on cost curves are not generally supportive of the U-shape curves, 'the evidence in favour of constant marginal cost is not overwhelming' (Walters, 1963, p. 51). As is reported by Cyert and Simon (1983), this does not stop famous neoclassical economists, such as Jorgenson, from asserting that the evidence is 'overwhelmingly favorable' to the neoclassical theory of the firm, citing the same prudent Walters to buttress their claim! Similarly, in the various editions of his well-known textbook of microeconomics, Mansfield (1991, p. 204) has been faithfully reporting the evidence in favour of constant marginal costs, without the evidence having any effect on his graphical representation of cost curves. If neoclassical economists were to recognize the irrelevance of the U-shaped cost curves, they would be at a loss, left without any determinate output, devoid as they would be of their required diminishing returns and second-order conditions.

These requirements do not concern post-Keynesian authors, and as a consequence they have been quite keen to accept and disseminate the empirical findings on the shape of cost curves. Graphical representations of the 'modern' theory of costs can thus be found in the works of Davidson (1972, p. 37), Eichner (1976), Harris (1974), Kregel (1973, p. 139), and Robinson and Eatwell (1973, p. 168). Keynes himself, after writing the General Theory, started to doubt the validity of the standard shape of the marginal cost curve (1973, vii, p. 405). The most famous proponent of the cost curves presented in Figure 3.5 is, however, Kalecki (1969, p. 51), who as early as the 1930s proposed a macroeconomic theory built upon the microeconomic foundations of a constant marginal cost with excess capacity. Kalecki's colleagues at Oxford also came to adopt the hypothesis of constant marginal or direct costs, as can be seen in the work of Harrod (1952, p. 154) and in that of Andrews (1949, p. 102) and his associate Brunner (1967, p. 42). With Kalecki, Kaldor is the other post-Keynesian who, from very early on, has attempted to rebuild macroeconomics on the basis of modern microeconomic foundations. Drawing a graph similar to Figure 3.5, Kaldor assumes that 'average and marginal prime costs are constant up to the point where the optimum utilization of capacity is reached' (1961, p. 197).
Causes of Planned Excess Capacity

While Kaldor has long been explicit in his recognition of constant direct costs below full capacity output, he has also been quite explicit about the need for firms to keep reserves of capacity under all circumstances. It is not enough to show that marginal costs can be constant for some scale of production: one must show that firms stay below the point of full capacity, in the region where marginal costs are constant.

The motives which cause firms, in a world of imperfect competition, to maintain capacity ahead of output – the motive of being in a position to exploit any chance increase in selling power – operate just as powerfully in times of full employment as at other times . . . It is perfectly consistent to assume that, in long-term equilibrium, both output and output capacity should grow at the same rate, without implying that the one is equal to the other. (Kaldor, 1970a, p. 4)

The manufacturing sector is the archetypal case of fix-price market . . . In markets of this type uncertainties concerning the future growth of demand mainly affect the degree of utilization of capacity; it pays the manufacturers to maintain capacity in excess of demand and keep the growth of capacity in line with the growth of demand. (Kaldor, 1986, p. 193)

Besides the chance to exploit increases in selling power, due to random variations or to seasonal fluctuations, various reasons have been advanced to justify the continuous existence of reserves of capacity. For Sylos Labini (1971, p. 247), not surprisingly, excess capacity is a deterrent to entry by new or outside firms. It is part of the defensive strategy to limit entry into the industry, since any potential producer knows that the existing firms have the ability to increase output and cut prices without necessarily incurring losses. Thus Joan Robinson (1969, p. 261) connects the presence of imperfect competition with the existence of excess capacity, and the latter with a market which 'is not exactly foreseeable for the individual seller'.

Steindl (1952, p. 2) has linked the presence of reserves of capacity with the existence of uncertainty. Whereas households have cash holdings to satisfy their liquidity preference, firms hold excess capacities to face an uncertain future. The presence of excess capacities evidently allows firms to respond quickly to a boom in the demand for their product; but it also allows them to continue production of the standard good, while modifying idle plants when the evolution of consumer demand requires minor alterations to the style of the product being sold. Reserves of capacity thus provide flexibility in the face of the uncertainty about the exact composition of forthcoming demand. 'Demand is distributed between diverse types and qualities of output which require separate facilities, and this
distribution of demand between types cannot be correctly foreseen. Therefore a reserve of capacity is necessary to take care of possible shifts in the pattern of demand (Steindl, 1952, p. 8). As pointed out by Pasinetti (1981, p. 233), the future composition of demand is uncertain, not only because it may be difficult for managers to foresee the preferences of the consumers, but also because the consumers themselves, when their incomes are increasing, may be uncertain about what they want to purchase next. In this sense, excess capacity is truly analogous to precautionary demand for liquidity.

There are further reasons explaining the prevalence of excess capacity. They have to do with the technological aspects. There is some indivisibility of plants and equipment. The most efficient plant or plant segment may require a minimum level of practical capacity, because of economies of scale up to this minimum level. The installation of a new plant may thus temporarily bring an excess of capacity over demand, which should then be eliminated through the secular increase in demand; but, for the reasons outlined above, the temporary reserve will in effect be a permanent one, the firm consistently making sure that its capacity is ahead of demand in order to avoid the risk of losing its customers to more provident producers. The fact that producers carry excess capacity is also related to the technological fact that production takes time: plants cannot be built instantaneously; machinery cannot be stacked in inventories, since machines are often specific to the task at hand, and are therefore made on order. As a consequence, capacity cannot be increased overnight. The irreversibility of time lies in production, not in demand. A desired volume of unused capacity quiets the managers’ concern with the possibility of losing the goodwill of their customers as a consequence of the overdue delivery of promised goods.

One could argue that firms could always take advantage of the excess of the theoretical capacities over the practical capacities, and aim at operating at the least costly level of production, that is at point $FC$ on Figure 3.5. Aside from excesses in capacity due to indivisibilities, firms would thus generally attempt to operate at full capacity, where they could reap maximum profits. If demand randomly increases beyond full capacity, this increase in demand could usually be taken care of by the excess of theoretical capacity over practical capacity, along the rising portion of the marginal cost curve. Besides Sylos Labini's objections to such a short-run strategy, there are practical technical reasons which explain why such a strategy will not be pursued.

First, collective bargaining may have prohibited the extensive use of overtime work, or the possibility of night shifts. As Marris (1964b, p. 22) notes, 'in practice, most societies do collectively decide . . . to live with a
fairly low rate of capital utilisation, and thus ensure that shift-work is a minority experience. Secondly, when capacity is overworked, machines are more likely to break down for lack of regular maintenance and accidents are more likely to occur. There is thus a danger for the firm, because of disruptions in the production process, of being incapable of responding to demand and thus, once more, of losing its share of the market and the goodwill of its customers. Furthermore, even if such disruptions were not feared, increased production could only be achieved at higher unit costs and, unless prices were increased, with generally diminishing profits. The financial capacity of the firm to expand its output potential would thus be curtailed precisely when funds would be most required for expansion. A firm without reserves of capacity would thus be at a cost disadvantage vis-à-vis its competitors, and the alternative solution of raising prices would again carry the risk of losing the goodwill of its customers, who could find elsewhere the same product at a non-increasing price.

All this has led various authors to associate rational behaviour, including long-term profit maximization, with excess capacity (Skott, 1989, p. 53). Kaldor (1961, p. 207) himself, in contrast to the quotation cited above, has at one point argued that "under conditions of imperfect competition it is perfectly compatible with "profit-maximizing behaviour" to suppose that the representative firm will maintain a considerable amount of spare capacity."

To conclude on the issue of excess capacity, we may say that there are good theoretical and practical reasons, as well as good strategic and technical reasons, that explain why corporations generally aim at operating much below their full capacity, in the range of constant marginal costs. Whatever one may think of the rationality of such behaviour, one must recognize, as the post-Keynesians do, that firms consistently function with large reserves of capacity, and that any analysis of the firm must take that fact into account.

**Constant Marginal Costs: a Myth or a Stylized Fact?**

Before closing this section on the costs of firms, we should tidy up an issue which, in previous discussion, has been left out in the open. More specifically, I would like to come back to the issue of the step function representing the marginal cost curve of the firm, as illustrated by Figure 3.4. As argued then, the steps from one segment of the curve to the other are due to the differentials in efficiency of the various plants owned by the firm, these differentials being caused by the various vintages of the plants. It has been recently argued by Lee (1986, 1988) that it is an error to assume away
these differentials. Lee adds that case studies have shown in many instances that direct or marginal costs could be either decreasing or increasing at the level of the individual plant. As a consequence, to describe the overall marginal cost of the firm as a constant up to full capacity would be as misleading as using the traditional U-shaped curve.

I do not agree with this negative assessment. With respect to the individual plant, it has been answered by Yordon (1987) that the evidence in favour of increasing marginal costs was rather tenuous. As to the case of decreasing marginal costs, a pre-eminent case if judged by the results obtained by Fog (1956) and mentioned above, Yordon explains how they can in fact be reconciled with constant marginal costs. When post-Keynesians claim that marginal costs, prime costs, direct costs or average variable costs are constant up to full capacity, they exclude from these costs the labour overhead costs. These include the managerial staff but also the supervisors and foremen who are assigned to the various segments of plant. There is a certain ambiguity with respect to overhead labour costs. These salaries are not exactly fixed costs, since they could be cut substantially if the firm were to close, but neither are they variable costs since, once the plant has been started up, they 'remain roughly stable as output varies' (Kalecki, 1971, p. 44). As shown by Steindl (1952, p. 8), the salaries of overhead labour represent a substantial portion of labour's earned income, and as such they should not be ignored.

We shall see later that the distinction between direct and indirect labour, an underrated distinction according to Brunner (1967, p. 48), plays a very important role in the macroeconomics of income distribution. In empirical work, however, as well as for accountants, it is often very difficult to disentangle the salaries paid to overhead staff from the wages paid to labour directly involved with production. Since overhead staff does not increase with production, but rather with capacity, the practical impossibility of differentiating between direct labour and some overhead labour will lead to apparently slightly diminishing average variable costs, although pure direct costs are indeed constant. Some authors speak of paying-out fixed costs (Brunner, 1967, p. 48). Others speak of start-up costs, saying that prime costs consist of both marginal costs and overhead start-up costs. As Robinson (1969, p. 261) says, 'There is always an element of quasi-fixed cost which must be incurred when a plant is kept in running order. Thus average prime cost falls with output up to full capacity' (cf. Asimakopoulos, 1970, p. 172; Kaldor, 1964b, p. xvi). On the basis of this proper distinction between true variable costs and start-up costs, we may thus conclude that, at the level of the plant, there is strong evidence to suggest that marginal or pure direct costs are constant.
Now what about the differentials in productivity between plants? Kaldor (1961, p. 198) argued a long time ago that the increased productivity of labour, due to the existence of overhead labour, precisely compensates for the diminishing productivity of equipment brought about by various vintages. Such an answer to Lee's objections to a constant marginal cost is not acceptable, however, if we want to continue to differentiate between direct and indirect labour, as we shall. Eichner's reply (1986b) to Lee's critique was to argue that without technical progress the overall marginal cost curve would be horizontal up to capacity, and that it is useful to assume it so. Lee's anticipated answer (1986, p. 409) to that reply was that instrumentalism could not be part of a post-Keynesian theory of the firm.

There is, however, a much more valid reply to Lee's criticism. Yordon (1987, p. 596) notes that, when they reduce production, firms do not necessarily close down the least efficient plants. Mainly because of transportation costs, a general reduction in the demand for the products of a firm will be met by closing down segments of all plants, rather than closing down all segments of the least efficient plant. The step-wise representation of marginal costs given by Figure 3.4 is thus an abstract one. The more concrete representation of marginal costs, its depiction in historical time, is the one offered by Figure 3.5, since it corresponds to the actual sequential behaviour of marginal and unit costs when firms increase or decrease their level of output.

A similar objection, and also a similar answer, can be made at the industry level. As Davidson (1960, p. 53) recalls, even if all firms do have constant marginal costs, this does not imply that the industry supply curve is horizontal, as post-Keynesians in the Kaleckian tradition would have it, since there may be low-cost as well as high-cost firms. In the next chapters, we shall assume nonetheless that the industry supply curve is a horizontal cost curve, because we shall presume that firms operate in parallel fashion, sharing in the variations of total output. For instance, when demand falls, the reduction in output is spread more or less proportionately over all firms. The least efficient firms do not bear the brunt of the reduction in activity, unless they are forced to go under. Inefficiency is reflected in profits per unit, rather than in prices. Symmetrically, when demand expands, unit costs for each firm go down, and hence 'productivity rises because the rise in output following the rise in demand is shared among all firms, not concentrated among the marginal firms' (Kaldor, 1985a, p. 47). It is the existence of excess capacity which allows such behaviour, as well as the irrelevance of the marginal pricing rule.

This brings to the forefront the question of pricing, which we must now tackle.
3.5 PRICING THEORY

Variants of Pricing Procedures

Whereas neoclassical pricing theory relies on the equality of marginal cost and marginal revenue, cost-plus pricing is a major characteristic of the post-Keynesian theory of the firm. Cost-plus pricing, or what Okun (1981, p. 153) calls cost-oriented pricing, includes three variants: mark-up pricing, full-cost pricing and target-return pricing. I shall argue that there is no fundamental difference between these three variants, and that as a consequence it can be said that post-Keynesians have a consistent theory of pricing.

The mark-up variant assumes that a gross profit margin is applied to unit direct costs or average variable costs. The pricing equation is then:

\[ p = (1 + \theta)AVC \]  

(3.11)

The price variable is \( p \), \( AVC \) represents the average variable costs, mainly labour wages and the cost of raw materials, while the percentage mark-up on direct costs is \( \theta \). The relationship between the mark-up and the gross profit margin is simple. The share of gross profits, or the degree of monopoly in Kalecki’s terminology, is equal to:

\[ m = \frac{\theta}{1 + \theta} \]  

(3.12)

The mark-up \( \theta \) can be considered to be a proxy of the gross margin of profit \( m \), since the former can be written as a function of the latter:

\[ \theta = \frac{m}{1 - m} \]  

(3.13)

Since marginal costs are assumed to be constant, as in Figure 3.5, it is immaterial whether one uses average variable costs or marginal costs as the multiplicand. For the same reason, there is no need to be more specific about the output level at which the average variable cost is being computed, since it will be the same provided the firm operates below full capacity. Figure 3.6(a) illustrates the mark-up procedure of equation (3.11). The full-cost variant assumes that a net margin of profit is applied to unit costs, which are the sum of average variable costs and average fixed costs (direct and overhead costs). This is illustrated by Figure 3.6(b). The overhead costs do not include interest costs and as a consequence equation (3.14) is consistent with the use of equation (3.11). The pricing equation of the full cost variant is:
Figure 3.6  (a) Mark-up pricing and gross profit margin, (b) full-cost pricing and net profit margin.
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\[ p = (1 + \theta')UC \]

(3.14)

It can again be said that the mark-up factor \( \theta' \) is a proxy of the margin of profit – in this case the net profit margin – so that equations (3.12) and (3.13) still hold. Unit costs are, however, varying with output, so that the full-cost formula is incomplete unless one specifies at what level of output unit costs are measured. Four such levels of output have been suggested: the actual level, the expected level, full-capacity output and the standard level of output. When presenting the full-cost principle, Hall and Hitch (1939, p. 20) indicated that half of the firms were using the actual or the expected levels of output. This has led to the belief, held by many, that full-cost prices ought to change with variations in the expected or more recent level of output sales, as a result of the constancy of the net mark-up factor \( \theta' \) and the variability of unit costs. Robinson (1937, p. 11) recalls that ‘the old full-cost doctrine... appeared to hold that prices of manufactures... fall when demand increases because overheads are spread over a larger output’.

It turns out, however, that most authors who have supported the principle of full-cost pricing have based the unit cost variable in equation (3.14) on a standard level of output, consistent with what we have called above the standard operating ratio or the normal degree of utilization of capacity (Brunner, 1967, p. 44; Sylos Labini, 1971, p. 247; Harrod, 1972, p. 398; Wood, 1975, p. 61; Lee, 1985, p. 206). As Harrod (1952, p. 165) remarks, this is a ‘modification of the full cost principle stricto sensu’; but this is how full-cost pricing must now be understood: as a net margin of profit on standard unit costs. This is indeed how we shall define full cost from now on, noting that some authors prefer to use the expression ‘normal cost pricing’ (Rowthorn, 1981, p. 5; Bhaduri, 1986, p. 76). There is thus little difference between full-cost and mark-up pricing: both methods assume that the margin of profit and the price do not vary with reasonable fluctuations in output; both methods assume that prices will respond to fluctuations in standard or normal costs. The only difference between the two methods would appear to be that mark-up pricing does not take modifications of normal overhead costs into account, whereas full-cost pricing does.

The third variant of cost-plus pricing is target-return pricing. Target-return pricing may be considered more as a specification of full-cost or normal-cost pricing than as a variant of cost-plus pricing. Target-return pricing gives an explanation of the margin of profit. It says that ‘margins added to standard costs are designed to produce the target profit rate on investment, assuming standard volume to be the long-run average rate of plant utilization’ (Lanzilotti, 1958, p. 923). This pricing method seems the
most prevalent. It was shown to be used both by large and small American firms (Lanziolotti, 1958; Haynes, 1964). A more recent survey of the British manufacturing industry has reinforced previous findings: most respondents indicate that a rate of return on their capital employed is an element of their pricing objectives, while for two-thirds of the sample it is the main element (Shipley, 1981, p. 430). A well-known example of target-return pricing is General Motors, here given by Scherer as one of two instances of the full-cost pricing rule:

GM begins its pricing analysis with an objective of earnings, on the average over the years, a return of approximately 15 per cent after taxes on total invested capital. Since it does not know how many autos will be sold in a forthcoming year, and hence what the average cost per unit (including prorated overhead) will be, it calculates costs on the assumption of standard volume — that is, operation at 80 per cent of conservatively rated capacity. A standard price is next calculated by adding to average cost per unit at standard volume a sufficient profit margin to yield the desired 15 per cent after-tax return on capital. (Scherer, 1970, p. 174)

One can show that target-return pricing is a specification of full-cost pricing. Suppose that the standard target rate of profit is \( r \), and the value of the stock of capital \( pK \). Required profits for the period are then \( rpK \). Let us assume a capital/output ratio \( (K/q) \) of \( v \), that ratio being valid at full capacity and for given prices of inputs. Variable \( v \) is thus a capital to capacity ratio. If the standard rate of utilization of capacity is \( u \), corresponding in the period to a level of output of \( q \), the required profits for the period must be equal to \( rvpq/u \). This must be equated to the total profits that are to be obtained by marking up unit costs at the standard rate of utilization of capacity: \( \theta' (UC/q) \). Doing so, we find that the previously identified mark-up \( \theta' \) of equation (3.14) must be equal to:

\[
\theta' = (r/v/u)(p/UC).
\]

Looking again at equation (3.14), we see that it can be rewritten as:

\[
UC = p/(1 + \theta').
\]

Substituting this value of UC into the previous equation yields the equality:

\[
\theta' = (r/v/u)[p(1 + \theta')/p]
\]

Solving for \( \theta' \), we obtain:

\[
\theta' = r/v(u - r/v).
\]  

(3.15)
We have now found the relationship between the proxy \( \theta' \) for the margin of profit and target-return pricing. The full-cost equation in its target-return specification, it being understood that unit costs \( UC \) are set at the standard rate of utilization of capacity, is thus equal to:

\[
p = (1 + \frac{r_v}{u_v - r_v}) UC
\]  
(3.16)

Equation (3.16) is similar to the pricing model developed by Eichner (1987a, p. 357) in his explanation of the pricing behaviour of growing corporations. The only differences are that Eichner implicitly supposes full use of capacity, while he considers the rate of growth rather than the rate of profit to be the target of pricing procedures. It is obvious from Figure 3.6(b) and equation (3.16) that, if a higher rate of utilization is taken as the standard, prices should be lower because both unit costs at the standard rate of utilization and the mark-up \( \theta' \) would be lower, everything else being equal. As one would expect, a higher standard rate of return, or a higher capital/capacity ratio, induces an increase in the mark-up \( \theta' \), and hence in the price level when unit costs are fixed. If we take the first derivative of equation (3.15) with respect to \( r_v \) we indeed get a positive expression:

\[
d\theta'/dr_v = \frac{vu_v}{(u_v - r_v)^2} > 0
\]  
(3.17)

The presentation of these three variants of pricing helps to clarify a statement that was made at the beginning of the chapter. Prices set in the short run are not market-clearing prices. They are prices set on costs. They are not intended to equate supply and demand, whatever that means in a system with excess capacity, nor are they intended to equate demand to supply at the standard rate of utilization of capacity. Furthermore, firms know that the required rate of return employed in the full-cost formula may not be the realized one, even in the long run. Scherer (1970, pp. 174-5) reports that General Motors, for instance, has exceeded its normal rate of utilization of capacity in most years, and that as a consequence 'the realized return on invested capital has averaged well over the 15 per cent target rate'. Of course, when companies such as General Motors set their prices, they make adjustments to the standard prices of equations (3.10) or (3.14), taking into account business conditions, strategic goals and so on. Similarly retail firms may offer discounts on products the prices of which were fixed by a mark-up on the purchasing cost. These adjustments may be considered as frictions. They do not call the cost-plus principles back into question.
Rituals and Cost Accounting

Cost-plus pricing is prevalent among firms because it constitutes a convenient rule of thumb in making what would otherwise be complex and difficult decisions in a world of uncertainty. This is particularly clear in the case of retailers who, without their customary margins, would be forced to take thousands of decisions (Galbraith, 1952, p. 18). The neoclassical theory of the firm assumes that entrepreneurs have knowledge of things which the entrepreneurs themselves claim to be ignorant of (marginal revenue, rising marginal cost schedules). Post-Keynesians, instead, base their theory of pricing on the knowledge that managers of firms are likely to be able to gather in an uncertain and complex environment. As is the case for consumers when they make their choices, there is a strong element of convention in the price decisions of firms. Pricing by custom is 'an indispensable simplification of what otherwise would be an inordinately complex task' (Galbraith, 1952, p. 18).

Besides the use of mark-up pricing, custom is linked to the conservation of goodwill; that is, convincing current customers that there is no need to try other suppliers. Goodwill, or brand loyalty, is the rule of thumb of the customer which says that there is no need to try other suppliers as long as the current price appears to be fair and the product satisfying. Firms must avoid giving the impression that they are overcharging (Okun, 1981, p. 178; Kaldor, 1985a, p. 48). To retain fair prices, firms seek price similarity with their rivals or they try to stabilize prices with respect to unit costs, thus keeping the margin of profit constant. To set fair prices, firms rely on fair or reasonable target rates of return on investment (Lanzilotti, 1958, p. 931; Shipley, 1981, p. 432). Presumably price leaders base the price setting on target rates of return, while other firms follow up the decisions of the price leader, imitating its price. Whatever the case, a simple rule of thumb approach predominates, based on feasible and practical procedures. These routines are called 'rituals' by Harrod (1952, p. 164). They reflect the fact that, in an interdependent world, where firms want to avoid price wars within their industry, some ritualistic pricing mechanisms must be known to all.

The rituals include known fair target rates of return, as well as industry standards for cost accounting and information on costs of individual product lines (Haynes, 1964, p. 317). The exact pricing variant which is enforced thus depends on the accounting procedures and cost information which are available to decision makers. The fact that various cost-plus pricing rules, such as mark-up, full-cost and target-return pricing, have been used through time or are still being used, is related to the availability of data on cost and to the proper accounting conventions to distribute
overhead costs to the appropriate lines of product. When seen in this light, it is even more obvious that these three pricing formulae are variants of the same general procedure, and that 'the differences between them is explainable entirely in terms of the cost accounting procedures used in their formulation' (Lee, 1985, p. 206). Where, for instance, only data on direct costs are accessible or reliable – the less advanced accounting situation – one would expect mark-up pricing rather than full-cost pricing to be prevalent.

Various post-Keynesians or other eclectic authors have used one or the other formulation of cost-plus pricing. Mark-up pricing is mainly associated with the names of Kalecki, S. Weintraub (1958) and Okun (1981). More recently there have been many macroeconomic models of growth built around the notion of a fixed mark-up over direct wage costs (Dutt, 1990a; Taylor, 1985). It has been argued by Lee (1985, p. 207) that those who are only using mark-up pricing are showing a lack of understanding of actual pricing practices, since firms now make use of more sophisticated accounting procedures incorporating overhead costs, and since there has been undeniable evidence that firms mostly rely on full-cost or target-return pricing. Should all simple mark-up models be forsaken?

One should note again that the difference between mark-up and full-cost models has been greatly exaggerated. For instance, when Kalecki himself (1971, p. 51) attempts to differentiate his mark-up model from the full-cost one, he indicates that in his mark-up model the price of a firm is influenced by the prices of other firms and that it may (not that it must) be influenced by a change in its overhead costs. To that effect, he even mentions that there is a tendency for the mark-up to rise during a slump. This is what the French call wanting to split hairs. Once the possible influence of overhead costs has been recognized, there is no divergence between mark-up pricing and full-cost pricing, when the latter is appropriately understood to be normal cost pricing. A good example of this convergence of thought is Rowthorn's demonstration (1981, p. 36) that a mark-up pricing equation can always be derived from a full-cost pricing model. Another example is Asimakopoulos's presentation of his Kaleckian model. Asimakopoulos (1975, p. 319) sets up a Kaleckian mark-up on direct costs, but his explanation of the value taken by the mark-up relies on a target-return pricing procedure: 'These mark-ups are designed to cover, over time, both overhead costs and profits. Their values would thus be dependent on the standard rates of utilization of productive capacity used to calculate standard costs as well as on some expected rate of return.'

What is important to remember when using straightforward mark-up models is that the mark-up depends on overhead elements, such as over-
head labour salaries, and on fixed or quasi-fixed interest costs. Despite their over-simplistic cost accounting underpinnings, mark-up models of pricing behaviour should not be abandoned. Their simplicity allows complex macroeconomic modelling to remain amenable to calculations. In this sense they may be said to be more useful than the full-cost model (Brunner, 1967, p. 45).

Determinants of the Margin of Profit

We have not yet discussed the determinants of the profit margin, with the exception of the target rate of return. The major criticism of cost-plus pricing, seen from the neoclassical side, is that it really is nothing more than profit maximization in disguise. The claim was made from very early on, in the 1940s, when the so-called marginalist controversies were raging (see Lee, 1984b, and Mongin, 1986). Kalecki (1939–40) himself, at some point, adopted the method of profit maximization, although he later dismissed it explicitly (Kalecki, 1971, p. 44). Even today, some post-Keynesians (Moore, 1988a, p. 213), as well as eclectic economists who show some sympathy for cost-plus pricing (Koutsoyiannis, 1975, p. 281; Tarshis, 1980, p. 11), conclude that it is a routine version of long-run profit maximization. Others argue that, since Kalecki has always denied the importance of overhead costs for pricing, he must have assumed at all times short-run profit maximization (Carson, 1990). One of the drawbacks of cost-plus pricing is that its earlier proponents have generally been silent about the determinants of the mark-up. This silence led Kaldor (1956, pp. 92–3) initially to reject cost-plus pricing, and it has helped neoclassical critics to reduce cost-plus pricing to marginalism. We shall now see how that can be done, and later discuss possible alternative determinants of the mark-up.

The proof of the equivalence of marginalist pricing and mark-up pricing is very simple. Profit maximization requires the equality of marginal revenue with marginal cost.

\[ MR = MC \]

As is well known, marginal revenue can also be expressed as a function of the price charged and of the elasticity of demand, \( e \).

\[ MR = p(e - 1)/e \]

Since cost-plus proponents usually assume constant marginal costs, average variable costs and marginal costs are equal, so that the profit-maximizing condition may be rewritten:
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\[ p(e - 1)/e = AVC \]

The profit-maximizing price can thus be rewritten as:

\[ p = \left[ \frac{e}{(e - 1)} \right] AVC = (1 + \theta)AVC \]

We are back to the mark-up variant of cost-plus pricing, given by equation (3.11), with the mark-up \( \theta \) equal to \( 1/(e - 1) \). Marginalists argue that the lower the price elasticity of demand, that is the less sensitive is demand to price variations, the higher is the profit-maximizing mark-up which firms will eventually adopt through trial and error. Neoclassical authors thus claim to have shown that, while managers report that they are using cost-plus procedures, they are in fact maximizing profits in the orthodox marginalist manner without knowing it. This neoclassical interpretation of cost-plus pricing is illustrated at price level \( p \) and output level \( q \), in Figure 3.7. Marginal cost and marginal revenue are there equated at the appropriate gross profit margin.

The major weakness of this proof of the equivalence of mark-up and marginalist pricing is that, for it to make sense, the price elasticity of demand has to be above unity. Otherwise marginal revenue is negative and cannot be equated to the necessarily positive marginal cost. It turns out precisely that in many oligopolistic industries the price elasticity of demand \( e \) is below unity. If we assume that there is a price leader in these industries, and that other firms follow the leader, thus keeping market shares constant, the price elasticity measured for these industries is exactly equal to the price elasticity of demand faced by the individual price leader. We may thus conclude that the marginal revenue — near actual prices — of the price leader is negative, and that as a consequence profit maximization as an hypothesis cannot be entertained (Steindl, 1952, pp. 15–17; Eichner, 1976, p. 48). Firms do not maximize profits. They set prices according to costs at a standard level of utilization of capacity. The price and output levels corresponding to this more likely case are labelled \( p \) and \( q \), in Figure 3.7.

The crucial question then becomes: how do firms decide on the value of the margin of profit over direct cost or unit costs? Various answers can be put forward, some more formal than others. The dominant view remains the one seeing a cost-plus price as a 'reproductive price and a growth price' (Lee, 1985, p. 209). Pricing is linked with investment decision. This view has been developed in the models of Eichner (1976), Wood (1975), Harcourt and Kenyon (1976) and Shapiro (1981). All these authors present a variant of the model of the firm that was suggested at the end of section 2, where the growth of the firm is restricted by the intersection of the finance
frontier with the expansion frontier. This view of pricing did not impress Robinson, who argued that 'such theories can never be quite convincing for motivation in business is multi-dimensional and cannot be squeezed into a simple formula' (1977, p. 11), a point of view consistent with her previous claim that the profit margin 'depends very much upon historical accident or upon conventional views among business men as to what is reasonable' (1966, p. 78). Kaldor, however, endorsed an account of the mark-up based on the finance and expansion frontiers.

This objective – maximizing the attainable rate of growth – can mean several things. First, it means aiming at a price that will maintain, and, if possible, improve on their share of the market. This consideration would suggest that they should choose a price and hence a markup that is as low as they can make it. Second, they must choose a markup that allows them to increase their own capital, by means of ploughed-back profits as much as possible . . . . Their main motive in all this is to prevent a situation where they become restricted in their expansion by a financial constraint . . . . This second consideration taken by itself suggests making the markup as high as possible, since the higher the markup, the higher the rate at which their own capital accumulates at any given plough-back ratio . . . . So these opposing considerations should determine the firm’s judgment as to what the optimum markup should be. (Kaldor, 1985a, pp. 50–2)
We now have all the elements which allow us to integrate theoretical views on the behaviour of the firm (the use of the finance and expansion frontiers), empirical evidence (the use of target-return pricing), the determination of the margin of profit, and the systemic view of prices present in neo-Ricardian models, although the last element will only be discussed later. We saw earlier that target-return pricing could be considered a specification, rather than a variant, of full-cost pricing. Target-return pricing yielded a determination of the margin of profit $\theta$ as a function of the target rate of return $r_t$. We may now ask: what determines the target or required rate of return? The answer lies at the intersection of the finance and expansion frontiers. In the very abstract, as the firm attempts to maximize its rate of growth, its managers perceive that, with the existing constraints (finance, but also competition, technology, knowledge, labour unions), there is a certain rate of profit that can and that has to be realized for all the constraints to be met. This corresponds to the rate of profit $r_t$ in Figure 3.3. This constrained rate of profit is the standard rate of return of the pricing formula.

Of course firms never know exactly the shape of their finance and expansion frontiers, and hence the exact value of their constrained optimal rate of profit $r_t$. Furthermore, it can be presumed that the strength of the constraints frequently change, thus modifying in Figure 3.3 the shape and the slope of the frontiers. The target rate of return which results from these considerations is thus a conventional rate of profit, the equality of which with the realized rate of profit cannot be presumed, neither in the short run nor in the long run. This is why, in the words of Joan Robinson, the profit margins of full-cost pricing procedures 'are set at a level calculated to yield a satisfactory return on some normal or standard average level of utilization of capacity' (1971, p. 94) or 'settle at the level that yields the expected rate of profit (the best attainable in the given conditions) at an average degree of utilization of plant' (1969, p. 260). The firm can only know what the past rates of return have been; it cannot know what the present or what the future rates of profit will be. It must thus rely on some conventional measure of the rate of return that will fully recover part of both past and future expansion costs.

When Lanzilotti (1958, pp. 938–40) presented the results of his survey on the price behaviour of firms, he concluded by linking pricing to the planned profits required for investment and growth. The relationship between target-return pricing and the constrained rate of profit derived from our growth-maximizing model of the firm cannot be more obvious. Ironically it should be mentioned that, while present post-Keynesian authors believe that target-return pricing as here redefined applies mostly to oligopolistic industries and their price leaders, earlier exponents of
target-return pricing thought that it applied with more force to competitive manufacturing industries. When discussing an industry with plenty of small producers, Steindl (1952, p. 51) resolves that competitive pressures are such that the margin of profit is just sufficient to cover the financial costs of expansion, given the acceptable gearing ratio. In the case of oligopolies, Steindl believes that, since firms possess some monopoly power, they are able to remain beyond their finance frontier, maximizing neither profits nor growth.

This brings us to the other post-Keynesian views about the determination of the mark-up on direct or unit costs. Steindl's theory of pricing, which he tried to substantiate in his book, was basically that higher margins of profit could be associated with higher industrial concentration ratios (1952, pp. 70–1). This, of course, is a development of Kalecki's degree of monopoly, that is 'the semi-monopolistic influences ... resulting from imperfect competition or oligopoly' (1971, p. 160). The extent of the mark-up in each industry depends on the monopoly power of its firms, measured by the industrial concentration ratio or a proxy thereof. This view, now known as the monopoly power model (Dutt, 1987b, p. 65) or the monopoly capital model (Baran and Sweezy, 1968) relies in its microeconomic incarnation on the empirical evidence showing a positive relation between mark-ups and concentration ratios (Weiss, 1980).

There is no need to consider the monopoly power view as a rival of the full-cost reproductive price. The monopoly view can be incorporated into the model of the firm illustrated by Figure 3.3. A higher degree of monopoly can be interpreted as a shifting outwards of the expansion frontier. To higher concentration ratios would thus correspond higher possible profit rates. This would lead to higher target rates of return, and hence to higher mark-ups. A consequence of all this is that we should expect profit rates to differ from industry to industry.

A variant of the monopoly power view of the determination of mark-ups, also derived from Kalecki (1971, pp. 51, 156–64) and the work of neo-radical authors, can be similarly integrated. In this variant, monopoly power is not associated with concentration ratios, but with the corporate power of the firm over the whole economy (Dutt, 1987b, p. 71). As noted by Jossa (1989, p. 156), in his later writings Kalecki has associated the degree of monopoly not only with the struggle between competing firms, but also with the intensity of the struggle between social classes. The size of the mark-up on direct costs is in inverse relation to the bargaining power of the trade unions. Reciprocally the more successful the class struggle from the point of view of the workers, the higher the real wage rate and the lower the mark-up (Dutt, 1987a). This can easily be seen from the mark-up version of cost-plus pricing, as shown in equation (3.11). If
average variable costs there are assumed to consist only of wages (the
wage rate multiplied by the number of workers), a higher wage rate at
fixed prices necessarily entails a lower mark-up. Again, from the point of
view of the individual firm, this class bargaining variant of the monopoly
power view can be interpreted as shifts of the expansion frontier of Figure
3.3. When trade unions have more bargaining power, firms perceive the
expansion frontier as shifting inwards. This leads to a lower possible profit
rate, and hence to a lower target rate of return and a smaller mark-up.
This approach will be taken up in more detail when inflation is discussed
in Chapter 7.

The upshot of all this is that, depending on the problem at hand, one
might wish to consider a constant margin of profit or a flexible one. As in
the case of mark-up pricing versus full-cost pricing, the degree of com-
plexity of the analysis being pursued may favour one or the other hypothe-
sis. It should be clear, however, that all the various variants which post-
Keynesian authors are employing can be reduced to a canonical model
based on target-return pricing.

Prices and Variations of Demand

We have seen how prices are normally set. What happens when economic
conditions are such that firms consistently produce below either the
expected rate of utilization of capacity or the standard rate? What if the
actual rate of utilization of capacity is above the standard rate? In other
words, what happens to prices and the margins of profit during the
business cycle? What would the post-Keynesian model of pricing predict?
It all depends on the variant which is being used. The answer may also
change according to whether the variables being looked at are prices or
mark-ups.

Let us first assume that variations in the sales of firms of an industry
have no impact on its direct unit costs; that is, the price of raw materials
and the nominal wage rate are not influenced by these variations in
output. Any change in the industry price would thus be a consequence of a
change in the mark-up or in average indirect cost. Let us consider the case
of a downturn. Four models of pricing may be considered. In the mark-up
model, since the gross margin of profit is over prime costs only, variations
of output should have no impact on prices, unless the mark-up is changed.
In the full-cost model stricto sensu, that is in its old version, since fixed
costs are spread on a smaller output, unit costs increase in the downturn.
With a given net margin of profit, we should thus expect prices to go up in
a recession. In the full-cost model as we have understood it, also called
normal cost pricing, that is with the net profit margin calculated over
standard unit costs, a downturn accompanied by a constant mark-up should lead to constant prices. This is because standard unit costs are independent of variations of output by definition. The same could be said of target-return pricing if the downturn has no impact on the conventional rate of return and the conventional rate of utilization which determine the mark-up. The net margin of profit, however, may change if the downturn is perceived as a secular decline in the rate of growth of the economy or of the industry. This is the effect emphasized by Eichner in particular, who conjectures that a fall in the perceived secular rate of growth of sales leads to a lower mark-up, presumably through the downward adjustment of the target rate of return. This effect on the pricing formula may nevertheless be compensated by a simultaneous fall in what is considered to be the normal rate of utilization of capacity.

All three possible effects of output variations on prices can thus be entertained within the various post-Keynesian variants of pricing. The main view that emerges from this quick assessment is that cost-plus pricing generally leads to the belief that output fluctuations have no effect on margins of profit. If prices fall in a recession, this may be the result only of a fall in direct costs, that is wages and raw materials, the latter fact having been noted by Kalecki (1969, p. 53). In the full cost model *stricto sensu*, however, an increase of the margin of profit will occur in recession times, while, in the Eichnerian variant of target-return pricing, a decrease in the margin of profit might occur in the downturn. This latter effect is naturally what orthodox theory would predict.

Various empirical studies seem to demonstrate that in actual fact all three possible effects of output variations on margins of profit are being observed. The empirical studies performed by Coutts, Godley and Nordhaus (1978), by Sawyer, Aaronovitch and Samson (1982) and by Domowitz, Hubbard and Petersen (1986) all highlight the fact that margins of profit can stay constant, increase or decrease in recessions. The same diversity of behaviour occurs in expansion. These studies conclude, nonetheless, that the impact of demand on prices or margins is small and that, overall, the number of cases where prices decrease in a recession compensate for the number of cases where prices increase. The response to changes in demand is predominantly a quantity response, not a price one. The conclusions reached by Coutts *et al.* are in clear support of the full-cost pricing procedure in its standard costs version, or any other similar procedure based on standard costs.

The central tendency of these estimates, as well as the absolute size of even the most extreme estimates, indicate that there is no general or economically significant tendency for prices to change relative to normal costs over the course of the business cycle . . . The evidence did not support the view that demand affects prices
relative to normal unit costs: the effect of demand on the mark up was both statistically and economically insignificant. (Coutts et al., 1978, pp. 72, 139)

The lesson to be drawn from all this is that it is a good approximation to assume that firms fix prices by adding a constant mark-up to their normal unit costs, calculated at a conventional rate of utilization of capacity and with a target rate of return in mind. The cause of this is that prices are not designed to be market-clearing prices; rather they are reproductive prices. If in a recession firms were to cut profit margins and engage in price wars, they would destroy the reproductive properties of cost-plus pricing procedures (Lee, 1985, p. 210). When it happens in an industry, observers usually refer to cut-throat competition or to destructive competition, thus highlighting its undesirable characteristics. Implicit collusion behaviour is upheld by price leaders and industry-wide customs and conventions. They guarantee that margins of profit will stay at a reasonable level, at least for the efficient or the average firms, and that enough profits will be generated through the cycle to finance the required investments. When firms keep their margins of profit constant through the business cycle, their flow of profit varies in proportion to their immediate needs. When capacity is strained to the limit, total profits and the share of profits are high; when production is below standard capacity, total profits and the share of profits are low. Total profits and retained earnings thus move procyclically although prices and margins of profit may stay constant as demand varies. This is because of the constant direct costs and the spread of fixed costs over a larger output.

Figure 3.8 illustrates this direct relationship between output and profits or the share of profits in the value of sales when the mark-up is constant. At the standard level of output, \( q_s \) unit direct costs are equal to \( OD \), fixed unit costs are \( DF \), and unit costs are \( OF \). The gross margin of profit, or what Kalecki called the degree of monopoly as reflected in equation (3.12), is thus the ratio \( Dp/Op \). This ratio naturally does not change as output varies. The net margin of profit at standard unit costs is \( Fp/Op \). If sales turn out to be equal to standard output, the share of profits out of the value of sales is precisely equal to that of the net margin of profit, \( Fp/Op \). The value of profits is then equal to the shaded rectangle area. However, when actual sales do not correspond to standard output, the net margin of profit and the share of profits do not correspond. Figure 3.8 illustrates the case of a recession, when the output level of the firm falls to \( q_r \). The share of direct costs and unit direct costs stays the same; but unit fixed costs increase to \( DR \) and the share of indirect costs in the value of output increases to \( DR/Op \). As a consequence, profits per unit of output fall to \( Rp \). The realized share of profits in the value of output decreases to
Figure 3.8 Pro-cyclical variations in profits with cost-plus pricing

\[ Rp/Op, \] and total profits shrink to the cross-hatched area in the diagram. The converse happens when output increases. In contrast to orthodox theory, profits necessarily increase when the output of the firm increases, provided the firm stays beneath full capacity. These effects of variations in the rate of utilization of capacity will be further analysed in Chapter 5, with the help of a simple algebraic form.

3.6 COST-PLUS PRICES AND PRODUCTION PRICES

It was argued in the introductory chapter that there exists a coherent set of presuppositions within post-classical economics and that various non-orthodox theories do have many common elements. The intent of this subsection is to show that the post-Keynesian theories of cost-plus pricing contain substantial elements which are similar to the neo-Ricardian production prices. This view, of course, is not original, as many authors have made the same claim in the past, either in general (Earl, 1983a, ch.2; Levine 1988) or with respect to the particular Kaleckian model (Mainwaring, 1977). Indeed some authors have even formally attempted to con-
matrix-form mark-up models that incorporate the interdependent production prices with the mark-up behaviour of the firm (Semmler, 1984; Schäffer, 1987b). We shall not do so here, as we shall focus on the common concepts, rather than on the technical details, assuming that the reader has some knowledge of prices of production (see Pasinetti, 1977).

There are basically four points of contact between cost-plus prices and production prices: (1) both visions of prices are cost-oriented; (2) they are reproductive prices; (3) they are based on normal conditions; and (4) market clearance is not at issue.

First, and very obviously, neither of these types of prices equates marginal costs with marginal revenues. In cost-plus prices as well as prices of production, the centre of attention is the cost of production. As Wiles (1973, p. 386) says, 'the main function of prices is not to be resource-allocators but cost-coverers'. The post-Keynesian and the neo-Ricardian prices are not indices of temporary scarcity, in opposition to neoclassical prices. As is clear in the model of Pasinetti (1981), prices of production are correctly weighted indices of labour costs. Demand plays no role, except in peculiar circumstances such as joint production, or the role of demand is an indirect one. For instance, the rate of growth of demand may have an impact on the target rate of return or the uniform rate of profit, something that can be interpreted as the need for more hyper-indirect labour.

Secondly, there is the reproductive quality of cost-of-production prices and cost-plus prices. We have already seen that cost-plus prices could not be associated with short-run profit maximization. The horizon of the firm, when it sets its prices, is more the long run than the short one. We have underlined in particular the importance of the expansion and the financial constraints on the mark-up decision of the firm. Prices must allow growth. In neo-Ricardian models, reproduction is also the crucial element (Walsh and Gram, 1980, p. 397). The existing situation and decisions must be repeatable in the future. Prices reflect long-period considerations, rather than short-run ones. In some variants the growth requirements are also underlined. Reproducibility enters through the explicit interdependent connections between the various products: the reproduction of commodities by means of commodities so central to neo-Ricardian analysis. The technological matrix, the input-output matrix, takes care of this interdependence. Some outputs are the inputs of other products, and therefore the variations in prices of these commodities have feedback effects. In cost-plus pricing, the interdependence is only made implicit: each firm is assumed to fix its prices according to its costs: that is, according to the prices of its inputs; but the prices of these inputs are themselves the result of a mark-up procedure.

The similarities between the cost-plus prices and prices of production
are most obvious in the target-return pricing approach (Reynolds, 1987a, p. 179). In the canonical version of prices of production there is a uniform rate of profit on capital, output being assumed to be at its normal level. The rate of profit is thus the normal rate of profit, and output corresponds to the normal rate of utilization of capacity, each plant or segment of plant being operated at its optimal engineer-rated capacity. This is quite similar to the target-return view: standard or normal output, that is the normal rate of utilization, helps to determine unit costs and the mark-up; the latter also depends on the normal rate of profit that corporations wish to obtain in the long run on their investments and capital. The target rate of return thus plays a similar role to that of the uniform rate of profit in production prices.

We know that cost-plus prices are non-clearing prices. As such, they are not market prices, but administered ones. Cost-plus prices are not influenced by short-run variations in demand. Furthermore they certainly do not ensure that in the short run demand will equate the standard rate of utilization of capacity; but, as the case of General Motors did illustrate, the same can be said even in the long run: the average actual rate of utilization of capacity is not necessarily the standard rate. A similar claim has been made for neo-Ricardian prices. When they are interpreted as a photograph at a given moment of time, with given levels of output, ‘there is no reason to suppose that prices of production should equate the quantity demanded with the quantity supplied for any commodity in the long period’ (Roncaglia, 1978, p. 16). Generalizing General Motors’ case to all firms and industries we may say that, even over the long period, the actual average rate of utilization of capacity is not equal to the normal rate. Symmetrically, we may presume that the actual rate of profit in the long period is generally different from what is considered to be the normal rate of profit (the target rate of return). Under that interpretation, prices of production based on normal rates of profit and normal rates of utilization of capacity would also turn out to be non-clearing prices.

The contention that, even over the long period, the actual rate of profit is different from the normal rate of profit is of course highly disputed by many neo-Ricardians, as we shall see in Chapter 6. The fact remains that the canonical neo-Ricardian model of prices of production assumes a normal and uniform rate of profit and normal rates of utilization of capacity. Unless we are convinced that there exists some mechanism ensuring the uniformity of the rate of profit and the normal use of capacity, we may interpret this neo-Ricardian model as being the notional version of the more realist cost-plus prices (Hodgson, 1989, p. 114). Prices of production are ideal prices, which would be exactly realized if all possible frictions of a true economy could be eliminated, incorrect infor-
Various levels of abstraction can be entertained. Several authors deal with prices of production models that do not assume the uniformity of the rate of profit or the uniformity of the industry rates of growth, based in particular on the notion of vertically integrated sectors (Pasinetti, 1981; Eichner, 1987b). Indeed, from the very beginning, various authors have asserted that the uniformity of the rate of profit is only a convenient hypothesis to make, and that differentiated rates of profit due to oligopolistic conditions and barriers to entry are perfectly compatible with the Sraffian model (Syllos Labini, 1971, p. 270; Roncaglia, 1978, p. 29).

Still, some claim that these models are inconsistent with the historical approach advocated by post-Keynesians and with their cost-plus pricing procedures. The main objection is that, in the real world, as reflected by cost-plus pricing models, the cost of materials and inputs is ascertained on the basis of historical cost. The same applies to depreciation of capital assets. The price of the commodity purchased yesterday as circulating capital to produce today is different from the price of the same commodity produced today. Standard input–output analysis and vertically integrated systems assume that these two prices are the same (Deprez, 1988, 1990). Similarly with fixed capital goods, neo-Ricardians must assume one of two things: either firms have perfect expectations about technical progress and the evolution of future prices of machines; or firms set depreciation allowances as if they were terminal ventures about to sell their machines (Lee, 1985, p. 214). While the objection relating to circulating capital may be countered by noting that accountants now rely more on replacement cost and less on historical cost, the question of perfect expectations and fixed capital prices remains.

What must be acknowledged is that, to be able to make any sort of progress when dealing with complex issues such as relative prices and the measure of technical progress with produced commodities, some convenient simplifications must be made. For the reasons outlined above, production prices and cost-plus prices are part of the same framework. They are part of the same vision. Production prices, or their multiple variants of the input–output sort, allow for the mathematical treatment of difficult issues and the achievement of practical computations, despite the complexities of interdependence, and without having to resort to aggregation. Statements to the effect that all variants of production prices are useless unless they incorporate historical prices, or claims that cost-plus theories have no theoretical content because they are not general, are not respectful of the fact that different levels of problems must be tackled with different tools and different levels of abstraction.
A more fundamental criticism of some interpretations of prices of production is tied to the classical notion of gravitation. Some authors confuse market prices with actual prices, and claim that market prices gravitate or may gravitate around long-period production prices, called the natural prices (Duménil and Lévy, 1987). The invisible hand of Adam Smith is invoked, with excess demand in an industry inducing price increases and profit increases which encourage capitalists to pour their financial capital into these industries. The consequent increase in supply would eventually get prices down, back to their natural level, while the rate of profit in that industry would return to its normal level. On the other hand, the fact that discrepancies between supply and demand in other industries may lead to momentary increases in the costs of production is generally not taken into account. The problem with this characterization is that it does not correspond to the real-world inflexibility of administered prices, while it closely resembles the neoclassical framework of partial demand and supply analysis. This notion of gravitation undermines its own foundations by resurrecting the orthodox market forces.

These confusing views on prices of production cannot arise once the relationship between prices of production and cost-plus prices is clearly established. Actual prices are not market prices which would clear out excess demand at each period (Arena, 1987, p. 105). Actual prices are set on the basis of costs, while supply adjusts to demand through changes in the use of capacity. 'Actual prices are therefore equal to prices of production but utilization fluctuates around a normal level' (Schefold, 1984, p. 4). The prices which oligopolistic firms set on markets are a variant of prices of production, price leaders fixing these prices by taking into account the various technical coefficients of production at the normal rate of utilization of capacity. If a manufacturer feels the need for lower prices, the usual response will be to redesign the product so that its costs of production are smaller. If the cost of inputs increases, because their normal price has increased, this will be incorporated in the administered price. Of course, in the real world, the administered prices are not exactly equal to prices of production. But the fact that they are not equal has to do with the various frictions noted above (monopoly, imperfect expectations, time) rather than the discrepancy between supply and demand. Actual prices are imperfect— but realistic— prices of production. They are administered by firms according to standard costs; they are not ruled by supply and demand. If one avoids the so-called process of gravitation, it then becomes clear that production prices and cost-plus prices are identical concepts, set at different levels of abstraction.