

TR 83-24

THE THEORY OF THE FIRM AND PRICING BEHAVIOUR
IN SOUTH AFRICAN MANUFACTURING INDUSTRY

Dissertation

Submitted in Partial Fulfilment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY
of Rhodes University

by

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January 1983

ACKNOWLEDGEMENTS

I owe an immense debt of gratitude to the many people who have helped in making this thesis a reality. I am very grateful.

I am especially indebted to Craig Beuthin whose expertise and patience in assisting with the computing aspects of the thesis went far beyond the call of duty; to Professor Phillip van der Watt of the Department of Mathematical Statistics at Rhodes University for his kind advice on the statistical sections of the study; and to Shirleen Reynolds for the skill and cheerful tolerance with which she undertook the typing. Financial contributions from the Human Science Research Council and the Rhodes University Council are gratefully acknowledged. I should also like to thank all those members of the South African business community who gave of their time and trust to participate in the survey.

To Tracey, I am deeply thankful for the love and moral support she has given me during the time of writing this thesis.

Brian Dollery
GRAHAMSTOWN
January 1983

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INTRODUCTION

"There is not one simple rule about men in love or men in politics or men in lunatic asylums : how then could there be one about men in business?"

Peter Wiles, Price, Cost and Output

Economists of different shades of opinion are more often than not interested in the same issues. In the field of economic theory one such issue is the perennial question of efficient resource allocation, while inflation has by now been a problem of economic policy for rather more than a generation. A key ingredient common to the analysis of both of these issues is the role of prices in an economic system. This is also the main concern of the present study.

Price determination in a market economy cannot be meaningfully explained without reference to the entity known as the firm, whether it be a price maker or a price taker. Recognition of the need for a "theory of the firm", as distinct from the theory of markets, can be traced back to the pathbreaking efforts of Robinson¹ and Chamberlin² in the 1930's. Given the multi-faceted nature of the firm the task of

¹ Robinson, J., Economics of Imperfect Competition, (London : Macmillan, 1933).

² Chamberlin, E.H., The Theory of Monopolistic Competition, (Cambridge : Harvard University Press, 1933).

constructing a comprehensive theory appears so daunting as to provoke one commentator to remark:

"The very phrase, 'the theory of the firm,' is philosophically dangerous. A firm might be too complicated an entity to generate any theories at all."³

Nonetheless theoretical work has proceeded apace, and it is possible to distinguish three major schools of thought falling broadly within the scope of the theory of the firm; neoclassical theory, managerial theory and behavioural theory. The complexity of the concept of the firm has resulted in sufficient confusion and disagreement over the purpose of the theory of the firm for a large body of economists to have come to regard these theories as rivals. This purported rivalry should however not go unquestioned, especially with regard to the nature of neoclassical theory. While no-one would presumably dispute the propriety of labelling the managerial and behavioural theories as "positive", the same is not necessarily true for the neoclassical theory. However, this is precisely what has occurred; the overwhelming number of economists, amongst whom the leading spokesmen are probably Machlup⁴ and Friedman⁵, regard neoclassical theory as positive. In

³ Wiles, P.J.D., Economic Institutions Compared, (Oxford : Basil Blackwell, 1977), p. 66.

⁴ See, for example, Machlup, F., "Theories of the Firm : Marginalist, Behavioural, Managerial," American Economic Review, Vol. 57, 1967, pp. 1-33.

⁵ See Friedman, M., Essays in Positive Economics, (Chicago : University of Chicago Press, 1962).

other words, they have attributed descriptive properties to a cohesive theoretical apparatus originally normative and analytic in its intent. Moreover, most modern textbooks, though at pains to stress the distinction between positive and normative theoretical statements, perpetuate this state of affairs. Not all text book writers are however oblivious of what is happening. Richard Lipsey, for instance, in his possibly ironically titled Positive Economics reiterates the standard sentiment that "... the distinction is a necessary working rule the present abandonment of which would contribute to confusion rather than to clarity" but then does add that "... although we are not sure what to make of an apparently normative statement (because it may have a positive underpinning) we do know a purely positive statement when we see one."⁶ While it is not possible to reject this procedure as illegitimate given the epistemological difficulties inherent in differentiating normative from positive issues, it is reasonable to regard these developments as unfortunate.⁷

The present study may be viewed as comprising two interrelated components. The first part of the thesis constitutes the theoretical body of the study, and is devoted exclusively to an analysis of various aspects of the theory of the firm. Several broad themes are encountered

⁶ Lipsey, R.G., An Introduction to Positive Economics, (London : Weidenfeld and Nicolson, 1963), (2nd ed.), p. 5.

⁷ In private correspondence with me Professor Wiles has remarked : "The neoclassical theory of the firm is a normative explanation - and in the case of welfare economics, which tells us that marginal costs should equal price - a very good one : masquerading, however, very frequently as a positive explanation. This it is in no sense at all."

here. One stresses the pervasive nature of market concentration in the process of price determination, another highlights the ubiquity of pricing rules of thumb. Similarly, an attempt is made to show that it is possible to identify a consistently logical structure which originates in the empirical work on pricing undertaken in the 1930's, extends through the managerial theory of the firm, the dual economy hypothesis, and finally culminates in the doctrine of administered prices.

The core of the thesis resides in the empirical analysis set out in the latter part of the study. The purpose here is two-fold; firstly, and most importantly, to subject various theories and related issues concerning price determination to empirical evaluation, and secondly, to determine the extent of pricing rules of thumb, and the factors that impinge on such rules. Statistical data suited to the testing of the hypotheses in question are not normally, if ever, available from published sources. Hence it was necessary to directly approach a number of representative firms in order to establish their methods of price determination, under different conditions of economic concentration, for which the manufacturing sector of the South African economy is well suited. This was done by means of a questionnaire survey sent to 598 companies.

The thesis itself proceeds according to the following outline:

Chapter I is concerned with the theory of the firm, and begins by identifying the three main approaches to the study of firm adopted by economists; that is, orthodox or neoclassical theory, managerial theory,

and behavioural theory. Given the enormous volume of the literature, only a broad overview of the theory is possible, with particular attention paid to some of the more contentious issues.

Moreover, it is often difficult to fit individual models into the general taxonomy of the theory of the firm, especially with respect to oligopoly theory, but nonetheless the conventional textbook pattern is followed. In an appendix to chapter I, the mechanics of pricing rules are outlined, and contrasted with marginal pricing.

Chapter II explores the possibility that inherent structural features characteristic of the modern capitalist economy create the scope for the coexistence of neoclassicism and managerialism. Since the analysis of this issue requires a broader perspective, the focus of attention shifts towards a more aggregative approach. It is argued that the theory of administered prices descends directly from structural dualism and the managerial theory of the firm. The chapter concludes with an evaluation of the plethora of theories purporting to explain the lag and catch-up effect underlying the administered price hypothesis.

Chapter III prepares the way for the empirical component of the study. After an outline of the empirical objectives, the populations are defined within the universe of South African manufacturing industry, and a detailed examination of sampling procedures is undertaken, as well as questionnaire design and the pilot study. Several appendices to the chapter provide ancillary information.

Chapter IV concentrates chiefly on the statistical analysis of

comprehensive or established theory dealt with in chapters I and II. Beginning with a scrutiny of the response pattern elicited by the questionnaire survey, investigations into four areas are attempted; these are, the administered price hypothesis, the Blair target return on investment model, the goals of the firm, and the relative importance of price and non-price competitive instruments to the firm.

Chapter V is concerned with an empirical evaluation of ad hoc but theoretically plausible expectations about the incidence of pricing rules of thumb. After an initial investigation aimed at determining the extent to which pricing rules find application amongst the three sample populations, the analysis of pricing rules consists of four main components; the influence of some general attributes of economic conduct, the influence of supply factors, the influence of demand factors, and the influence of subsidiary aspects of price formation.

The Conclusion to the thesis attempts to place the survey findings in a broad framework of economic theory and public policy.

CHAPTER I : THEORY OF THE FIRM

1.1 INTRODUCTION

The theory of the firm is dealt with in an ever-expanding professional literature that is both vast and varied.¹ It is however, widely recognised to be in a confused and uneasy state; there is not even agreement as to the purpose of the theory. As Archibald has argued: "the fact is that the subject matter and scope of 'the theory of the firm' are neither obvious nor simply explained."²

The behaviour of the firm has been investigated by scholars from a wide range of disciplines. Sociologists, for example, have been interested in the business organisation from the viewpoint of group behaviour, whereas anthropologists have concentrated on firms as cultural institutions.³ In this study we are concerned with the firm

¹ For surveys of the literature see, inter alia Machlup, F., "Theories of the Firm: Marginalist, Behavioural, Managerial", American Economic Review, Vol. 57, 1967, pp. 1-33; Cyert, R.M. and Hendrick, C.L., "Theory of the Firm: Past, Present, and Future; An Interpretation", Journal of Economic Literature, Vol. 10, 1972, pp. 398-412; and Shubik, M., "A Curmudgeon's Guide to Microeconomics", Journal of Economic Literature, Vol. 8, 1970, pp. 405-34. Literature on the theory of the firm is taken to include the theory of markets, since information on market morphology is a necessary input into the firm's decision matrix.

² Archibald, G.C., The Theory of the Firm, (Harmondsworth : Penguin Books, 1971) p. 9.

³ For a thorough discussion of the "non-economic" theory of the firm see McGuire, J.W., Theories of Business Behaviour, (Englewood Cliffs : Prentice Hall, 1964).

from the perspective of economic science. Broadly speaking, there exist three main approaches to the study of the firm in economics. Orthodox or neoclassical theory sees the firm essentially as a production function converting inputs into outputs; the firm is perceived as a hypothetical construct and not as a "real" organisation.⁴ No distinction is drawn, for instance, between the multinational conglomerate and the small sole trader. Criticism of this theory has led to the formation of two revisionist approaches. The behavioural theory of the firm stresses "realism in process"⁵, rejects a marginalist analysis of economic decision-making, and proposes instead an empirically based model of business behaviour.⁶ Secondly, managerial theory emphasises "realism in motivation"⁷, disputes the neoclassical assumption of profit maximisation, and by allowing management a degree of discretion, opts for the pursuit of some other objective function.⁸

Our purpose in the present chapter is to review the three major approaches outlined above. While such a categorisation is analytically

⁴ Archibald, G.C., op. cit., pp. 9-10.

⁵ Williamson, O.E., The Economics of Discretionary Behaviour: Managerial Objectives in the Theory of the Firm, (Englewood Cliffs : Prentice Hall, 1963), p. 11.

⁶ See for example Cyert, R.M. and March, J.G., A Behavioural Theory of the Firm, (Englewood Cliffs: Prentice Hall, 1963), Simon, H.A., Models of Man, (New York: Wiley, 1964), and Marris, R. and Wood, A., (eds.), The Corporate Economy, (London : Macmillan, 1971).

⁷ Williamson, O.E., op. cit., p. 11.

⁸ See for example Baumol, W., Business Behaviour Value and Growth, (London: Macmillan, 1959), Williamson, O.E., op. cit., and Marris, R., The Economic Theory of "Managerial" Capitalism, (London : Macmillan, 1964).

useful and valid in broad terms it is often difficult to classify specific aspects of the theory in so rigorous a manner. The theory of oligopoly, for instance, defies any neat doctrinaire taxonomy. Moreover, we shall not attempt a complete review of the literature since such an undertaking would be so vast as to constitute a study in its own right. Rather we are interested in an overall perspective of the most important theoretical contributions to the study of the firm.

1.2 THE NEOCLASSICAL THEORY OF THE FIRM

In conventional economic theory the firm is a theoretical construct, an heuristic fiction, which is inseparably bound up with market structure. It has no observable real-world counterpart. The character of the firm in neoclassical analysis has been succinctly captured as follows:

"The firm in the theory of the firm has no precise legal or organisational significance; it is an abstraction, an idealised business form, a rational but bloodless entity which exists for the purely economic purpose of satisfying a want by providing a good or a service at a price."¹.

In his celebrated article on the topic, Machlup spelled out the

¹ Hiner, O.S., Business Administration, (London : Macmillan, 1969), p. 11.

purpose of the concept of the firm in traditional theory:

"The model of the firm in that theory is not, as so many writers believe, designed to serve to explain and predict the behaviour of real firms; instead it is designed to explain and predict changes in observed prices (quoted, paid, received) as the effects of particular changes in conditions (wage rates, interest rates, import duties, excise duty, technology, etc.). In this causal connection the firm is only a theoretical link, a mental construct helping to explain how one gets from the cause to the effect. This is altogether different from explaining the behaviour of a firm."²

In part the concept of the firm in neoclassical theory stems from the methodological basis which it adopts. It is generally acknowledged that orthodox theory is founded on contemporary logical positivism or "conventionalism", and more particularly an instrumentalist interpretation of that position.³ Broadly speaking, this means that the predictive capacity of theory is accorded the highest priority rather than the realism of a model or its assumptions. Friedman, a leading exponent of this position, has argued that "in general the more

² Machlup, F., p. 9.

³ Friedman, M., Essays in Positive Economics, (Chicago : Chicago University Press, 1962), he finds support from inter alia Machlup, F., The Economics of Sellers Competition, (Baltimore : John Hopkins Press, 1952) and Stigler, G.C., The Theory of Price, (Chicago : Chicago University Press, 1952). See also Boland, L., "Conventionalism and Economic Theory", Philosophy of Science, Vol. 37, 1970, pp. 239-248, Jones, E., "Positive Economics or What", Economic Record, Vol. 53, 1977, pp. 350-363, Bear, D. and Orr, D., "Logic and Expediency in Economic Theorising", Journal of Political Economy, Vol. 75, 1967, pp. 188-196, and Coddington, A., "Positive Economics", Canadian Journal of Economics, Vol. 51, 1972, pp. 1-15.

significant the theory, the more unrealistic the assumptions" and "to be important a theory must be descriptively false in its assumptions."⁴ It follows that neoclassical theory does not require a definition of the firm which corresponds to any observable real-world organisation.

In our discussion of the marginalist or neoclassical theory of the firm we shall follow the customary pattern as far as the need for brevity allows. Beginning with perfect competition and digressing into its rather more operational counterpart "workable" competition, we shall examine successively monopoly, monopolistic competition, and the theory of oligopoly. In addition, an attempt will be made to place the theory into some kind of historical context.

1.2.1 COMPETITION

The concept of competition has a long and pervasive history in economic theory. It has been remarked that competition is "... a principle so basic to economic reasoning that not even such powerful yet diverse critics of orthodox theory as Marx and Keynes could avoid relying upon it."¹ For this reason the scant attention paid to the notion of competition remains something of a paradox to historians. Indeed, as Stigler has suggested, "... it is a remarkable fact that the

⁴ Friedman, op. cit., p. 14.

¹ McNulty, P.J., "Economic Theory and the Meaning of Competition", Quarterly Journal of Economics, Vol. 82, 1968, p. 639.

concept of competition did not begin to receive explicit and systematic attention in the mainstream of economics until 1871."²

Despite its long-standing neglect in the earlier literature, it is nonetheless possible to distinguish between the meaning classical economists attached to competition and the views of their neoclassical descendants. To the classicists competition was seen as a force quite in its own right; Adam Smith, for instance, saw competition as present even within a monopolistic context.³ In contrast, the neoclassicists wedded the idea of competition to market structure, and this process ultimately led to Frank Knight's formulation of perfect competition in its modern version.⁴ For perfect competition to exist meant "... rational conduct on the part of the buyers and sellers, full knowledge, absence of frictions, perfect mobility and perfect divisibility of factors of production, and completely static conditions."⁵ An interesting feature of the perfectly competitive model is that there is no competition in the sense of rivalry; parametric pricing is the order of the day.

² Stigler, G.J., "Perfect Competition, Historically Contemplated", Journal of Political Economy, Vol. LXV, 1957, p. 1. Not all historians of economic thought agree. Blaug, for instance, notes "... primitive as is Smith's argument, he had shown earlier in the book that competition, by equalising rates of return and by eroding excess gains, leads to an optimum allocation of labour and capital between industries". See Blaug, M., Economic Theory in Retrospect, (3rd ed.), (Cambridge : Cambridge University Press, 1978), p. 59.

³ Smith, A., The Wealth of Nations, (Baltimore : Penguin, 1970).

⁴ Knight, F.A., Risk, Uncertainty and Profit, (London: L.S.E., Reprints of Scarce Tracts, No. 16, 1933).

⁵ Robinson, J., "What is Perfect Competition?", Quarterly Journal of Economics, 1934, p. 63.

Under a perfectly competitive regime price exactly equals marginal costs, and where there are no externalities, this will lead to an optimal allocation of resources.⁶ Given that the comparative static properties of the model are so well-known, we shall not explore them here.⁷ Despite the usefulness of perfect competition to the economic theorist, the concept has little operational content, especially in a world that is constantly changing.

Curiously, however, it was Knight's meticulous investigation of perfect competition "... that did most to drive home to economists generally the austere nature of the vigorously defined concept and so prepared the way for the widespread reaction against it in the 1930's."⁸ Chamberlin, for instance, drew a distinction between "pure" and perfect competition, where pure competition "... requires only the absence of monopoly ..." and which is characterised by a perfectly elastic demand curve confronting the individual firm.⁹ Stigler, on the other hand, removed the need for the assumption of perfect knowledge by proposing the more narrowly defined "market competition."¹ But the most innovative development was J.M. Clark's notion of workable or

⁶ This has been widely disputed. See, for instance, Mishan, E.J., Welfare Economics : An Assessment, (Amsterdam: North-Holland, 1969).

⁷ See, for example, Koutsoyiannis, A., Modern Microeconomics, (2nd ed.), (London: Macmillan, 1979).

⁸ Stigler, G.C., op. cit., p. 10.

⁹ Chamberlin, E., The Theory of Monopolistic Competition, (Cambridge: Harvard University Press, 1933), p. 6.

¹ Stigler, G.C., op. cit., p. 14.

effective competition.²

Adopting the premise that perfect competition "... does not and cannot exist, and has presumably never existed," Clark posited "... that a contribution might be made by attempting to formulate concepts of the most desirable forms of competition, selected from those that are practically possible, within the limits set by conditions we cannot escape."³ The essence of Clark's view of workable competition lies in rivalry; competition is thus not restricted to markets with a large number of participants:

"Competition is rivalry in selling goods ... under conditions such that the price or prices each seller can charge are effectively limited by the free option of the buyer to buy from a rival seller or sellers of what we think of as "the same" product, necessitating an effort by each seller to equal or exceed the attractiveness of others' offerings to a sufficient number of sellers to accomplish the end in view."⁴

A number of theorists have attempted to modify or extend this formulation of workable competition. Bain, for example, argued that "...

² Clark, J.M., "Towards a Concept of Workable Competition", American Economic Review, Vol. 21, 1940, pp. 241-256. Clark shifted from "workable" to its synonym "effective" competition - a term introduced by Wallace, D.H., "Industrial Markets and Public Policy: Some Major Problems in Public Policy", in Friedrich, C.J. and Mason, E.S., A Yearbook of the Graduate School of Public Administration, Harvard, (Cambridge, Mass: Harvard University Press, 1940), pp. 59-129.

³ Clark, J.M., op. cit., p. 241.

⁴ Ibid., p. 243.

in a primary sense workable (reasonably satisfactory) competition is revealed by, and is the result of whatever gives rise to, reasonably satisfactory or workable market performance - the criterion of 'workability' being enhancement of to a reasonable degree of the aggregate economic welfare".⁵ Sosnick has shown that almost all explanations of the concept involve criteria which may be categorised in terms of a structure-conduct-performance scheme.⁶ However, the practical applicability of many of the suggested norms has been questioned; for instance, how much is "some" uncertainty, when are marketing expenditures "excessive"? In this regard Stigler cynically remarks:

"To determine whether any industry is workably competitive, therefore, simply have a good graduate student write his dissertation on the industry and render a verdict. It is crucial to this test, of course, that no second graduate student be allowed to study the industry."⁷

In an effort to avoid predetermined criteria of too subjective a nature, Markham defined workable competition negatively in a policy-orientated manner:

⁵ Bain, J.S., Industrial Organisation, (New York: Wiley & Sons, 1959), p. 15.

⁶ Sosnick, S., "A Critique of Concepts of Workable Competition", Quarterly Journal of Economics, Vol. 72, 1958, pp. 380-423.

⁷ Stigler, G.C, "Report of Anti-trust Policy-Discussion", American Economic Review, Vol. 46, 1956, p. 505.

"An industry may be judged to be workably competitive when, after the structural characteristics of its market and the dynamic forces which shape them have been thoroughly examined, there is no clearly indicated change that can be effected through public policy measures that would result in greater social gains than social losses."⁸

It is clear however that such a definition is almost tautological, and certainly vague. Indeed, it would appear that currently there exists no acceptable and operational model of effective competition. What needs to be done has long been known:

"... if technological and institutional conditions are not compatible with pure competition and, at the same time, are not deemed to be such as to justify a public utility regulation of the firms in question, there arises a problem of defining an acceptable kind of competition in terms of market structure such that it can normally be expected to be accompanied by the kind of performance considered acceptable in the use of resources."⁹

That this question has not been satisfactorily settled is not to say that the concept of effective competition does not represent considerable progress in economic theory; rather it is implied that the concept requires further refinement.

⁸ Markham, J., "An Alternative Approach to the Concept of Workable Competition", American Economic Review, Vol. 40, 1950, pp. 349-361.

⁹ Mason, E.S., "The Current State of the Monopoly Problem in the United States", Harvard Law Review, Vol. 35, 1949, p. 28.

A different, though not separate line of criticism of the neoclassical notion of perfect competition has been developed by several writers who lay stress on the dynamic nature of competition.¹ Perhaps the most prominent is J.A. Schumpeter² who gave nurture to the idea of creative destruction. Adopting an historical perspective, Schumpeter denies the existence of a competitive epoch; "it is quite clear that perfect competition has at no time been more of a reality than it is at present."³ Furthermore, given the static character of the perfectly competitive model, it concentrates on "... how capitalism administers existing structures whereas the relevant problem is how it creates and destroys them."⁴ In addition, the traditional view of competition sees price as the dominant variable which distorts the very essence of the competitive process:

"But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organisation ... competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of existing firms but at their foundations and their very lives."⁵

¹ See, inter alia, Andrews, P.W.S., Manufacturing Business, (New York : Macmillan, 1949), Downie, J., The Competitive Process, (London : Duckworth, 1958), and Fellner, W., Competition Among the Few, (New York : Reprints of Economic Classics, 1965).

² Schumpeter, J.A., Capitalism, Socialism and Democracy, (12th ed.), (London : Allen and Unwin, 1970).

³ Ibid., p. 81

⁴ Ibid., p. 84.

⁵ Ibid., p. 84.

Such competition is omnipresent and constitutes the basis of the process of creative destruction; the continual creation and annihilation of economic structures. It confronts monopolists and others alike.

A similar line of criticism has been put forward by Lachmann. Arguing that time and knowledge are inseparably linked, Lachmann notes that "... competition is not a market form, but the very process by which one market form evolves into another.." Moreover, "... this process is identical with the spreading of knowledge, not only from producers to consumers, but also from producers to their rivals."*

One implication of effective competition, supplemented with the notion of creative destruction, is that attention is focused on non-price variables in a dynamic environment. It is thus ironic that in his analysis of non-price behaviour, J.K. Galbraith interpreted its outcome as non-competitive.⁶ The complexity, time and capital involved in modern production processes means that the firm cannot afford unstable demand patterns and fluctuating prices. In order to obtain a predictable market for its products, the firm manipulates consumer demand through careful marketing. The price mechanism is no longer the regulator of economic activity; it is replaced by extensive corporate planning.⁷ However, this does not imply that there are no restraints on the power of the seller. Indeed, "new restraints on private power did appear to replace competition ... (and) ... they were

* Lachmann, L.M., Capital, Expectations and the Market Process, (Kansas City: Sheed Andrews and McMeel, 1977), p. 145.

⁶ Galbraith, J.K., The New Industrial State, (London: Hamish Hamilton, 1967).

⁷ For a critique of Galbraith's thesis see, for instance, Allen, G.C., Economic Fact and Fantasy, (London: Institute of Economic Affairs, 1967).

large buyers dealing with a single seller provided an effective substitute for competition. In much the same way as competition, Galbraith perceives countervailing power as a self-generating process since "... the existence of market power creates an incentive to the organisation of another position of power that neutralises it."⁹ Whether countervailing power does exist is one thing, the measurement and appraisal of its effectiveness is another. For these reasons, the concept would appear to have little operational content.

In the words of Scherer "readers seeking a precise certain guide to public policy are bound to be disappointed."¹ While perfect competition is useful from a theoretical viewpoint, its value in the empirical analysis of real-world markets is dubious. The ideas of Schumpeter and Galbraith, although intellectually intriguing, have nevertheless not yet been sufficiently refined. On balance, and despite its obvious shortcomings, the notion of effective competition in a suitably adapted version must form the cornerstone of any examination of actual markets.

⁹ Ibid., p. 112.

¹ Scherer, F.M., Industrial Market Structure and Economic Performance, (New York: Rand McNally, 1980), p. 44.

1.2.2 MONOPOLY

Although the theory of monopoly has received widespread attention in the history of economic thought, and remains standard fare in most modern textbooks, an overwhelming number of economists doubt that the concept has any counterpart in the real world.² While classical writers believed "... the monopoly concept involved the notion of a seller with control over supply, protected from the possibility of others entering his market," more recent writers have emphasised price and cross-elasticities of demand. Lerner,³ for instance, notes that "technically this is expressed by saying that the monopolist is confronted with a falling demand curve for his product or that the elasticity of demand for his product is less than infinity." Stigler also distinguishes monopoly from other market forms on the basis of elasticity coefficients; "... if the cross-elasticity of demand for the output of this (monopolistic) firm with respect to the price of each other firm is small".⁴ Critics have argued that given the universality of substitution among goods a pure monopoly cannot exist.⁵ Sraffa noted that for a pure or "absolute" monopoly to

² Kirzner, I.M., Competition and Entrepreneurship, (Chicago: Chicago University Press, 1973), p. 101.

³ Lerner, A., "The Concept of Monopoly and the Measurement of Monopoly Power", Review of Economic Studies, 1943, p. 157.

⁴ Stigler, G.J., The Theory of Price, (London: Macmillan, 1966), p. 198.

⁵ See, for example, Triffin, R., Monopolistic Competition and General Equilibrium Theory, (Cambridge: Harvard University Press, 1940). It is argued that since leisure is a substitute for all goods, should the price of a commodity rise then people will substitute leisure for it.

exist, the price elasticity of the demand curve confronting it must equal unity.⁶ The pricing decisions of the monopolist must be independent in the sense that a change in relative prices should not constrain his profit maximising potential. Since this is never true in the real world, it is posited that monopoly is an inappropriate tool of analysis for the examination of actual markets.

This line of argument is open to criticism. Olson and McFarland contend that "the extent to which a firm must consider the effects of its actions on the state of the market is a much more significant factor in distinguishing types of market structure than the elasticity or cross-elasticity of demand." Consequently, monopoly may be defined as "the case where the effect of a firm's action on the market is so great that it alone determines the state of the market."⁷ Kirzner, on the other hand, disputes the notion of monopoly as the sole seller of a commodity; rather "... monopoly means for us the position of a producer whose exclusive control over necessary inputs blocks competitive entry into the production of his products."⁸ Clearly this conception of monopoly is very close to the classical view. Other writers prefer to de-emphasise price in the study of monopoly and instead examine "... the

⁶ Sraffa, P., "The Laws of Diminishing Returns Under Competitive Conditions", Economic Journal, Vol. 36, 1926, p. 545.

⁷ Olsen, M. and McFarland, D., "The Restoration of Pure Monopoly and the Concept of the Industry", Quarterly Journal of Economics, Vol. 76, 1962, p. 620.

⁸ Kirzner, I.M., op. cit., p. 103.

determination of equilibrium patterns of contract."⁹ In this regard it is hypothesised that monopoly leads to inefficient contracts.¹

However, perhaps the most effective reply to critics who deny the validity of monopoly theory lies in the realm of methodology. In a certain sense the rejection of the concept of pure monopoly amounts to a rejection of partial equilibrium analysis as a legitimate method of inquiry in economic science. While the denial of the actual physical existence of pure monopoly per se is not at issue, this does not necessarily mean that the concept has no practical applications. If one dismisses partial equilibrium analysis as inappropriate in the case of monopoly, then why not also for perfect competition?

Although the definition of monopoly has been the source of much debate, there has been a surprising degree of consensus on the development of the model itself. Kirzner, for instance, notes :

"Despite this lack of unanimity on assigning a precise definition to the notion of monopoly, the formal analysis of the monopolised market has been pursued with relatively little disagreement. As with the perfectly competitive market, the analysis of the monopolised market has invariably revolved round the theory of the firm."²

⁹ Foldes, L., "Some Comments on the Theory of Monopoly", in Peston, M. and Corry, B., Essays in Honour of Lord Robbins, (London: Weidenfeld, 1972), p. 65.

¹ See, for example, Machlup, F. and Taber, M., "Bilateral Monopoly, Successive Monopoly, and Vertical Integration", Economica, Vol. 51, 1960, pp. 29-34.

² Kirzner, I.M., op. cit., p. 101.

Given the agreement on the comparative static properties of monopoly, and its pure, discriminating and bilateral monopoly variants, it is unnecessary for us to discuss them here.³ Rather let us turn our attention to the question of monopolistic competition.

1.2.3 MONOPOLISTIC COMPETITION

Until the advent of the 1920's, the economics profession held the dominant view that markets were either competitive or monopolies. While this belief was the subject of increasing scepticism,¹ it was only in 1933 with Chamberlin's Theory of Monopolistic Competition and, to a lesser extent,² Robinson's Economics of Imperfect Competition, that a new theory arose to challenge the prevailing orthodoxy.³ The effect of monopolistic competition on microeconomic theory was pervasive; indeed, it "... was the major contribution to price theory which set in motion the systematic development of the modern field of industrial

³ For a rigorous exposition of the formal model see Koutsoyiannis, A., Modern Microeconomics, (London: Macmillan, 1979).

¹ Prior to the work of Chamberlin, a number of dissident voices had already been raised in anger against the received doctrine. See Samuelson, P.A., "The Monopolistic Competition Revolution", in Mansfield, E., Microeconomics: Selected Readings, (New York: Norton, 1979), pp. 344-355.

² Joan Robinson's volume has been cogently argued to be "... in no sense revolutionary". See Stigler, G.J., Five Lectures on Economic Principles, (London: L.S.E., 1949).

³ Chamberlin, E.H., The Theory of Monopolistic Competition, (Cambridge: Harvard, 1933), and Robinson, J., Economics of Imperfect Competition, (London: Macmillan, 1933).

organisation."⁴

Noting that "... monopoly and competition are very generally regarded, not simply as antithetical, but as mutually exclusive", Chamberlin proposed "neither force excludes the other, and more often than not both are requisite to an intelligible account of prices."⁵ The fundamental reason for this lies in the phenomenon of product differentiation:

"A general class of product is differentiated if any significant basis exists for distinguishing the goods (or services) of one seller from those of another. Such a basis may be real or fancied, so long as it is of any importance whatever to buyers, and leads to a preference for one variety of the product over another."⁶

Since "... virtually all products are differentiated ..." therein resides at least some monopoly power for almost all sellers. However, because most goods have reasonably close substitutes which fall within the same product group, and if entry to the group is assumed to be

⁴ Bain, J.S., "The Impact on Industrial Organisation", American Economic Review, Vol. 54, 1964, p. 32.

⁵ Chamberlin, E.H., (7th ed), op. cit., p. 57.

⁶ Ibid., p. 56.

reasonably free, then atomistic competition will prevail. In this sense competition and monopoly can co-exist within the same market. And a determinate equilibrium set of prices and outputs will result:

"Monopolistic competition, then, concerns itself not only with the problem of an individual equilibrium (the ordinary theory of monopoly), but also with that of a group equilibrium (the adjustment of economic forces within a group of competing monopolists, ordinarily regarded as merely a group of competitors).⁷

The theory of monopolistic competition has been subjected to severe criticism, particularly from the so-called Chicago School.⁸ A number of writers attacked the concept of a product group on several counts. Chamberlin's uniformity assumption, involving identical demand and cost curves for all firms in the group, encounters the difficulty of comparing units of output that are physically dissimilar. Furthermore, the problem of defining a competing group with heterogenous products is perplexing given the existence of a multitude of substitutes; for example, must one arbitrarily assign a certain value to the coefficients of the cross-elasticity of demand. Triffin conceded the arbitrary nature of the concept, but nonetheless defended its value in empirical work:

⁷ Ibid., p. 69.

⁸ See for example, Stigler, G.J., op. cit., Friedman, M., Essays in Positive Economics, (Chicago : Chicago University Press, 1953), chapter. I, and Bishop, R.L., "The Theory of Monopolistic Competition After Thirty Years: Impact on General Theory", American Economic Review, Vol. 54, 1964, pp. 33-43.

"... when competition is discussed in general abstract terms, we may just as well make the group (or industry) coextensive with the whole economic collectivity. The problems are the same, and the complexity is no greater. In other words, the value of these groupings is only a concrete empirical one: it is never useful to speak of 'industries' or 'groups' in a general, abstract way ..."⁹

A rather different line of criticism has been directed at the predictive content of the model; more specifically, the paucity of its predictions. Indeed, Archibald has argued that "all I can claim is that it yields, so far as I can discover, no qualitative comparative static predictions, and that this is the consequence of a general defect, the incomplete specification of demand relationships within the group."¹ Even the few predictions the theory does render have been questioned. For instance, the oft-cited excess capacity theorem, which states that since demand is downward-sloping firms are forced to produce with idle capacity, has been disputed. Friedman rejects the behavioural significance of the tangency between demand and average cost, and dismisses "... the alleged implications about 'excess capacity and unexploited economies of scale' - with or without advertising - (as)

⁹ Triffin, R., Monopolistic Competition and General Equilibrium Theory, (Cambridge: Harvard University Press, 1941), p. 88. See also Kaldor, N., "Market Imperfection and Excess Capacity", Economica, 1935, pp. 35-50.

¹ Archibald, G.C., "Chamberlin versus Chicago", Review of Economic Studies, Vol. 29, 1961, p. 19. But see also Hadar, J., "On the Predictive Content of Models of Monopolistic Competition", Southern Economic Journal, Vol. 36, 1969, pp. 67-73.

highly misleading if not downright wrong."²

Despite all the criticism it has received, the theory of monopolistic competition nonetheless represents a giant leap forward in microeconomics; it made possible a much more sophisticated classification of markets than the old bi-polar competition-monopoly dichotomy. By its explicit introduction of product differentiation the theory has added a new dimension to market structure. Economists now recognise that structure has two components, market concentration and product variation.

1.2.4 OLIGOPOLY

Oligopoly and its special case of duopoly, has developed a reputation as the intellectual graveyard of that aspect of microeconomics concerned with resource allocation. Some of the most distinguished theorists in economic science have met their metaphorical fates in this complex area of conjecture. Traditionally an oligopolistic market has been viewed as one dominated by a "few" producers whose behaviour is characterised by a strong perception of their interdependence. It is this latter aspect which has confounded theoreticians, and which explains the plethora of models purporting to elucidate oligopoly. Furthermore, real-world oligopolistic conduct suggests no

² Friedman, M., "More on Archibald versus Chicago", Review of Economic Studies, Vol. 30, p. 66. Also Call, S.T. and Holahan, W.L., Microeconomics, (Belmont: Wadsworth, 1980), chapter 12.

readily discernible norm. Scherer has expressed the problem eloquently:

"Economists have developed literally dozens of oligopoly pricing theories - some simple, some marvels of mathematical complexity. This proliferation of theories is mirrored by an equally rich array of behavioural patterns actually observed under oligopoly. Casual observation suggests that virtually anything can happen. Some oligopolistic industries appear to maintain prices approximating those a pure monopoly would find most profitable. Others gravitate towards price warfare."¹

The literature on oligopoly can be classified in various ways, not all of which are particularly helpful. Some commentators have distinguished between determinate and indeterminate models,² whilst others differentiate models which take explicit cognisance of interdependence from those which deny it a role.³ It is also possible to dichotomise theories of oligopoly as either competitive or co-operative.⁴ Some theories have laid stress on the oligopolistic structure of an industry per se whereas others have emphasised barriers to entry.⁵ We shall not make use of any of these classifications

¹ Scherer, F.M., Industrial Market Structure and Economic Performance, (Chicago : Rand McNally, 1980), (2nd ed.), p. 151.

² See, for example, Rothschild, K.W., "Price Theory and Oligopoly", Economic Journal, Vol. 57, 1947, pp. 299-300.

³ Silberton, A., "Price Behaviour of Firms". Economic Journal, Vol. 80, 1970, pp. 511-582.

⁴ See Pickering, J.F., Industrial Structure and Market Conduct, (London: Martin Robertson, 1974), p. 254.

⁵ See Bain, J., Industrial Organisation, (New York: Wiley, 1959).

however, since a comprehensive survey of the theory of oligopoly is quite impossible here given the vastness of the literature. Rather, we shall overview some of the more salient aspects of the topic.⁶

The classical theories of oligopoly generally confined themselves to analysing duopoly without the threat of entry where only homogenous products were traded. While this approach did yield determinate solutions, the major weakness of Cournot, Bertrand and others lay not so much in their simplicity as in the naive assumption of unresponsive competitors. Stackelberg did introduce an element of realism in his leadership - followership models, but when reactive behaviour is allowed indeterminacy results. It is now widely recognised that the classical duopoly approach was not particularly fruitful, and modern theorists appear to have abandoned it altogether.

In contrast to the classical models, which aimed at explaining the level of price, the so-called kinked demand curve theory serves as an explanation for the observed stability of prices in oligopolistic markets.⁷ Indeed, it is precisely this aspect of the theory that was most severely attacked; critics argued that the purpose of price theory was the accurate prediction of the level of price.⁸ To an extent this

⁶ For a comprehensive survey see Scherer, F.M., op. cit., pp. 151-267, and Blair, J.M., Economic Concentration, (New York: Harcourt Brace, 1972), pp. 405-549.

⁷ The model was developed almost simultaneously by Hall, R.L. and Hitch, C.I., "Price Theory and Business Behaviour", Oxford Economic Papers, 1939, pp. 12-45, and Sweezy, P., "Demand under Conditions of Oligopoly", Journal of Political Economy, 1939, pp. 568-737.

⁸ Silberton, A., op. cit., p. 519.

criticism does not do full justice to the Hall and Hitch variant of the model which explains the initial price level in terms of full cost doctrine. Perhaps a more telling criticism is the apparent empirical invalidity of the model.⁹

In any event, the advent of game theory almost totally eclipsed the kinked demand model.¹ The game theoretic approach focuses on the interdependency aspect of the oligopolistic situation, and allows for a sophisticated analysis of the strategic behaviour of firms. Emphasis is placed on policy considerations with moves and counter-moves by rivals summarised in terms of "minimax" solutions. While the application of game theory to the study of economic life does not seem to have fulfilled its early promise, some progress has been made; Shubik's theory of economic survival, for example, is an interesting development of the game theoretical approach, as is the work of Telser.²

A fascinating sequel to game theory has been the investigation of suboptimal outcomes under conditions of incomplete information which are encapsulated in the so-called Prisoners' Dilemma games.³ In

⁹ See Stigler, G.J., "The Kinky Oligopoly Demand Curve and Rigid Prices", Journal of Political Economy, 1947, pp. 432-449.

¹ Von Neumann, J. and Morgenstern, O., Theory of Games and Economic Behaviour, (Princeton: Princeton University Press, 1947).

² Shubik, M., Strategy and Market Structure: Competition, Oligopoly and the Theory of Games, (New York: Wiley, 1959); Telser, L.G., Competition, Collusion, and Game Theory, (Chicago: Aldine-Atherton, 1972).

³ See, for instance, Luce, R.D. and Raiffa, H., Games and Decisions, (New York: Wiley, 1957).

particular, Schelling has explored variable-sum games where participants are able to manipulate the outcome of potentially conflicting situations by means of negotiation.⁴ In a word "viewing conflicting behaviour as a bargaining process is useful in keeping us from becoming exclusively preoccupied either with the conflict or with the common interest."⁵ This approach has encouraged the empirical examination of decision-making under laboratory conditions the results of which are as yet uncertain.⁶

More in the mainstream of economic thought has been the idea that in their attempts to maximise profits oligopolists endeavour to co-ordinate their actions in the market place.⁷ Consequently a number of theorists have analysed oligopoly in order to establish how such co-operation will manifest itself and under what conditions it will flourish. The emphasis is placed on relationships between firms already in the market, and the role of entry is disregarded. Collusion, whether formal or tacit, has long been recognised as a method of securing monopoly profits for an oligopolistic industry, and as been legislated against in most countries. The range of collusive devices is limited only by human ingenuity and the technologically available means of

4 Schelling, T.C., The Strategy of Conflict, (Cambridge: Harvard University Press, 1960).

5 Ibid., p. 5.

6 See Friedman, J.W., "On Experimental Research in Oligopoly", Review of Economic Studies, Vol. 36, 1969, pp. 399-415, and Sherman, R., Oligopoly: An Experimental Approach, (Toronto: Heath, 1972).

7 Fellner, W., Competition Among the Few, (New York: Knopf, 1949).

communication.⁸

Given the generally illegal nature of collusive practices, firms have sought other ways of co-ordinating their pricing strategies. Foremost amongst these is price leadership where one firm acts as a surrogate for the industry and assumes the role of initiating price changes which the other firms imitate. Theorists have distinguished two main types of price leadership; dominant firm, and barometric.⁹ In the dominant firm model the largest firm in the industry sets its price on the assumption that potential demand is merely total industry demand less the quantity other smaller firms are capable of producing. It is obvious that the interdependency aspect of oligopoly is ignored in this context.¹ Barometric price leadership, on the other hand, occurs where a firm is unable to impose its will on the rest of the industry but nonetheless is followed because its decisions reflect market forces or the aspirations of other member firms in the industry. While it is often extremely difficult to differentiate in practice between the two variants of price leadership, parallel pricing is usually taken as prima facie evidence of its existence.²

⁸ See, for instance, Stocking, G.W. and Watkins, M.W., Cartels in Action, (New York: Twentieth Century Fund, 1947), and Mouton, D.J., The Behaviour of the Firm and the Problem of Restrictive Trade Practices, (Pretoria: Van Schaik, 1974).

⁹ See Markham, J.W., "The Nature and Significance of Price Leadership", American Economic Review, Vol. 41, 1951, pp. 891-905.

¹ Furthermore this is likely to be an unstable model unless decreasing returns to scale is present. See Worcester, D.A., "Why 'Dominant Firms' Decline", Journal of Political Economy, Vol. 65, 1957, pp. 338-46.

² See Markham, J.W., op. cit., p. 891, and Turner, D.F., "The Definition of Agreement under the Scherman Act: Conscious Parallelism and Refusals to Deal", Harvard Law Review, Vol. 75, 1962, p. 665.

In addition to price leadership other factors may be present which will also reinforce a tendency toward co-operative behaviour in oligopolistic situations. The widespread use of so-called rules of thumb for determining prices, typically in the form of full cost or average-cost principles, allows for predictable co-ordinated behaviour to take place.³ Other, more subtle methods of co-operation have been suggested. In the event of an increase in demand, for instance, it has been argued that oligopolists will allow inventories to fall and order backlogs to increase rather than adjust prices for fear of price warfare.⁴ Price-lining, when viewed from the perspective of focal point theory, has also been offered as a form of covert communication.⁵ Some writers have stressed the importance of non-economic variables in this regard.⁶ Social pressure, for instance, often during industrial conferences or trade association meetings, may be employed to persuade particular firms not to upset oligopolistic arrangements.

Just as certain conditions facilitate collusive behaviour amongst oligopolists, so other factors exist which create incentives for competitive behaviour. Theorists have identified a number of structural

3 Heflebower, R.B., "Full Costs, Cost Changes, and Prices", in N.B.E.R. report Business Concentration and Price Policy, (Princeton: Princeton University Press, 1955), pp. 361-396. See also Appendix 1.

4 See, for example, Hay, G.A., "Production, Price and Inventory Theory", American Economic Review, Vol. 60, 1970, pp. 531-545.

5 Scherer, F.M., op cit., pp. 190-193. Price-lining is the practice of choosing odd pricing points such as R1.99 or 99c. The price acts as a signal or focal point to rival firms.

6 See Phillips, A., Market Structure, Organisation and Performance, (Cambridge: Harvard University Press, 1962).

variables which are deemed likely to have this effect. The number and size distribution of firms is hypothesised as being significant, with the obvious addendum that the greater the number of participants the higher the probability of competition rather than collusion.⁷ The nature and extent of product heterogeneity is thought to have a similar impact since qualitative variation induces "... a mist of uncertainty behind which moderate price differences may arise and be varied."⁸ It is widely held that occurrence of interfirm cost differentials within an oligopolistic industry will mitigate collusion; more specifically, firms with relatively high fixed costs are believed to be prone to price cutting.⁹ Institutional arrangements which expedite secrecy in contracting, such as sealed-bid competitions, act as an incentive for competition.¹ Some writers also see structural factors in the pattern of demand as being conducive to competition. It is argued, for instance, that while small frequent orders discourage price shading, large irregular purchases promote competition.²

Thus far we have dealt with theories of oligopoly whose purpose was to explain the behaviour of existing firms within an industry. If

7 Fellner, W., op. cit.

8 Abbot, L., Quality and Competition, (New York: Columbia University Press, 1955), p. 210.

9 Fog, B., Industrial Pricing Policies: An Analysis of Pricing Policies of Danish Manufacturers, (Amsterdam: North-Holland, 1960).

1 Weiss, L.W., Economics and American Industry, (New York: Wiley, 1961), pp. 295-298.

2 See, for example, Richardson, G.B., "The Pricing of Heavy Electrical Equipment: Competition or Agreement", Bulletin of the Institute of Economics and Statistics, Vol. 28, 1966, pp. 73-92.

the oligopoly problem is viewed from a more dynamic long-run perspective, then the question of potential competition or the entry of new firms into the market clearly becomes relevant. Research in this direction has taken two forms; essentially empirically based work on entry to an industry, and theoretical studies into limit or entry-pricing.³ The former approach has emphasised condition of entry;⁴ that is, the ease with which new producers can establish themselves profitably within a given market.⁵ This line of enquiry has led to an extensive investigation of barriers to entry or "... obstacles preventing new firms from engaging in the production of a particular category of output."⁶ It is possible to distinguish between three main types of barriers to entry; absolute cost advantages, product differentiation barriers and scale economy barriers.⁷ The importance of barriers is still at issue, and currently no general consensus exists in the profession.⁸

³ See Baron, D.P., "Limit Pricing, Potential Entry, and Barriers to Entry", American Economic Review, Vol. 63, 1973, pp. 666-674.

⁴ Bain, J.S., op. cit., p. 237.

⁵ Some controversy exists as to whether entry implies new firms or only increased output by existing firms. See Stigler, G.J., The Organisation of Industry, (Homewood: Irwin, 1968), pp. 67-70.

⁶ Needham, D., Economic Analysis and Industrial Structure, (New York: Holt, 1970), p. 97.

⁷ See Bain, J.S., Barriers to New Competition, (Cambridge: Harvard University Press, 1965).

⁸ Andrews, for example, disputes Bain's conclusions. See Andrews, P.W.S., On Competition in Economic Theory, (London: Macmillan, 1964).

The theory of limit pricing has received considerable attention in the literature.⁹ Bain's model examines the pricing behaviour of collusive firms in an industry characterised by barriers to entry which attempt to set the highest possible price which will not induce entry.¹ The underlying rationale is the maximisation of long-run profits. Sylos-Labini developed a more restrictive model which considered the impact of entry on homogeneous oligopolistic equilibrium and explained the determinants of the limit price.² Briefly, these are believed to be the absolute size of the market, the elasticity of market demand, technology and plant size, and the cost of production factors. The upshot of the model is that the highest entry-preventing price emerges as the equilibrium price. Modigliani dropped some of the more restrictive assumptions of the theory, and generalised its results.³ However, he retained the so-called Sylos Postulate which requires that existing firms maintain constant output in the face of entry, and consequently must contend with similar criticism.⁴ The

⁹ For surveys of the literature see Osborne, D.K., "The Role of Entry in Oligopoly Theory", Journal of Political Economy, Vol. 72, 1964, pp. 396-402, and Pyatt, G., "Profit Maximisation and the Threat of New Entry", Economic Journal, Vol. 81, 1971, pp. 242-255.

¹ Bain, J.S., "A Note on Pricing in Monopoly and Oligopoly", American Economic Review, Vol. 29, pp. 448-464.

² Sylos-Labini, P., Oligopoly and Technical Progress, (Cambridge: Harvard University Press, 1957).

³ Modigliani, F., "New Developments on the Oligopoly Front", Journal of Political Economy, Vol. 66, 1958, pp. 215-232.

⁴ See, for example, Gaskins, D.W., "Dynamic Limit Pricing: Optimal Pricing Under Threat of Entry", Journal of Economic Theory, Vol. 3, 1971, pp. 306-322.

model was further extended to include a dynamic context⁵ with the explicit treatment of time.⁶ An interesting aspect of the theory of limit pricing is the almost universal adoption of the full-cost doctrine.⁷

In contrast to the established theory on entry which focuses on price determination to exclude new firms altogether, more recent work develops the possibility of setting prices above the short-run limit and allowing some long-run entry. It is argued that such a strategy may induce higher profits, and at least some favourable evidence has been found for the hypothesis.⁸

In sum, it is evident that while a rich variety of theoretical approaches to the problem of oligopoly have come into being, there is as yet no generally accepted cohesive body of theory; piecemeal advances have been made but this nonetheless does not represent a wholly successful offensive. Whilst the causes for this are complex, the neoclassical assumption of profit maximisation has been singled out as being particularly stultifying. Consequently a number of theoreticians

⁵ Bhagwati, J.N., "Oligopoly Theory, Entry-Prevention and Growth", Oxford Economic Papers, Vol. 22, 1970, pp. 297-310.

⁶ Pashigian, B.P., "Limit Price and the Market Share of the Leading Firm", Journal of Industrial Economics, Vol. 16, 1968, pp. 165-177.

⁷ See Silberston, A., op. cit., p. 522.

⁸ See, for instance, Orr, D., "The Determinants of Entry: A Study of the Canadian Manufacturing Industry". Review of Economics and Statistics, Vol. 56, 1974, pp. 58-66.

have explored more broadly defined managerial models to which we now turn our attention.

1.3 THE MANAGERIAL THEORY OF THE FIRM

1.3.1 INTRODUCTION

Managerial theories of the firm are essentially oligopolistic except insofar as they ignore the rivalrous interdependency so characteristic of the orthodox approach. All managerial models are centred on the notion that the distinguishing feature of the modern corporation is the divorce of ownership from control. The impetus for this view derives from the pioneering work of Berle and Means¹ in the early thirties. Four important propositions emerged from this monumental study; an increasing concentration of economic power in a few large corporations, corporate management fell "under the centralised control of small self-perpetuating groups of professional managers with small personal ownership of the assets they control"², because of the tendency towards internal financing the disciplines of the capital market were becoming ineffectual, and finally, they noted the development of a distinct "social conscience" on the part of management. The

¹ Berle, A.A. and Means, G.C., The Modern Corporation and Private Property, (London: Macmillan, 1932).

² Wildsmith, J.R., Managerial Theories of the Firm, (London: Martin Robertson, 1973), p. 2.

net impact of these forces provided management with a sufficient degree of discretion to deviate from profit maximisation and instead pursue other goals. Management seeks to maximise its own utility while shareholders must be content to satisfice theirs.

If profit maximisation is perceived as only one of many plausible corporate objectives then the crucial question arises as to what do constitute the actual goals of the firm. It is precisely this issue and the wide range of possible answers it provokes which explains the multitude of different managerial theories. The infinite potential inherent in the specification of the preference function of management has provided vast scope for theorists. Ironically, perhaps the only area of agreement is the recognition that profit must somehow be included.

Given the attempt by managerial theorists to embrace more "realistic" goals into the analysis of the firm, a methodological vehicle rather different from the one employed by orthodox theory is required. Although neoclassicism and managerialism both embody contemporary logical positivism or conventionalism, the latter approach adopts a descriptionist variant of that position. In other words, theory is viewed as an approximation and not an explanation of reality, since : " every description that is superseded by a 'deeper explanation' turns out upon careful examination to have been replaced by still another description."³

³ Rosenberg, A. Microeconomic Laws : A Philosophical Analysis, (London : Feffer and Simmons, 1976), p. 171.

Given the large number of managerial theories of the firm it is not possible, nor indeed profitable, for our purposes to attempt a detailed review. Rather we shall examine the most widely known models in historical sequence, and then venture to glean some of the more important insights which they offer by means of a comparative overview.

1.3.2 BAUMOL'S THEORY OF REVENUE MAXIMISATION⁴

Baumol's theory of sales revenue maximisation has at its core two fundamental behavioural assumptions. Revenue maximisation is seen as the primary concern of corporate management subject to the attainment of a level of profit acceptable to shareholders. Baumol's chief justification for this is apparently intuitively based : "In my dealings with them I have been struck with the importance which the oligopolistic enterprises attach to the value of their sales."⁵ However, he does advance a number of reasons why the maximisation of revenue is the central concern of management rather than some other variable.⁶ In addition, the model ignores the question of oligopolistic interdependence; "I shall take the position that, in day-to-day decision-making,

⁴ See Baumol, W.J., Business Behaviour, Value and Growth, (New York : Macmillan, 1959).

⁵ Ibid., p. 45.

⁶ Inter alia, managerial income is most closely connected with sales, financial institutions regard sales as a key variable, increasing sales facilitate the smooth operation of company personnel policy, and managerial prestige bears a definite relationship to sales volume. See Ibid., chapter 6.

oligopolistic interdependence plays only a small role"⁷ and "... even in fairly crucial decisions, and almost always in routine policy-making, only the most cursory attention is paid to competitive reactions."⁸ Again Baumol outlines supportive arguments in defence of this assertion.⁹

In Baumol's basic model the objective of the firm is to maximise sales subject to a minimum profit constraint which is exogenously determined insofar as " ... each company's minimum rate of profit is set competitively in terms of the current market value of its securities."¹ Within the model itself profit is equivalent to the difference between total revenue and total cost, and is denoted by a total profit curve. The basic static model can be illustrated graphically:

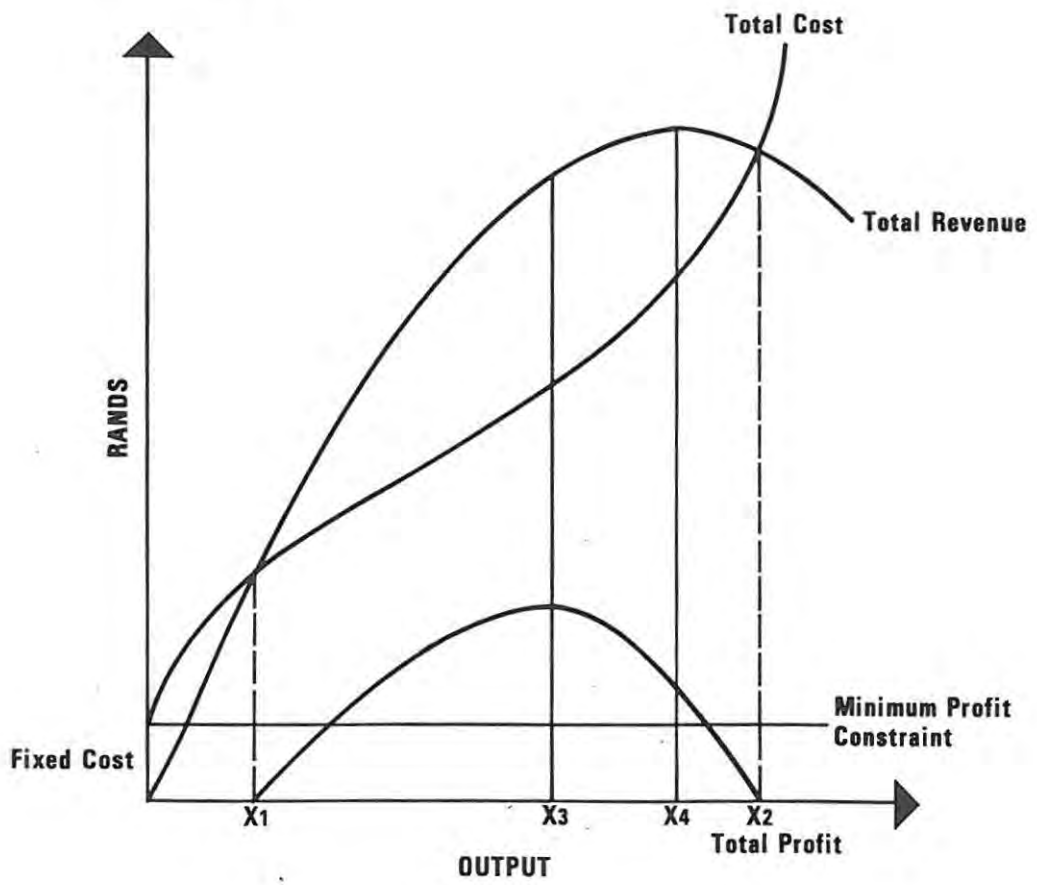
⁷ Ibid., p. 27.

⁸ Ibid., p. 28.

⁹ Briefly, these involve the complexity of the internal organisation of the firm, the frequent use of rules of thumb in decision-making, and management's desire for the "quiet life". See Ibid., chapter 4.

¹ Ibid., p. 51.

FIGURE 1.



Profits will occur only between levels of output x_1 and x_2 , while x_3 represents the profit-maximising output. Sales revenue, on the other hand, will be maximised at output x_4 since at that point the total revenue curve reaches its peak. This level of output will allow the firm to satisfy both the profit constraint and its revenue maximisation objective. The minimum profit constraint in this instance is therefore inoperative. Should the profit constraint intersect the total profit curve before output x_4 , then the firm will be constrained in its attempt to maximise revenue. Here the minimum profit constraint would thus be operative. It is consequently obvious that the firm's attainment of its goal of sales revenue maximisation is dependent upon the level at which the minimum profit constraint is set. Baumol himself notes "... that two types of equilibria appear to be possible; one in which the profit constraint provides no effective barrier to sales maximisation, and one in which it does."²

The predictions of the basic static model provide an interesting contrast to those of the orthodox theory, especially when the profit constraint is operative.³ With respect to the profit-maximising firm, the revenue maximiser will produce a higher level of output, charge lower prices and earn less profit. Unlike the traditional firm, it will respond to an increase in fixed costs in the short-run by reducing

² Ibid., p. 55.

³ For a detailed account of these predictions see Koutsoyiannis, A., Modern Microeconomics, (2nd ed.), (London : Macmillan, 1976), ch. 15, and Yarrow, G.K., "On the Predictions of Managerial Theories of the Firm", Journal of Industrial Economics, Vol. XXIV, No. 4. pp. 267-279.

output and raising price. For an increase in variable cost the revenue maximising firm will increase price and decrease output more than its profit-maximising counterpart ceteris paribus.

While in an oligopolistic market firms sometimes compete in terms of price, Baumol insists that usually competition will occur in other forms; " ... typically the oligopolist's competitive strategy is planned in terms of advertising outlay, product modification, and special services offered to the buyer."⁴ Consequently the advertising budget of the firm is explicitly introduced into the analysis although " ... the analogy with service and product characteristic planning is fairly clear and certainly suggestive."⁵ In his treatment of advertising, Baumol makes the critical assumption that an increase in advertising expenditure will always increase sales; that is, the marginal revenue from advertising is always positive. In essence, this means that total revenue is perpetually rising albeit at diminishing rates since price is held constant.⁶ Baumol's handling of cost is also significant; production costs are held to be independent of the size of the advertising budget, and it is asserted that this "simplifies but does not invalidate the argument."⁷ Advertising costs are repre-

⁴ Baumol, W.J., op. cit., p. 59.

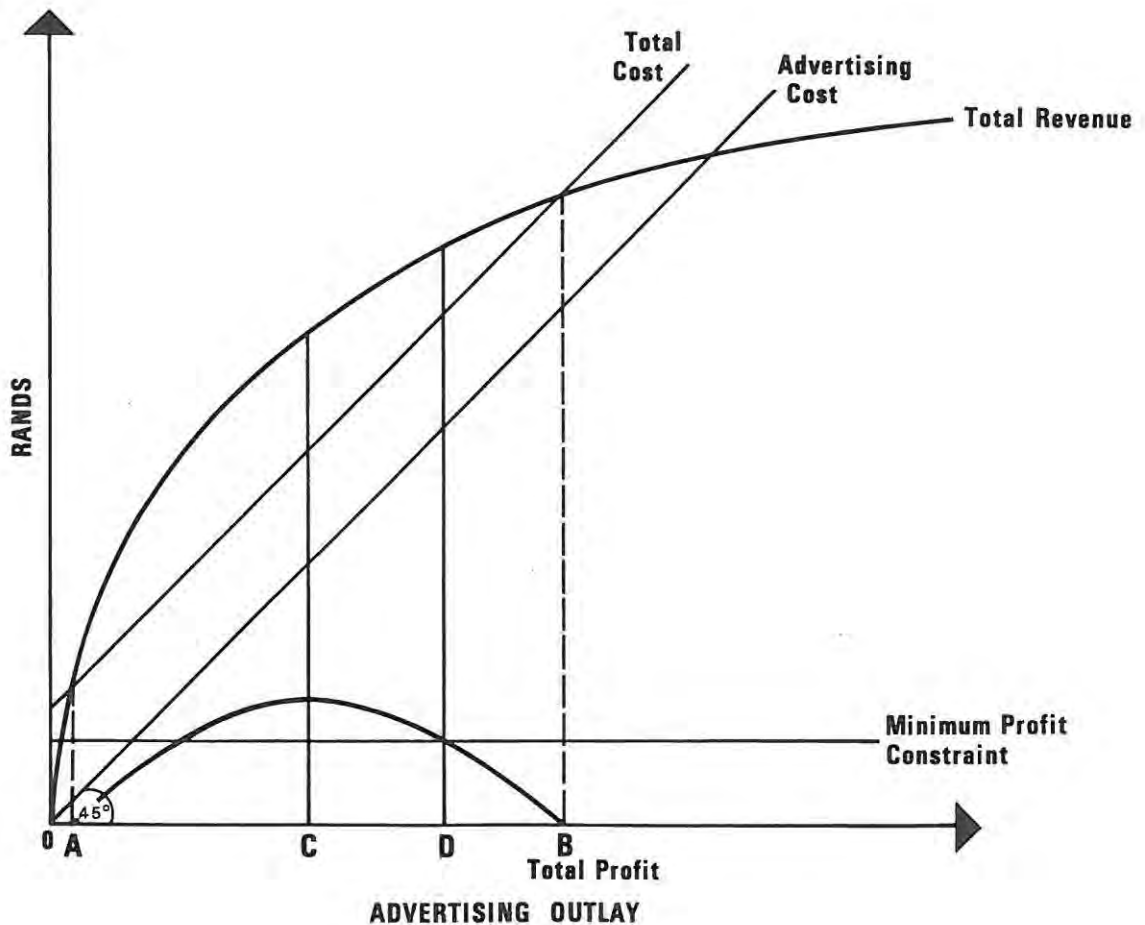
⁵ Ibid., p. 59.

⁶ This assumption may be relaxed. See Sandmeyer, R.L., "Baumol's Sales-Maximisation Model : Comment", American Economic Review, Vol. 54, 1964, pp. 1073-80 and also Haveman, R. and Debartolo, G., "The Revenue-Maximisation Oligopoly Model : Comment", American Economic Review, Vol. 58, 1968, pp. 623-34.

⁷ Baumol, W.J., op. cit., p. 61.

sented graphically by a 45° line, and all other costs are simply added vertically to this so as to provide the total cost function. Total profit is once again merely the difference between total revenue and total cost. The overall position may be depicted diagrammatically as follows :

FIGURE 2.



Profits are earned when the level of advertising expenditure falls between OA and OB, while profit-maximising expenditure is OC. Given the minimum profit constraint, OD represents the revenue-maximising level of advertising outlay. In contrast to the basic model, only a constrained revenue maximisation equilibrium is possible since by assumption advertising will always increase total revenue. Thus " ... it will always pay the sales maximiser to increase his advertising outlay until he is stopped by the profit constraint."⁸ It is obvious that the model predicts that sales revenue-maximising firms will spend more on advertising than their profit-maximising counterparts.⁹

Baumol extended the static revenue maximisation model to include a multiperiod analysis. A dynamic model was necessary because " ... maximisation of rate of growth of sales revenue seems a somewhat better approximation to the goals of many management groups in large firms than is the maximisation of the current level of sales."¹ The most important innovation made in the dynamic model is the endogenous determination of the profit constraint. Since the predictions of the multiperiod model " ... are completely analogous with those of the static,"² it is not necessary for our purposes to investigate it in detail.

⁸ Ibid., p. 61.

⁹ See Horowitz, I., Decision-making and the Theory of the Firm, (New York : Holt, 1970), pp. 297-298.

¹ Baumol, W.J., "On the theory of the expansion of the firm", in Archibald, G.C., (ed.) The Theory of the Firm, (Harmondsworth : Penguin, 1971), p. 324.

² Ibid., p. 327.

The Baumol revenue maximising model has been subjected to widespread criticism.³ Perhaps the most devastating objection is that " ... attempts to posit asset or sales maximisation subject to a minimum wealth or profit constraint also run into the objection that it implies the firm will not make any sacrifice in sales, no matter how large an increment in wealth would thereby be achievable."⁴ Further, it has been show, from the point of view of welfare, society is not necessarily better off under a regime of sales maximisation as Baumol claimed.⁵ In spite of the generally bad press which it has received, and the rather scant empirical evidence in its favour,⁶ "the Baumol model represents an imaginative minor revolution in microeconomic theory"⁷ and is certainly deserving of more detailed examination by the profession.

1.3.3 WILLIAMSON'S THEORY OF MANAGERIAL DISCRETION

In certain respects, the managerial model developed by Williamson

³ For details of this see Wildsmith, J.R., op. cit., chapter 4, Peston, M.H., "On the Sales Maximisation Hypothesis", Economica, Vol. 26, 1959, pp. 128-36, Shepherd, W.G., "On Sales Maximising and Oligopolistic Behaviour," Economica, Vol. 29, 1962, pp. 420-24, and Koutsoyiannis, A., op. cit., chapter 15.

⁴ Alchian, A.A., "The Basis of Some Recent Advances in the Theory of Management of the Firm", Journal of Industrial Economics, Vol. 14, 1965, p. 93.

⁵ See Wildsmith, J.R., op. cit., pp. 58-60.

⁶ See, for instance, Hall, M., "Sales Revenue Maximisation : An Empirical Examination", Journal of Industrial Economics, Vol. 15, 1967, pp. 143-56.

⁷ Wildsmith, J.R., op. cit., p. 60.

represents a generalisation of Baumol's model although it does differ in some important ways. Drawing on the notion that the separation of ownership from control allows management considerable discretion, Williamson posits that managers will attempt to maximise their own utility subject to a minimum profit constraint.⁸ His specification of the utility function is however, much broader than Baumol's simple sales revenue maximisation.

Relying on the work of organisational theorists like Barnard⁹ and Simon,¹ Williamson holds that managers are motivated primarily by "salary, security, power, status, prestige, and professional excellence", with the qualification that "they are neither equally significant nor entirely independent."² Obviously the only motive capable of direct pecuniary measurement is salary, and consequently in order to render the other motives operational Williamson introduces the concept of expense preference. Expense preference links motivation to behaviour because "management does not have a neutral attitude towards costs" and "certain classes of expenditure have positive values associated with them."³ The most important of these expense preferences are expen-

⁸ See Williamson, O.E., Economics of Discretionary Behaviour : Managerial Objectives in a Theory of the Firm, (New York : Kershaw, 1964), Williamson, O.E., Corporate Control and Business Behaviour, (New York : Kershaw, 1970), and Williamson, O.E., "Managerial Discretion and Business Behaviour", American Economic Review, Vol. 53, 1963, pp. 1032-1049.

⁹ Barnard, C.I., The Functions of the Executive, (Cambridge : Cambridge University Press, 1962).

¹ Simon, H.A., "Theories of Decision-making in Economics and Behavioural Sciences", American Economic Review, Vol. 49, 1959, pp. 253-83.

² Williamson, O.E., (1963), op. cit., p. 1033.

³ Ibid., p. 1034.

diture on staff, managerial emoluments, and discretionary profit.

Management is assumed to possess a positive expense preference for staff; the hiring of additional staff is argued to bolster virtually all the managerial motives, and consequently the corporation has a tendency to expand staff beyond its marginal productivity. Williamson defines emoluments as "that fraction of managerial salaries and perquisites that are discretionary"⁴ and which is not part of the managerial supply price. Emoluments typically consist of such things as expense accounts, company cars, luxurious offices etc. Since emoluments are essentially discretionary expenditures, and not direct salary payments, they are less visible to shareholders and consequently a smaller source of dissatisfaction. From the point of view of the firm emoluments " ... are economic rents and have associated with them zero productivities", whereas from a managers perspective they are " ... a source of material satisfaction and an indirect source of status and prestige."⁵ Discretionary profits are defined as "... the difference between actual profits and minimum profits demanded",⁶ and constitute a major source of managerial discretion.

Management is assumed to derive positive utility from discretionary profits for two reasons; such profits finance the expansion of staff and allow for increased managerial emoluments, and secondly, profits in excess of minimum profits are in themselves a reflection of

⁴ Ibid., p. 1035.

⁵ Ibid., p. 1035.

management skill and consequently a source of professional pride.

Although Williamson develops separate staff and emoluments models, it is sufficient for our purposes to examine briefly the general model of managerial discretion.⁷ In this case, management maximises a utility function where the variables comprise staff, emoluments and discretionary profits, subject to a profit constraint. A formal statement of the general model would be

$$\text{maximise} \quad U = f(S, M, \pi - \pi_0 - T)$$

$$\text{subject to} \quad \pi - \pi_0 - T \geq 0$$

where U is the utility function, S expenditure on staff, M emoluments to management, π actual profit, π_0 minimum acceptable profit, and T taxes. Williamson assumes that each element comprising the utility function has a positive but diminishing marginal utility, and as a result management will always select a positive value for any one of them. Consequently the profit constraint $\pi - \pi_0 - T \geq 0$ becomes redundant and all that is required is to maximise the utility function.

In some respects, the predictions of the Williamson model provide an interesting contrast to those of the traditional model. Essentially,

⁶ Ibid., p. 1035.

⁷ For a thorough discussion of all three models, see Wildsmith, J.R., op. cit., pp. 70-80.

expenditure on staff, emoluments to management, and spending out of discretionary profit will be higher for the utility maximising firm than for its orthodox counterpart. The only important difference which emerges from an investigation of the comparative static properties of the two models, is that the "Williamson firm" will react to a change in fixed costs.⁸

In a fascinating sequel to his managerial theory, Williamson reconsidered the validity of the neoclassical assumption of profit maximisation.⁹ Distinguishing between large multifunctional firms with a unitary organisational structure or U-firm and those of a multi-divisional nature, the so-called M-firm, Williamson argues that the latter represents a corporate response to managerial utility-maximising behaviour. An M-firm corporation consists of a number of "quasi-firms" each responsible for its own operating decisions; consequently behaviour is more closely aligned to profit maximisation. Given a concerted move towards M-firm organisational hierarchies, it would appear that in future the need for a comprehensive managerial theory of the firm might conceivably diminish.

⁸ Koutsoyiannis, A., op. cit., p. 381.

⁹ Williamson, O.E., "Managerial Discretion, Organisation Form, and the Multi-division Hypothesis", in Marris, R. and Wood, A., The Corporate Economy, (London : Macmillan, 1971), pp. 343-388.

1.3.4 MARRIS' MODEL OF MANAGERIAL ENTERPRISE.¹

Juxtaposed to the short-period models of Baumol and Williamson, Marris' theory of managerial enterprise deals with the long-run behaviour of the corporation. The Marris firm will attempt to maximise its rate of growth subject to certain underlying dynamic constraints which serve as limiting factors. The feasible growth paths open to the firm are formulated in terms of a steady-state system, and the appropriate rate of corporate growth is selected by management on the basis of a managerial utility function.

While the size of the firm may be unconstrained in the long-term, the rate of growth is most definitely not. Marris draws an analytical distinction between dynamic restraints operative on supply and on demand. For supply "... there is a fundamental restraint arising from the fact that the growth of capacity must be financed, that the supply of finance is limited in time and that, in particular, finance is closely related to profits, and thus to dividend policy and to policy regarding new share issues and borrowing".² On the demand side Marris argues that the "creative corporation" is able to continuously shift outwards the "corporate demand curve" which represents the catalogue of products produced by the firm. This process will however reduce profits

¹ Marris, R.L., "A Model of Managerial Enterprise", Quarterly Journal of Economics, Vol. 77, 1963, pp. 185-209, Marris, R.L., The Economic Theory of Managerial Capitalism, (London : Macmillan, 1964), Marris, R.L. and Wood, A.B.J., The Corporate Economy, (London : Macmillan, 1971), and Marris, R.L., "Why Economics Needs a Theory of the Firm", Economic Journal, Vol. 83, 1972, pp. 321-52.

² Ibid., (1971), p. 6.

since it "... incurs a definable and repeating cost in search, research, development and marketing expenditures."³ Further, the so-called super-environment or the economic system's capacity to absorb growth will act as a limiting factor on the firm's demand creating activities. Marris identifies the major steady-state variables of the corporation as dividends, assets, debts, stock market value, sales and marketing expenditure.

The managerial utility function is not dissimilar to that proposed by Williamson except that Marris argues that all the normal goals associated with management (salaries, prestige, power, etc.), are highly correlated with the rate of growth of demand. The utility of shareholders, on the other hand, is closely associated with the growth rate of capital supply. Since these rates of growth must be equal for steady-state growth to take place, growth thus promotes the interests of both shareholders and management.

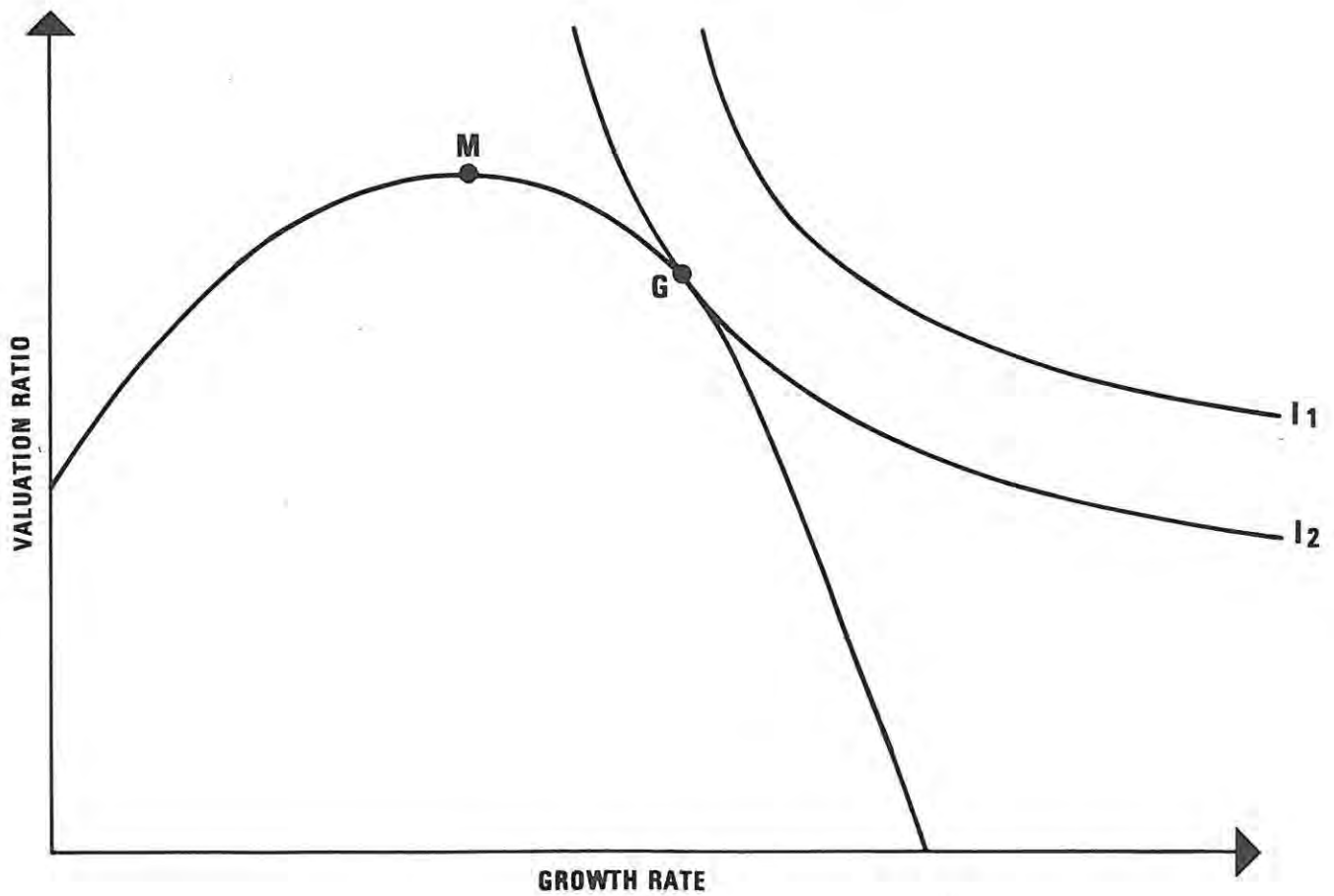
The desire of management for corporate growth is tempered by the more fundamental desire for survival, specifically the need to avoid being taken over by raiders. Marris develops the valuation ratio to incorporate the possibility of takeover. V is the ratio of the stock-market value of the firm to the accounting value of its net assets.

Consequently to reduce the likelihood of being taken over, management should attempt to ensure that V is in excess of unity. Nonetheless, management will still be confronted with a trade-off between

³ Ibid., p. 11.

security and growth, and this can be shown with managerial indifference curves and a curve representing the relationship between V and any asset growth rate.

FIGURE 3.



The shape of the valuation ratio curve is dependent upon the relationship between the rate of profit and the growth rate.⁴ Profit maximisation would occur at point M, but because management has the discretion to pursue growth maximisation subject to a security constraint, the firm will find itself at G.

The predictions flowing from the Marris model do differ in some important respects from those of the orthodox neoclassical theory. The Marris firm will spend more on research and development and on advertising than its traditional counterpart, but will earn less profit. In addition, economic rent will accrue to managerial staff in the form of slack payments. A growth maximising firm will react in the short-term to a change in fixed costs.

Perhaps the most novel feature embodied in the model is the simultaneous maximisation of the utility of both managers and shareholders, although this is dependent on the assumption that utility correlates with the size and growth of the firm. Managers and shareholders alike recognise that profits and growth cannot be maximised concurrently, and for this reason shareholders are prepared to accept a reduction in profit.

⁴ See Marris, (1964), op. cit., p. 255.

1.3.4 AN OVERVIEW OF MANAGERIAL THEORY

The managerial theories of the firm which we have reviewed may be distinguished from each other on the basis of their managerial functions. Indeed, it is precisely because they use different utility functions that they generate divergent behavioural predictions. A cogent line of criticism has developed from this source since instead of providing an alternative theoretical apparatus to neoclassicism, attempts at a managerial theory has resulted in " ... a seemingly endless array of theories, individually persuasive but often mutually contradictory."⁵

Normally such an attack is countered by arguing that the modern industrial environment is so complex as to require a diverse range of explanatory theory. A more extreme view is adopted by Shubik who insists that " ... logical consistency between one theory in microeconomics and another is a luxury and not a necessity."⁶ Whichever view is accepted, it would be reasonable to concur with Wildsmith that "the managerial models are nevertheless more general than the profit-maximisation model in the sense that they can be shown to include it as a special case while offering more fruitful approaches which it would ignore."⁷

⁵ Hawkins, C.J., Theory of the Firm, (London : Macmillan, 1973), p. 8.

⁶ Shubik, M., "A Curmudgeon's Guide to Microeconomics", Journal of Economic Literature, Vol. 8, 1970, p. 412.

⁷ Wildsmith, J.R., Managerial Theories of the Firm, (London : Martin Robertson, 1973), p. 125.

It is possible to pinpoint specific problems common to all managerial theories of the firm. The first and probably the most fundamental weakness inherent in all the models, is their disregard of oligopolistic interdependence. Neither price nor non-price competition is given any explicit attention. In addition, none of the theories provides an explanation for price formation; rather the focus falls on the determination of output levels. A third defect is the postulated ability of firms to continuously shift their demand curves through advertising; it remains doubtful whether marketing expenditures are so potent as to be free of diminishing returns. In general, managerial models "seem to be suitable for the analysis of the behaviour of individual large firms, where the observed direction of diversification clearly indicates the need for a more general approach."⁸ Moreover, in their application to real-world problems "managerial models are no more operational than entrepreneurial models: they are analytic rather than descriptive or prescriptive."⁹

Given the diversity of the predictions of managerial theories, and the problems associated with them, can a place be found for them in the economic sun? At least partial justification is provided by Cyert and March:¹

⁸ Koutsoyiannis, A., Modern Microeconomics, (2nd ed.), (London : Macmillan, 1979), p. 370.

⁹ Wildsmith, J.R., op. cit., p. 125.

¹ Cyert, R.M. and March, J.G., A Behavioural Theory of the Firm, (New Jersey : Prentice-Hall, 1963), p. 15.

"The theory of the firm, which is primarily a theory of markets, purports to explain at a general level the way resources are allocated by a price system. To the extent to which the model does this successfully, its gross assumptions will be justified. However, there are a number of important and interesting questions relating specifically to firm behaviour that the theory cannot answer and was never developed to answer ..."

The richness of the managerial models, stemming from behavioural assumptions steeped in realism, may indeed assist in answering these questions.

1.4 THE BEHAVIOURAL THEORY OF THE FIRM

In the managerial theory of the firm once the goals of the enterprise have been specified the mode of analysis proceeds in much the same manner as in received neoclassical theory; that is, the firm maximises its objective function subject to various constraints. In both instances, as soon as corporate objectives have been identified the analysis abstracts from the organisational characteristics of the firm. Behavioural theorists regard such a modus operandi as illegitimate; indeed, a priori reasoning at any level is rejected outright. Instead they emphasise the impact of organisational structure on decision-making within the firm; in a word, they examine the formation of corporate goals rather than their attainment. In consequence behavioural theory focusses on realism in process; it aims at providing a stylised description of real-world decision-making based on empirical observation.

Given the commitment of behavioural theorists to establishing the empirical validity of propositions at every level of analysis, logical positivism does not provide an appropriate methodological basis for the development of theory. Instead, a methodological position brought to prominence in economic theory by T.W. Hutchison¹ which is known as falsificationism is employed. Falsificationism can usefully be seen as a rejection of "armchair theorising", and a call for the widespread use of empirical evidence. In essence, falsificationism "refuses to recognise the legitimacy of employing at any level of analysis propositions not independently verifiable."²

The historical origins of the behavioural approach to the firm are to be found deep in organisational theory. Although Simon³ was principally responsible for introducing it into economic science, today the names Cyert and March⁴ have become almost synonymous with the behavioural theory of the firm.

Behavioural theorists are refreshingly forthright in the objectives of their efforts :

¹ Hutchison, T.W., The Significance and Basic Postulates of Economic Theory, (London : Macmillan, 1938).

² Machlup, F., "The Problem of Verification in Economics", Southern Economic Journal, Vol. 12, 1955, p. 7.

³ See, for example, Simon, H.A., "Theories of Decision-making in Economics and Behavioural Science", American Economic Review, Vol. 69, 1959, pp. 253-280.

⁴ See Cyert, R.M. and March, J.G., A Behavioural Theory of the Firm, (Englewood Cliffs : Prentice-Hall, 1963).

"Our articles of faith are simple. We believe that, in order to understand contemporary economic decision making, we need to supplement the study of market factors with an examination of the internal operation of the firm - to study the effects of organisational structure and conventional practice on the development of goals, the formation of expectations, and the execution of choices.

The rationale for such belief is also simple. The modern 'representative firm' is a large complex organisation. Its major functions are performed by different divisions more or less co-ordinated by a set of control procedures. It ordinarily produces many products, buys and sells in many different markets. Within the firm, information is generated and processed, decisions are made, results are evaluated, and procedures are changed. The external environment consists, in part, of other firms with comparable characteristics. If the market completely determined the firm's economic behaviour, these internal attributes would be little more than irrelevant artifacts. But the market is neither so pervasive nor so straightforward. The modern firm has some control over the market; it has discretion within the market; and it sees the market through an organisational filter."⁵

It is apparent that at the heart of the behavioural approach lies the complex interplay of internal and external forces. Two factors are crucial in this regard. The firm itself is not perceived as an organic unity, but rather as a coalition of diverse groups and individuals with

⁵ Ibid., p. 1.

differing and often competing interests. In consequence organisational objectives are the outcome of intricate bargaining processes, and are not unambiguous entities which can be maximised.⁶ Secondly, the external environment of the enterprise is characterised by incomplete information and uncertainty, which by its nature precludes optimisation.⁷ The result is that the firm, and its composite of interest groups, must satisfice rather than maximise its objectives.⁸ The concept of satisficing is derived from the psychological theory of motivation. Simon explains satisficing by arguing that "the motive to act stems from drives, and action terminates when the drive is satisfied. Moreover, the conditions for satisfying a drive are not necessarily fixed, but may be specified by an aspiration level that itself adjusts upwards or downwards on the basis of experience".⁹ In its attempt to satisfice, the organisation employs what are called behavioural rules which "... evolve through confrontation with similar situations over time and some experimentation"¹ and "... ordinarily use past values of the relevant variables for determining the current

6 See Siegel, S., "Level of Aspiration and Decision Making", Psychological Review, Vol. 64, 1957, pp. 253-262.

7 See Tintner, G., "The Theory of Choice Under Subject Risk and Uncertainty", Econometrica, Vol. 9, 1941, pp. 298-304, and Tintner, G., "The Theory of Production Under Non-Static Conditions", Journal of Political Economics, Vol. 50, 1942, pp. 645-67.

8 See March, J.G. and Simon, H.A., Organisations, (New York : Wiley, 1958), pp. 139-142.

9 Simon, H.A., op. cit., (1959), p. 10.

1 Cyert, R.M. and Kamien, M.I., "Behavioural Rules and the Theory of the Firm," in Rowley, C.K., (ed.), Readings in Industrial Economics, Vol. 1, (London : Macmillan, 1972), p. 92.

value of these variables."² Behavioural decision rules normally embrace such things as mark-up, mark-down, and sales pricing.³ We shall examine pricing rules of thumb in more detail in Appendix 1.

Cyert and March have identified five general corporate goals which will be satisfied in terms of the aspiration levels of the firm.⁴ They relate specifically to production, inventory levels, sales, market shares, and profits. The attainment or otherwise of the various pre-selected target volumes is monitored by means of feedback and other procedures. The outcome of this process is an evaluation of the aspiration levels of the enterprise, and a readjustment of corporate goals.

A concept central to almost all behavioural models of the firm and analogous to factor pricing in orthodox theory is organisational slack; that is, "... payments to members of the coalition in excess of what is required to maintain the organisation."⁵ Slack is purported to perform two essentially stabilising functions within the organisation; when the firm has exceeded its goals slack absorbs some of the excess resources thereby exerting a dampening influence on aspiration levels, and secondly, it allows for aspirations to be maintained during periods

² Ibid., p. 93.

³ See, for example, Baumol, W.J. and Quandt, R.E., "Rules of Thumb and Optimally Imperfect Decisions", American Economic Review, Vol. 54, 1964, pp. 23-46.

⁴ Cyert, R.M. and March, J.G., op. cit., pp. 26-43.

⁵ Ibid., p. 26.

of poor performance by providing a pool of emergency resources.⁶ In the sense that the existence of organisational slack is evidence of the non-optimal usage of resources within the corporation, it is clear that the concept is in reality a sub-set of the wider notion of X-inefficiency. The theory of X-efficiency postulates that typically firms do not achieve full technical efficiency, and that the resultant losses are significant.⁷

The behavioural theory of the firm has been severely attacked by a number of critics. Perhaps the most fundamental charge levelled at the model is that it does not constitute a theory at all but is merely description or simulation masquerading as theory. For instance, it has been argued that while behavioural decision rules are stressed in the theory "it has, up to this point, provided no theory of the determination of the rules of thumb themselves."⁸ In addition, it is contended that behavioural theory is tautological in the sense that all corporate behaviour can be rationalised in terms of satisficing.⁹

⁶ See Cyert, R.M. and March J.G., "Organisational Factors in the Theory of Oligopoly," Quarterly Journal of Economics, Vol. 70, 1956, pp. 44-46.

⁷ See Liebenstein, H., "Allocative Efficiency vs. X-Efficiency", American Economic Review, Vol. 55, 1966, pp. 392-405, and Liebenstein, H., Beyond Economic Man, (Harvard : Harvard University Press, 1976).

⁸ Baumol, W.J. and Stewart, M., "On the Behavioural Theory of the Firm", in Marris, R. and Wood, A., (eds.), The Corporate Economy, (London : Macmillan, 1971), p. 119.

⁹ See Koutsoyiannis, A., Modern Microeconomics, (2nd ed.), (London : Macmillan, 1979), p. 401.

Other critics, notably advocates of managerial behaviourism deny the efficacy of behavioural rules, and question whether they find application in "excellently managed" firms at all. Peters, a leading exponent of this position, emphasises the need for "... management to think rather than to make use of management formulas . . ." ¹ Instead of making extensive use of rules of thumb, well-managed companies possess eight basic attributes; "a bias toward action, simple form and lean staff, continued contact with customers, productivity improvement via people, operational autonomy to encourage entrepreneurship, stress on one key business value, emphasis on doing what they know best, (and) simultaneous loose - tight controls." ²

Whatever its shortcomings however, it must be recognised that behavioural theory is still in its infancy; indeed, the full implications of the theory have not yet emerged. Moreover, the limited amount of empirical evidence that has been accumulated appears favourable. ³ In particular, the theory does show promise of being able to shed some light on internal resource allocation, an area sorely in need of explanation.

¹ Peters, T.J., "Putting Excellence into Management", Business Week, July 21, 1980, p. 196.

² Ibid., p. 196.

³ See Baumol, W.J. and Stewart, M., op. cit., pp. 118-143.

APPENDIX 1 : PRICE DETERMINATION AND RULES OF THUMB

In this appendix we shall briefly review the neoclassical method of price determination by way of background, and then examine the more important types of rule of thumb pricing.

THE NEOCLASSICAL APPROACH

We shall formally derive the equilibrium price and output of the profit-maximising firm in the short-period using the marginalist approach. Assume a demand curve of the form $q=f(p)$, or in inverse form $p=f(q)$, and let the cost function be $C=C(q)$. Therefore profit (π) is

$$\pi = qf(q) - C(q) \quad \dots (1)$$

The first-order condition for profit maximisation requires that the first derivative of equation (1) equal zero, or

$$\frac{d\pi}{dq} = f(q) + qf'(q) - C'(q) = 0 \quad \dots (2)$$

where marginal revenue is $\frac{d [qf(q)]}{dq} = f(q) + qf'(q)$, and marginal cost is $\frac{dC}{dq} = C'(q)$. Consequently, equation (2) gives expression to the profit max-

imisation condition of marginal revenue equals marginal cost.

To obtain true maximum the second derivative of (2) must be negative. Therefore we can write the second-order condition as

$$\frac{d^2 \pi}{dq^2} = 2f'(q) + qf''(q) - C''(q) < 0 \quad \dots (3)$$

Since $2f'(q) + qf''(q)$ is the slope of the marginal revenue curve, and $C''(q)$ is the slope of the marginal cost curve, it is clear that the second-order condition requires marginal cost to have the steeper slope, or where marginal cost has a negative slope, to be less steep.

RULES OF THUMB

The observed stability of prices in imperfect markets not only gave rise to diversity of theoretical explanations, but also prompted empirical research into the actual procedures employed by businessmen in their pricing decisions. In one of the earliest of these investigations, the authors concluded "... that in pricing they (firms) try to apply rules of thumb."¹ A rule of thumb or "... decision rule consists of a basic, simple procedure and the specification of a list of "considerations" describing the conditions under which the procedure may be modified."² Hall and Hitch and more recent analysts have postulated

¹ Hall, R.L. and Hitch, C.J., "Price Theory and Business Behaviour", in Wilson, T. and Andrews, P.W.S., Oxford Studies in the Price Mechanism, (Oxford : Clarendon Press, 1951), p. 113.

² Cyert, R.M. and March, J.G., A Behavioural Theory of the Firm, (Englewood Cliffs : Prentice-Hall, 1963), p. 102.

several reasons for the apparently widespread usage of rules of thumb. The most plausible would appear to be that rules of thumb enable firms to cope (through disregard) with uncertainty, they facilitate oligopolistic collusion, and reduce the cost of both decision-making itself and frequent price changes.³

While rules of thumb are employed in almost all spheres of decision-making within the firm even in the realm of price policy they are numerous. It is clear however, that pricing rules are all derivatives of a single principle, the so-called full-cost or average-cost doctrine.⁴ In essence, this doctrine advances the thesis that businessmen arrive at their prices as the sum of "full costs" plus an allowance for profit at some assumed volume of output. The potpourri of specific average-cost based pricing formulae may be explained by the multifarious methods of calculating and allocating cost - the sine qua non of cost accounting.⁵ We shall examine two of the more important variants of full-cost theory.

³ See, inter alia, Heflebower, R.B., "Full Costs, Cost Changes, and Prices", in N.B.E.R., Business Concentration and Price Policy, (Princeton : Princeton University Press, 1955), pp. 361-396, and Kaplan, A.D.H., Dirlam, J.B. and Lanzillotti, R.F., Pricing in Big Business, (Washington : Brookings Institute, 1958), and Coutts, K., Godley, W. and Nordhaus, W., Industrial Pricing in the United Kingdom, (Dept. of Applied Economics, Cambridge : Cambridge University Press, Monograph 26, 1978).

⁴ See Eckstein, O., "A Theory of the Wage-Price Process in Modern Industry", Review of Economic Studies, Vol. 31, 1964, pp. 267-286. The term "full-cost" is unacceptable to some commentators; see Koutsoyiannis, A., Modern Microeconomics, (2nd ed.), (London : Macmillan, 1979), p. 264.

⁵ See, for instance, Owler, L.W.J. and Brown, J.L., Wheldon's Cost Accounting and Costing Methods, (13th ed.), (London : Macdonald and Evans, 1975).

(1) TARGET RETURN ON INVESTMENT

Pricing to achieve a target rate of return on investment or target-turn pricing is defined as "... the building up of a price structure designed to provide such a return on capital employed for specific products, product groups, and divisions, as to yield a predetermined corporate average return."⁶ Generally both cost and profit are computed on the basis of the so-called standard volume, although forecasted costs are sometimes used as well as costs based on the most recent accounting period. Standard volume "... is the volume or quantity expected to be produced in the following year or an average volume expected to be produced over a number of future years."⁷

It is possible to express the target return price in terms of generic formula, although it should be noted that in the multiproduct firm different methods do exist for the apportionment of overhead costs which can have a considerable effect on the final price(s).⁸

$$Pr = DVC + \frac{F}{x} + \frac{rK}{x}$$

Where Pr is the target return selling price, DVC is direct unit

⁶ Lanzillotti, R.F., "Pricing Objectives in Large Companies", American Economic Review, Vol. 48, 1958, pp. 921-940.

⁷ Monroe, K.B., Pricing : Making Profitable Decisions, (New York : McGraw-Hill, 1979), p. 214.

⁸ See Chamberlain, N.W., The Firm : Microeconomic Planning and Action, (New York : McGraw-Hill, 1962), chap. 8.

variable costs, F fixed costs, x standard volume, r desired profit rate, and K capital employed (measured variously as total operation assets, total capital employed, shareholders commitment, etc).

The overall effect of the target return rule is to stabilise prices; in particular it represents an attempt at nullifying seasonal or cyclical variations in demand.⁹ An important side-effect of this form of price determination is the assistance it offers management in the allocation of scarce capital resources over alternative uses.

(2) COST-PLUS PRICING

Cost-plus formula pricing is a procedure whereby "... price is calculated by adding a predetermined percentage markup to the estimated unit cost of the product."¹ In a word, a percentage of variable costs is added to average variable cost to determine the selling price. Expressed in equation form the cost-plus rule is

$$\text{price} = (1 + m)(\text{variable costs})$$

where m represents the percentage markup. Since costs are given datum

⁹ For a more detailed discussion, see Oxenfeldt, A.R., Pricing Strategies, (New York : Amacom, 1975); and for numerous documented case histories of target return pricing, see Hague, D.C., Pricing in Business, (London : Allen and Unwin, 1971).

¹ Thompson, A.A., Economics of the Firm : Theory and Practice, (Englewood Cliffs : Prentice-Hall, 1973), p. 441.

in the formula, it is clear that the pricing decision amounts to a determination of the size of m . Precisely which influences predominate in the establishment of m is uncertain, although most authorities apparently favour an institutionalist approach. Koutsoyiannis, for instance, summarises the matter thus :

"The net profit margin is assumed to be known to the established firms 'as a matter of experience' : it should yield a 'fair' return on capital (so that capital keeps flowing regularly in the industry for investment in the long run) and cover all risks peculiar to the product."²

Insofar as the cost-plus rule prescribes a markup on cost praxis, prices will change only in response to changes in average variable cost. Since all firms in an industry are likely to be affected by cost variations in much the same way, cost-plus formula pricing creates a tendency towards stability in the level of prices. An added advantage of the technique lies in the fact that it facilitates the justification of price increases to consumers and government agencies alike.

THE COMPATIBILITY OF MARGINAL AND FORMULA PRICING

The question of whether rule of thumb pricing is compatible with profit-maximising marginal pricing would seem to hinge on two distinct,

² Koutsoyiannis, A., op. cit., p. 273.

although obviously interrelated issues.³ Firstly, to what extent do decision rules implicitly consider demand conditions, and secondly, is the full-cost doctrine nonetheless not consistent with long-run profit maximisation?

It has been argued by some economists that because formula pricing employs the notion of standard volume, this amounts to an estimate of demand elasticities.⁴ Consequently, unwitting use is being made of marginalist pricing rules. The purported proof for this argument is outlined below :

It can be shown that

$$MR = P \left(1 - \frac{1}{e} \right) \quad \dots (1)$$

where MR is marginal revenue and e represents the price elasticity of demand. Further, the condition for profit maximisation is

$$MR = MC \quad \dots (2)$$

³ For an excellent review of the literature of this issue, see Silberston, A., "Surveys of Applied Economics : Price Behaviour of Firms", Economic Journal, Vol. 80, 1970, pp. 511-582.

⁴ See, for instance, Koutsoyiannis, A., op. cit., pp. 278-280.

We know that the average-cost pricing principle may be expressed as

$$P = (1 + m)(AVC) \quad \dots (3)$$

Given that AVC over the standard volume is hypothesised as constant we can write⁵

$$AVC = MC \quad \dots (4)$$

Substituting equation (4) into (1) and (2), we get

$$AVC = MR$$

and

$$AVC = P \left(1 - \frac{1}{e}\right) = P \left(\frac{e-1}{e}\right)$$

Solving for P this reduces to

$$P = AVC \left(\frac{e}{e-1}\right) \quad \dots (5)$$

⁵ While such an assumption may characterise cost conditions in retailing, it is unlikely to hold in the manufacturing sector where "... marginal costs are likely to differ from average costs because of scale economics." See Kotler, P., Marketing Decision Making, (New York: Holt, 1971), p. 341. See also pp. 702-703.

Since $MC > 0$, MR must be positive which implies $e > 1$. It follows that $\frac{e}{e-1}$ must exceed unity. We can therefore write

$$\frac{e}{e-1} = (1 + m) \quad \dots (6)$$

where $m > 1$. Substituting (6) into (5) we get

$$P = AVC (1 + m) \quad \dots (7)$$

Equation (7) is in the same form as price rule (3).

Consequently, when the firm decides on the size of its markup it is implicitly estimating an elasticity coefficient, and proceeding to maximise profits.

This argument is untenable. Quite apart from the rather arbitrary assumption of constant returns to scale, because AVC is calculated on the basis of standard volume, full-cost price and the profit-maximising price will only coincide if standard volume occurs at the level of output where $MC = MR$.⁶

⁶ See Thompson, A.A., op. cit., p. 444.

What generalisations can be drawn on the relationship between full-cost or markup pricing and profit maximisation? Broad consensus in the profession has been neatly summarised by Kotler:

"Does the use of a rigid customary markup over cost make logical sense in the pricing of products? Generally, no. Any model that ignores current demand elasticity in setting prices is not likely to lead, except by chance, to the achievement of maximum profits, either in the long run or the short run. As demand elasticity changes, as it is likely to do seasonally, cyclically, or over the product life cycle, the optimum markup should also change. If markup remains a rigid percentage of costs, then under ordinary conditions it will not lead to maximum profits.

Under special conditions, however, a rigid markup at the right level may lead to optimum profits. The two conditions are that average (unit) costs must be fairly constant over the range of the likely outputs and price elasticity must be fairly constant for different points on the demand curve and over time"⁷

⁷ See Kotler, P., op. cit., p. 341.

CHAPTER II : MARKET STRUCTURE AND PRICING BEHAVIOUR

2.1 INTRODUCTION

At this point we have examined the three major approaches to the study of the firm, two of which represent apparently competing hypotheses. The behavioural school, on the other hand, did not impinge on the ground covered by the neoclassical and managerial theories. We argued that because behaviouralism concerns itself with "realism in process" or the analysis of actual decision-making, the questions it is designed to answer contrast sharply with the other models. In this sense, it does not constitute a rival theoretical apparatus but rather a unique field of inquiry. But the neoclassical and managerial theories which both investigate the outcome or implications of the decisions of the firm do represent apparently competing hypotheses about business behaviour in the area of imperfect markets.

Various criteria may be advanced in an attempt to find a satisfactory resolution to this ostensible conflict. Deep-rooted methodological differences, for instance, can be employed as an argument towards that end. Another cogent line of thought might ascribe the problem to the value status of the respective theories, to neoclassicism described as a normative system in contrast with the overtly positive managerial theory.

But the conflict may be largely illusory. Indeed, the first part of the present chapter is devoted to an attempt at justifying such a

claim. We shall explore the possibility that inherent structural features characteristic of the modern capitalist economy create the scope for the coexistence of neoclassicism and managerialism. Since the analysis of this issue requires a different modus operandi, we shall consequently adopt a more aggregative approach; that is, our focus of attention will shift from a microeconomic to a more macroeconomic perspective. After an analysis of this purported structural dichotomy, embodied in the so-called dual economy hypothesis, emphasis falls on its implications for price determination or the theory of administered prices. The chapter culminates with an assessment of those models which attempt to provide the theory with a mechanism capable of explaining differential pricing over the business cycle. Broadly speaking, two groups of theory have been identified; those founded on the notion of monopoly power, and those based on the widespread use of pricing rules of thumb.

2.2 ECONOMIC DUALISM AND THE THEORY OF THE FIRM

The notion of economic dualism is firmly entrenched in the literature on development economics. Originally formulated by Boeke¹ to describe conditions prevalent in Indonesia, the concept is currently employed in two different ways. On the one hand, it is used to distinguish those less developed countries whose economies have both an advanced and a traditional sector - the so-called dual economy,² while on the other hand the term international dualism differentiates between rich and poor nations.³

A third meaning has recently been attached to the concept of economic dualism. It is argued that modern capitalist economies exhibit a structural dichotomy between the large corporate organisations possessing considerable market power and smaller firms comprising the competitive sphere of the economy. An eloquent, if extreme example of this position is provided by Caves :

"The gleaming glass and metal home of Union Carbide Corporation on New York's Park Avenue enfolds one kind of business important in the American economy; the

¹ Boeke, J.H., Economics and Economic Policy of Dual Societies as Exemplified by Indonesia, (New York : Institute of Pacific Relations, 1953.)

² See, for example, Singer, H., "Dualism revisited : a new approach to the problems of dual society in developing countries", Journal of Development Studies, Vol. 7(1), 1970, pp. 60-61.

³ See Todaro, M.P., Economics for a Developing World, (London : Longman, 1977), pp. 92-95.

elderly gentleman standing before it, selling roasted chestnuts from his pushcart, typifies another."⁴

Despite the relative novelty of this form of structural dualism, its origins may be traced to the pathbreaking work of Berle and Means⁵ in the 1930's on the nature of the modern corporation, and it certainly has derived much from a tradition whose members include Gordon, Papandreou, Baumol, Marris and Williamson.⁶ In a word, economic dualism in the context of industrial organisation has its roots deeply ingrained in the managerial school. This is not to deny, of course, the impact of the other strands of the theory of the firm on the concept of dualism. Indeed, as we shall attempt to show, the notion received widespread support from a number of quarters.

In its generic form the dual economy hypothesis is surprisingly straight-forward :

"Proponents of the theory of the dual economy have suggested that the American economy is composed of two distinct industrial groups; a core of powerful, concentrated, unionized, capital intensive, technologically

⁴ Caves, R.E., American Industry : Structure, Conduct and Performance, (Englewood Cliffs : Prentice-Hall, 1973), p. 1.

⁵ Berle, A.A. and Means, G.C., The Modern Corporation and Private Property, (New York : Macmillan, 1933).

⁶ Gordon, R.A., Business Leadership in the Large Corporation, (Washington : Brookings Institute, 1945), Papandreou, A.G., "Some Basic Problems in the Theory of the Firm", in A Survey of Contemporary Economics, Vol. 2, 1952, pp. 183-219, Baumol, W.J., Business Behaviour, Value and Growth, (New York : Macmillan, 1959), Williamson, O.E., The Economics of Discretionary Behaviour : Managerial Objectives in a Theory of the Firm, (Englewood Cliffs : Prentice-Hall, 1964), and Marris, R., The Economic Theory of "Managerial" Capitalism, (New York : Macmillan, 1964).

progressive industries, and a periphery composed of industries marked by the absence of these features."⁷

Technically, the core of the economy is believed to comprise corporate organisations or "centre firms" whose output constitutes the bulk of aggregate industrial production.⁸ While it is possible to distinguish centre firms on the basis of various criteria, perhaps their most dominant characteristic lies in sheer size; they are large in terms of assets, sales, invested capital, profits and employment. Usually, although by no means always, centre firms are presumed to compete against one another in oligopolistic markets where rivalry is generally confined to product development and differentiation. Several attributes of firms comprising the core are deemed to constitute in themselves barriers to entry and so perpetuate this state of affairs. Amongst the most important are access to abundant financial resources often in the form of retained earnings, the prevalence of backward and forward integration especially with regard to sources of supply and distribution channels, technological superiority particularly in respect of the actual implementation of innovations, and the ability to attract the best managerial talent and make extensive use of advanced managerial technology.⁹ In short, the market power possessed by firms at the core of the economy allows them sufficient latitude for discretionary

⁷ Oster, G., "A Factor Analytic Test of the Theory of the Dual Economy", Review of Economics and Statistics, Vol. 61, 1978, P. 33.

⁸ The terms "centre firms" and "periphery firms" were developed by Averitt, R.T., The Dual Economy, (New York : Norton, 1968).

⁹ See Thompson, A.A., Economics of the Firm : Theory and Practice, (Engelwood Cliffs : Prentice-Hall, 1973), pp. 22-34.

behaviour.

In contrast to managerial or centre firms, the periphery sphere of the economic system consists of an immense number of small entrepreneurial enterprises or "periphery firms". The essential characteristic of periphery firms resides in the close link between ownership and control which is usually vested in a single individual; it follows that such a person determines the goals of the firm and obviously reaps whatever benefits may accrue in terms of profit. While not universally agreed upon, most variants of the dual economy hypothesis stress the limited size of periphery firms.¹ Moreover, enterprises in the periphery sector are envisaged as operating in a strongly competitive environment both with regard to their input and output markets. It is argued that in general periphery firms possess negligible power to influence their surroundings and consequently are forced to accept existent economic parameters as given.² In a word, periphery firms can do little more than passively react to changes in their circumstances.

¹ See, for instance, Averitt, R.T., *op. cit.*, Bluestone, B., "The Tripartite Economy Labour Markets and the Working Poor", *Poverty and Human Resources*, Vol. 5, 1970, pp. 15-35, and Vietorisz, T. and Harrison, B., "Labour Market Segmentation : Part One. Positive Feedback and Divergent Development", *American Economic Review*, Vol. 63, 1973, pp. 366-376.

² While for the purpose of our analysis it is sufficient to distinguish periphery firms as a genre, there are in fact sub-categories of the term. Thompson, A.A., *op. cit.*, p. 24 delineates three specific types of periphery firms as "satellite firms", "firms on the competitive fringe", and "independent periphery firms".

Broadly speaking, it is clear then that the dual economy hypothesis represents a bi-polar view of the modern capitalist economy. On the one hand massive manager-dominated corporate entities pursue a diverse set of goals with considerable discretion, while on the other side of the structural cleavage, small entrepreneurial enterprises strive to make profits by responding to market signals. This conception of the economic system derives at least tacit support from a number of theoretical sources. Neoclassical value theory itself provides acknowledgement of such a structural panorama by differentiating between perfect and imperfect competition, or in other words, distinguishing price-takers from price-makers. Of course, in terms of behaviour both groups are still seen as applying marginalist profit-maximising principles. Other commentators have also furnished inferred recognition of a structural division of economic activity. Agricultural economists Thomson and Foote, for instance, noted that "it is very important that we distinguish between price determination and price discovery."³ More explicit endorsement of the intuitive appeal of the dual economy hypothesis is not difficult to procure. Dealing with the United States, Mueller testifies that "there exists an extremely asymmetrical industrial structure with the bulk of economic activity controlled by an elite of a few hundred enormous corporations and the remainder divided among four hundred thousand small and medium-sized businesses."⁴ Although employing rather different terminology, Galbraith has

³ Thomson, F.L. and Foote, R.J., Agriculture Prices, (New York : McGraw-Hill, 1953), p. 119.

⁴ Hearing before Select Committee on Small Business, United States Senate, 92nd Congress, 1st Session, November 1971, p. 1097.

forcefully argued the case for structural dualism:

"No agreed level of assets or sales divides the millions of small firms which are half the private economy from the handful of giant corporations which are the other half. But there is a conceptual difference between the enterprise that is fully under the command of an individual and owes its success to this circumstance and the firm which, without entirely excluding the influence of individuals, could not exist without organisation. This distinction which may be thought of as separating the twelve million small firms from the one million giants, underlies the broad division of the economy here employed. It distinguishes what is henceforth called the market system from the planning system."⁵

Despite the relatively substantial support it enjoys in the literature, the dual economy hypothesis has nonetheless been strongly censured from a number of sources. In general, critics have denied that centre firms possess sufficient uniformity of essential characteristics to allow for a meaningful distinction to be drawn, that is, "diversity seems more striking than similarity."⁶ The approach usually adopted has been to single out certain reputedly typical features or stylised facts, and then show that either not all centre firms display evidence of this idiosyncrasy, or that some periphery firms share it. For

⁵ Galbraith, J.K., Economics and the Public Purpose, (London : Andre Deutsch, 1974), p. 43-44.

⁶ Mason, E.S., "Has the United States a Dual Economy?" in Mason, R.T. and Qualls, P.D., (eds.), Essays on Industrial Organisation in Honour of J.S. Bain, (Cambridge : Ballinger, 1976), pp. 19-38.

instance, with respect to the assertion that organisations in the core sphere of the economy collectively employ more progressive technology than their periphery counterparts, it is rebutted that "from the very origins of technical change, in the work that is put into research, the commercial application of new knowledge, it does not appear that large firms or monopolistic industries are necessarily more dynamic or "progressive" or produce more fundamental technical change."⁷

But surely this kind of argument is inappropriate. No-one would deny that an economic system is comprised of complex, multifarious and often seemingly chaotic elements. Economic theories must by their very nature be based on statistically fragile regularities. What really matters is whether theoretical constructions serve some useful purpose. In part, of course, criticism of the dual economy hypothesis stems from the rather ill-conceived choice of the word "dualism" itself. To many the term conveys a sense of rigidity, an absolute categorisation; "an ultimate and irreducible distinction of nature between two different kinds of thing."⁸ This problem is exacerbated by the tendency of exponents of the hypothesis to exaggerate the dichotomy between the core and periphery sectors as a didactic technique. In short, most advocates of the notion of structural dualism are guilty of overkill.

A more balanced version of the theory of economic dualism would

⁷ Kennedy, D. and Thirwell, A.P., "Surveys in Applied Economics : Technical Progress", Economic Journal, Vol. 53, 1972, p. 61.

⁸ See, The Fontana Dictionary of Modern Thought, (London : Fontana/Collins, 1977), p. 183.

concede that while a great many enterprises share characteristics of both centre and periphery firms, a bi-polar view of economic activity nonetheless remains a plausible and useful theoretical tool. Moreover, the fact tremendous interdependence exists between the two sectors serves to obscure, but not move their essential differences. In sum, a modern advanced economy may be seen in terms of a continuum which is rather heavily weighted towards its antipodes. We agree with Nordhaus who reasons as follows :

"A useful way to model a Western economy resembles a theory of a 'dual-economy'. One set of markets, call them auction markets, are the typically competitive supply and demand model, exhibiting flexible prices. Sometimes these are internationally traded goods or 'exposed' goods as in the Scandinavian inflation model, but this is not essential. Agricultural markets are rather clearly in this mold as are many security and new commodity markets. At the other pole lies administered markets. These tend to be markets where either buyers or sellers have significant market power, and one significant use of that power has been to restrain price movements. The administered markets contain much of the manufacturing, utility, and government sectors, and the labour markets are progressively becoming more administered."⁹

In addition to the support which it receives from theoretical sources, the little empirical work that has been undertaken on the dual

⁹ Nordhaus, W.D., "The Flexibility of Wages and Prices : Inflation Theory and Policy", American Economic Review, Papers and Proceedings, Vol. 66, 1976, p. 59.

economy hypothesis does seem to provide at least tentative real-world corroboration.¹

If one accepts the view that structural dualism characterises advanced capitalist societies, and we have shown that a relatively strong case can be made in favour of such a contention, then it follows that this will have important repercussions for the theory of the firm. In a word, the acceptance of dualism provides a raison d'être for the existence of more than one theoretical explanation for the behaviour of the firm. Indeed, what is required are two distinct explanations for centre and periphery firms respectively; for the core sector of the economy the implications of discretionary behaviour need to be clearly spelt out, whereas a rather different mechanism is required to account for the actions of the periphery sphere. And it is precisely this consideration which provides the underlying rationale for the view that there is sufficient scope for the harmonious coexistence of the neoclassical competitive model with the managerial paradigm.

Even such an arch exponent of neoclassicism as Fritz Machlup has tacitly recognised the validity of this argument:

¹ See, for instance, Oster, G., op. cit., and Cohen, R., "An Analysis of Industrial Characteristics", Research Centre for Economic Planning, New School for Social Research, mimeo, 1973.

"Many of the proponents and protagonists of a more realistic theory of the firm are quite aware of the fact that the managerial extension and enrichment of the concept of the firm was not needed except where firms in the industry were large and few, and not under the pressure of competition. There are many very quotable statements to this effect."²

In virtually the same breath Machlup himself furnishes a fine example by recording that "to explain and predict price reactions under monopoly and oligopoly we need more than the construct of a profit-maximising reactor"³

Of course, the dual economy hypothesis is by no means the only explanation for the concurrent existence of these two strands in the theory of the firm. Fundamental methodological differences, for instance, also constitute an important reason. But in an apparently hen-and-egg situation the establishment of primacy of cause is not without interest. At this level it can be argued that a dualist view of the economy does achieve pre-eminence insofar as all other rationalisations implicitly presuppose some or other structuralist dichotomy. Would there be any need for methodological dissimilarity had the phenomena under scrutiny been of the same general class? In the same vein the relevance of much of the debate on the applicability of the assumption of profit maximisation would be questionable had it not been conducted in the context of the large corporation. In terms of this

² Machlup, F., "Theories of the Firm : Marginalist, Behavioural, Managerial", American Economic Review, Vol. LVII, 1967, p. 11.

³ Ibid., p. 10-11.

kind of logic then, it is clear that the theory of the dual economy can constitute the basis for an acceptable reconciliation of two apparently competing hypotheses on the nature of business behaviour. Not only does it provide explicit recognition of real-world circumstances, but also paves the way for the resolution of the ostensible conflict between neoclassical and managerial theory.

2.3 EVOLUTION OF THE ADMINISTERED PRICE HYPOTHESIS

It has been argued that grounds do exist for the belief that in a modern capitalist society two distinct forms of pricing behaviour find wide application. The dual economy hypothesis, though still at issue empirically, does at least provide a structural reason for the concomitant survival of the neoclassical and managerial theories. Insofar as these theories propose significantly different mechanisms for the determination of prices, together they constitute a sophisticated microeconomic basis for a phenomenon which should have important macroeconomic implications. It is this third dimension, the so-called administered price hypothesis, to which we now turn our attention.

In essence the doctrine of administered prices holds that concentrated areas of the economy are characterised by the relative inflexibility of their prices. Critics have been quick to point out the generality of the hypothesis, and with some justification have denigrated it "all things to all men". Upon closer examination however, it is clear that the slow and somewhat tortuous development of the theory is largely responsible for this claim. In order to understand

the full meaning of the theory, it is therefore important to pay some attention to its rather chequered history in the literature.

Like so much of modern macroeconomic theory, the origins of the doctrine of administered prices lie deep in the gloomy days of the Great Depression. At about that time, a number of writers commented on the perversity of price-quantity behaviour over a wide range of commodities.¹ Tintner, for instance, uncovered the statistical fact that "... the frequency of monthly price changes is especially small in monopolised goods, in comparison with goods produced under conditions of free competition."² The first systematic analysis of the relationship between the behaviour of prices and industrial structure however, had its genesis in the work of Gardiner Means.³

In his seminal study Means presented statistical evidence in support of the contention that a significant array of prices had displayed downward inflexibility in the face of declining demand. Moreover, he argued that the failure of prices to fall had aggravated depressionary conditions insofar as real incomes were thereby prevented from rising. To illuminate this apparent anomaly, Means drew a distinction between "market" prices and "administered" prices:

¹ See, for example, Mills, F.C., The Behaviour of Prices, (National Bureau of Economic Research, 1927).

² Tintner, G., Prices in the Trade Cycle, (Vienna : Springer, 1935), p. 79.

³ See Means, G.C., Industrial Prices and Their Relative Inflexibility, Senate Document 13, 74th Congress, 1st Session, 1935.

"An administered price ... is a price which is set by administrative action and held constant for a period of time. We have an administered price when a company maintains a posted price at which it will make sales or simply has its own prices at which buyers may purchase or not as they wish."⁴

In sum, it was argued that administered prices can be classified on the basis of the relative infrequency of observed price changes. Furthermore, Means detected a relationship between the frequency with which prices changed, and the amplitude of those changes over the business cycle; that is, the less frequently prices changed, the more rigid they were over the cycle. In addition, there appeared to be a strong relation between price and quantity movements, or in the words of Means :

"... [F]or industries in which price dropped most during the depression, production tended to drop least, while for those in which prices were maintained, the change in production was usually greatest."⁵

While at this juncture no theoretical foundation had been advanced to explain the phenomenon of administered prices, it soon emerged that Means believed the existence of market power or "... the relatively small number of concerns dominating particular industries"⁶ provided an adequate explanation of downward price inflexibility.

⁴ Ibid., p. 1.

⁵ Ibid., p. 8.

⁶ National Resources Committee, The Structure of the American Economy, Part 1, (Washington : Government Printer, 1939), p. 143.

Largely because of its implications vis-a-vis the functioning of the market economy, the impact of Means' thesis on the profession was explosive. In the intense and often acrimonious debate that followed, the administered price doctrine was subjected to fierce criticism on both theoretical and empirical grounds.⁷ While it is unnecessary for our purposes to explore the controversy in any detail, the most salient features are noteworthy.⁸ On the theoretical level it was argued that the durability of some goods and the concomitant ability of consumers to postpone purchases accounted for price inflexibility.⁹ Some critics censured Means' use of price as a behavioural variable, insisting that the price-cost margin was far more appropriate.¹ The evidence gathered by Means in support of his contention was attacked on a number of counts, although the most powerful criticism was undoubtedly that he had employed quoted rather than actual transactions prices.²

7 See, inter alia, Tucker, R.S., "The Reasons for Price Rigidity", American Economic Review, Vol. 27, 1938, pp. 41-54, Backman, J., "Price Flexibility and Changes in Production", Conference Board Bulletin, February, 1939, pp. 474-475, Wood, R.C., "Dr Tucker's 'Reasons' for Price Rigidity", American Economic Review, Vol. 27, 1938, pp. 663-673, Thorp, W. and Crowder, W., "Concentration and Production Characteristics as Factors in Price - Quantity Behaviour", American Economic Review, Vol. 30, 1941, pp. 390-408, and Neal, A.C., Industrial Concentration and Price Inflexibility, (Washington : American Council on Public Affairs, 1942).

8 For a detailed examination of this debate, see Ruggles, R., "The Nature of Price Flexibility and the Determinants of Relative Price Changes in the Economy", in Business Concentration and Price Inflexibility, (Princeton : N.B.E.R., 1955), pp. 441-495, and Blair, J.M., Economic Concentration, (New York : Harcourt Brace, 1972), chapters 16 and 17.

9 Backman, J., op. cit.

1 Tucker, R.S., op. cit.

2 Thorp, W. and Crowder, W., op. cit.

Despite the severity and far-ranging nature of the criticism directed against it, the hypothesis of the downward inflexibility of administered prices was so well rooted in empirical fact that it survived relatively unscathed. However, with the onset of World War Two interest in the doctrine waned somewhat, and it was not until the 1950's that the theory was revived, though in a rather different form. Indeed, it is precisely this shift of emphasis which is largely responsible for the confusion surrounding the modern version of the doctrine.

At this point it is worth recalling that the administered price hypothesis was originally formulated to interpret the downward inflexibility of certain prices during the Great Depression. In a post-war world of persistent inflation the phenomenon to be explained had changed, and consequently the theory itself required modification to meet the altered circumstances. Whilst the birth of a new era had been brought about by the complex interplay of many forces, not least the Keynesian revolution,³ there was a shift in emphasis from the perennial threat of unemployment to inflation. Moreover, since no great structural shifts had occurred during the war years⁴ it seemed plausible to exponents of the doctrine of administered prices that this position should still carry weight in the realm of price determination. Consequently, a theory of downward price rigidity now became a theory of upward price flexibility :

³ It is of interest to note that Lord Keynes was himself aware of the existence of administered prices, and gave the notion explicit attention in his writings. For instance, he noted that ... "apart from 'administered' or monopoly prices, the price-level will only change in the short period in response to the extent that changes in the volume of employment affect marginal price costs ..." General Theory of Employment Interest and Money, (London : Macmillan, 1970), p. 270.

⁴ See Blair, J.M., op. cit., pp. 407-419.

"In part, the phenomenon had changed. For what was needed now was an explanation, not merely of the comparative stability of administered prices in recession, but of their perverse tendency to increase in periods of unsatisfactory economic expansion. But this required no great extension of Means' analysis - such perverse wage-price behaviour, a fortiori, must have reflected the presence and exertion of market power ... So the administered price thesis was gradually transformed from an explanation and prediction of price stability into one of chronic upward price creep ..."⁵

The metamorphosis of the administered price hypothesis into a theory of inflation should not be viewed as an attempt to supplant existing doctrine. In broad terms, traditional theory on inflation distinguishes between demand-pull and cost-push elements in the inflation process, and most advocates of the administered price thesis envisage it as a supplementary vehicle of analysis closely allied to the latter version of the orthodox position. More specifically, the theory of administered prices focuses on the implications of different cyclical price behaviour of concentrated as opposed to competitive industries on the aggregate level of prices. Means' view of inflation is thus intertwined with received analyses, and does not constitute a complete theory of inflation in its own right.⁶ A typical example of the

⁵ Kahn, A.E., "Market Power Inflation : A Conceptual View", in Means, G.C., The Roots of Inflation, (New York : Franklin, 1955), p. 261.

⁶ Explicit recognition of this is not difficult to find in his writings. See for instance, Means, G.C., "Simultaneous Inflation and Unemployment : A challenge to Theory and Policy", in Means, G.C., op. cit., pp. 1-32.

general approach appears in the following extract :

"In the beginning of a demand inflation, market dominated prices tend to rise more rapidly while administration- dominated prices lag well behind. Then in a period of readjustment, market-dominated prices fall back while administration-dominated prices continue to rise until the two groups are more nearly in balance ... Thus administration-dominated prices help slow up the classical inflation rather than initiate it. Only in the latter stages of this demand inflation did administered prices catch up with the general rise."⁷

In its current state of development it is possible to identify two strands of the administered price hypothesis. By far the most widely accepted version of the doctrine stresses the short-run impact of administered prices on the aggregate price level; the counter-cyclical movement of oligopoly prices over the business cycle embraced in the so-called lag and catch-up effect is deemed to distort and prolong an already existent inflationary process (whose origins must be sought in conventional theory). While early formulations of the hypothesis were vague on the exact nature of these price tendencies,⁸ more recent interpretations have provided a specific conception of the expected pat-

⁷ Means, G.C., Administrative Inflation and Public Policy, (Washington : Anderson Kramer, 1959), p. 9.

⁸ A heated controversy raged over this issue. At one stage it was held that any pattern of price change that did not follow classical expectations constituted evidence in favour of the administered price hypothesis. See Blair, J.M., Economic Concentration : Structure, Behaviour and Public Policy, (New York : Harcourt Brace, 1972), pp. 443-449.

tern of price changes. During periods of recession "... the hypothesis would be confirmed if [administered] prices remained stable or rose", whereas in times of economic expansion "... administered prices would rise less than market-dominated prices."⁹ According to this view, the presence of an administered price sector cannot explain the cause(s) of inflation, but it can illuminate the process of inflation.

The theory of administered prices has also given birth to a rather more extreme school of thought on the importance of market structure. Exponents of this persuasion argue that market power per se can create and perpetuate "endogenous" or "secular" inflation. It is this variant of the administered price thesis which has perhaps generated most of the confusion and misunderstanding so evident in the literature. Sceptics have argued that such a belief requires a continuously increasing relative price differential between the oligopolistic and competitive spheres of the economy.¹ But surely secular inflation can still occur without an ever-widening relative price differential. It is possible that over the long-term the lag and catch-up ratchet may cause all prices to rise. Indeed an intriguing mechanism for such a scenario has already been tentatively outlined and is worthy of quoting at length :

"The lag and catch-up behaviour implies continual changes (back and forth) in relative industrial prices over the whole business cycle. Changing relative prices implies changing relative quantities demanded across industries, over the business cycle. To the extent that

¹ See, inter alia, Beals, R., Concentrated Industries, Administered Prices and Inflation, (Washington : American Enterprise Institute, 1975), pp. 11-12.

industrial firms do not accommodate these changes in quantities demanded by changes in order backlogs or worker slow downs or speedups, a higher average rate of "frictional" unemployment would exist over the cycle as labour resources attempt to move from industrial sectors which are contracting (relatively) to industrial sectors which are relatively expanding. If fiscal and monetary authorities attempt to combat this unemployment with traditional macroeconomic policy instruments, the general price level may rise, in a secular fashion, more rapidly than it would otherwise. (In technical jargon, the lag and catch-up phenomenon may shift both the long run and short run Phillips curves for the economy to the right.) By this process, the lag and catch-up process may lend a 'stagflation' bias to the economy."²

We have argued that the administered price hypothesis may be broken down into two fairly distinct components; on the one hand, the lag and catch-up thesis holds that market structure can lengthen but not cause a particular inflation process, while on the other hand, it is maintained that inflation can arise out of the interaction of monopolistic and competitive markets. Moreover, we have shown that the short-run lag and catch-up effect may, under certain circumstances, provide the raison d'être for a theory of secularly induced inflation. To this extent therefore, these subsidiary hypotheses of the broader doctrine of administered prices need not be incompatible. Although a substantial number of practitioners would not agree with the general

² Dalton, J.A. and Qualls, P.D., "Market Structure and Inflation", The Antitrust Bulletin, Vol. 24, 1979, p. 19-30.

categorisation developed here,³ it is nonetheless possible to find authoritative support in the literature. Scherer, for instance, appears to adopt a similar position :

"Does aberrant price and wage-setting behaviour in concentrated industries cause inflation? ... One school of thought emphasises that although concentrated industries may lag in their adjustments, they do catch up, so that in the long run it makes no difference. And in the short run, their lags may actually reduce the sting of inflationary shocks. Another school argues that even though concentrated industries may appear to be lagging chronologically, they lead cost-push inflationary developments in a different sense."⁴

Notwithstanding the theoretical validity of such a classification, recent work does show that the relationship between price rigidity and the degree of concentration may not be as straight-forward as it was initially presumed. Indeed, two independent studies, one in Britain and the other in the United States, indicate that prices are likely to be most inflexible in relatively less concentrated oligopolistic mar-

³ See, for example, Stigler, G.J. and Kindahl, J., The Behaviour of Industrial Prices, (New York : N.B.E.R., 1970), chapter 1, and Garber, S. and Kleppers, S., "'Administered Pricing' or Competition Coupled with Errors of Judgement", International Economic Review, Vol. 21, 1980, pp. 413-435.

⁴ Scherer, F.M., Industrial Market Structure and Economic Performance, (2nd ed.), (Chicago : Rand McNally, 1980), p. 361. See also Dalton, J.A. and Qualls, P.D., op. cit., p. 22.

kets.⁵ After a certain concentration threshold has been reached "... the speed of price adjustment will tend to rise with the level of industrial concentration."⁶ Qualls has attempted to provide at least some theoretical substance for these observations in what has become known as the U-shaped hypothesis. Adopting the premise that "high concentration fosters an interfirm flow of information and a milieu of mutual trust," he argues that "here, coordinated pricing behaviour in the industry may approximate monopoly behaviour and the degree of price flexibility characteristic of monopoly may result."⁷ The implications for price determination over the business are spelled out as follows :

"If this is the case, the relationship between price change and concentration may be U-shaped for cyclical expansions, and inverted U-shaped for cyclical contractions. Firms in industries of neither very low concentration (atomistic competition?) nor very high concentration (well-coordinated oligopoly-in effect, joint monopoly) may be reluctant to raise price in expansions or reduce price in contractions."⁸

⁵ Domberger, S., "Price Adjustment and Market Structure", Economic Journal, Vol. 89, 1979, pp. 96-108, and Qualls, P.D., "Market Structure and the Cyclical Flexibility of Price-Cost Margins", Journal of Business, Vol. 52, 1979, pp. 305-325.

⁶ Domberger, S., op. cit., p. 96.

⁷ Qualls, P.D., "Market Structure and Price Behaviour in US Manufacturing, 1967-72", Quarterly Review of Economics and Business, Vol. 18, 1978, p. 38.

⁸ Ibid., p. 38.

If this contention is empirically vindicated, then it will complicate the search for a satisfactory theoretical mechanism underlying the lag and catch-up effect.

A striking feature of the evolution of the administered price hypothesis is the paucity of theoretical justification which it has attracted. Apart from insisting on a causal link between concentration and administrative pricing, as principal exponent of the thesis, Means relied heavily on statistical observation. Of course, this omission provided eager critics with precisely the ammunition they required, and the hypothesis was branded "a phenomenon in search of a theory". However, several theorists have responded to the challenge, and not altogether unsuccessfully attempted to fill the void "in trying to find a conceptual rationale for the very real but intellectually homeless phenomenon of administered prices."⁹ And it is to this aspect of the administered price hypothesis that we now turn our attention.

2.4 THEORETICAL BASIS FOR THE ADMINISTERED PRICE HYPOTHESIS

At this point it would seem appropriate to provide a brief resumé of the main thrust of the administered price hypothesis to facilitate lucid discussion of its theoretical components. On the one hand, the

⁹ Blair, J.M., "Administered Prices : A Phenomenon in Search of a Theory", American Economic Review Papers and Proceedings, Vol. 49, 1959, p. 431.

thesis envisages industries of low seller concentration behaving in accordance with the familiar perfectly competitive model; more specifically, price is seen as responding rapidly to short-run changes in demand. Industries of higher seller concentration, on the other hand, are presumed to be characterised by the relative stability of price in the face of changing demand conditions. Over the business cycle such differential pricing behaviour will be dominated by a lag and catch-up effect which serves to distend the inflationary process. In this form the administered price hypothesis does not constitute a theory of inflation per se insofar as it cannot explain the initial impetus for the increase in aggregate demand. But it does furnish a raison d'être for the continued rise in the level of prices after the primary expansionary stimulus had abated; that is, the thesis can explain the phenomenon of stagflation so typical of modern economic life. However, a more extreme version of the hypothesis rather less in the mainstream of the Means tradition does attempt to provide a self-sufficient theory of inflation. Exponents of this position believe the interdependency between the competitive and oligopolistic sectors to be such as to create a self-generating price spiral. In short, secular inflation in the longer term can arise out of market power.

Of course, both forms of the administered price hypothesis bear a crucial dependency on the notion of differential price behaviour by competitive and concentrated industries over the business cycle. Indeed, should this thesis be falsified then the whole rationale for the theory itself will fall away. Consequently, it is encumbant upon theorists to provide an explanation for such a relationship and this is precisely what they have attempted to do.

In microeconomic terms the theoretical basis for differential price behaviour has been fairly solidly established. The managerial theory of the firm deals primarily with large enterprises operating in imperfect markets, where price policy represents only one aspect of a competitive strategy. But as we indicated in chapter one, no managerial model provides explicit details of price formation. Consequently, while managerial theories do at least prescribe the conditions for discretion in the determination of prices, they cannot find application in explaining the lag and catch-up effect. Theoreticians intent on developing a theoretical foundation for this phenomenon must thus content themselves with the received fact of discretionary behaviour alone. Such a state of affairs is unfortunate in the sense that it deprives the administered price hypothesis of employing the full richness of managerial theory.

Given the presence of discretionary behaviour in concentrated industries, economists have explored its implications with respect to price determination. It is possible to distinguish two general approaches which have emerged from the investigation.¹ On the one hand, a loosely grouped collection of theories postulated that the nature and exercise of monopoly power per se is responsible for non-classical price formation in concentrated markets. By way of contrast, a second school perceives the outcome of discretionary behaviour as the

¹ Lustgarten, S., Industrial Concentration and Inflation, (Washington: American Enterprise Institute, 1975), pp. 12-17, has developed a similar classification of theories purporting to explain the lag and catch-up effect.

widespread application of pricing rules. The latter view is perhaps more in the mainstream of the managerial tradition insofar as it prescribes specific principles according to which prices will be determined; certainly it has received more attention in the literature.

2.4.1 MONOPOLY POWER AS AN EXPLANATION

A body of analysts have founded their theoretical explanations of administered price inflation on the notion of monopoly or market power. Generally, this kind of theory has accounted for the existence of a lag and catch-up effect by predicating a differential response from oligopolistic, as opposed to competitive markets to changed demand conditions. Exponents of this position include Mason,² Galbraith,³ Lerner,⁴ Ackley,⁵ Nordhaus,⁶ Weiss,⁷ Scitovsky,⁸ and Stanley

2 Mason, E.S., "Competition, Price Policy, and High-Level Stability", in Economic Concentration and the Monopoly Problem, (Cambridge : Harvard Economic Studies, 1957), pp. 158-195.

3 Galbraith, J.K., "Market Structure and Stabilisation Policy", Review of Economics and Statistics, Vol. 39, 1957, pp. 124-133, and Galbraith, J.K., A Theory of Price Control, (Cambridge : Harvard University Press, 1952).

4 Lerner, Abba, "Sellers Inflation and Administered Depression", Administered Prices : Compendium on Public Policy, (Washington : Government Printer, 1963), pp. 196-212.

5 Ackley, G., "Administered Prices and the Inflationary Process", American Economic Review, Vol. 49, 1959, pp. 149-461.

6 Nordhaus, W.D., "Inflation Theory and Policy", American Economic Review, Vol. 66, 1976, pp. 59-64.

7 Weiss, L., "Stigler, Kindahl, and Means on Administered Prices", American Economic Review, Vol. 67, 1977, pp. 610-619.

8 Scitovsky, T., "Market Power and Inflation", Economica, Vol. 45, 1978, pp. 221-233.

Wu.⁹ Since the most important of the earlier contributions is undoubtedly that of Galbraith, we shall examine his model in some detail. Thereafter, we shall briefly consider Weiss' updated variant of the Galbraith thesis before turning our attention to the work of Scitovsky and Wu.

Galbraith argues that it is empirically and analytically feasible to perceive of the economy as comprised of what would now be called a core and a periphery sector. The essential discrepancy between the two lies in "... the differential rate of adaptation of different market structures to changes in demand."¹

While the competitive or periphery sphere adjusts almost instantaneously to demand variations, such behaviour is uncharacteristic of oligopolistic firms. The reason for this is implicit in the nature of imperfect markets; increased demand is manifest in the form of brisker sales and not higher prices which can only result from a specific entrepreneurial decision. Thus :

"With inflation the demand curves of the firm and industry are moving persistently to the right. Under these circumstances there will normally be an incomplete adaptation of oligopoly prices. Prices will not be at profit-maximising levels in any given situation, for the situation is continually changing while adaptation is by

⁹ Wu, S., "An Essay on Monopoly Power and Stable Price Policy", American Economic Review, Vol. 69, 1979, pp. 60-72.

¹ Galbraith, J.K., op. cit., p. 127.

deliberate and discrete steps. This means that at any given time there will ordinarily be a quantum of what may be called unliquidated monopoly gains in the inflationary context ... I should like to argue that under quite commonplace conditions the lag in adaptation will be considerable and unliquidated monopoly gains substantial."²

Certain features inherent in oligopolistic market structures will tend to exacerbate the length of the lag and consequently the magnitude of unliquidated monopoly gains. Imperfection of collusion is argued to generate uncertainty about the reaction of competitors, the result being hesitancy with regard to price increases. Moreover, it is postulated that a conflict exists between short and long-run profit maximisation; specifically, "effective merchandising and good commercial relations ordinarily require a measure of price stability and hence the sacrifice of short-run opportunities."³ In addition, since wages are not determined independently of profits and normally display downward inflexibility, price rises invite irreversible cost increases.⁴

The force of the argument is quite clear. In a demand-pull inflation price advances in the oligopolistic sector will lag behind those of competitive industries and unliquidated monopoly gains will

² Ibid., p. 127.

³ Ibid., p. 128.

⁴ More recent theory has revealed additional reasons for the prevalence of price rigidity under oligopoly. See section on oligopoly in chapter I.

build up; only when competitive prices stabilise will these monopoly gains be realised. The resultant catch-up of oligopoly prices explains the continuation of inflation after the abatement of the conditions which caused it to occur in the first instance. While Galbraith is nowhere explicit on the exact timing of the price increase, because the avoidance of temporarily high profits is of paramount importance to oligopolists, it seems reasonable to assume that this will occur when demand had fallen back to "normal" or even recessionary levels.

Galbraith's theory invoked sharp criticism. Some commentators have simply dismissed the whole underlying sine qua non of the model as irrational. Lustgarten, for instance, has captured the essence of this line of attack :

"The logic of the liquidation strategy is unclear. If the objective is to change the timing, rather than the long-run average level of profits, it would require that short-term profits would be higher than otherwise during recession periods. Thus whatever benefits are gained, in terms of reducing entry, union or antitrust activity, by-restraining profits during expansion are lost during recessions. If the strategy is to reduce the average profit level then it is unclear what is gained by taking most of the reduction during expansionary periods. One might expect public reaction to rising prices and profits to be even greater, if the rise takes place during recession."⁵

⁵ Lustgarten, S., "Administered Inflation : A Reappraisal", Economic Inquiry, Vol. 13, 1975, p. 193.

Other detractors have criticised specific aspects of Galbraith's theoretical mechanism. Perhaps the most telling reproof came from Kahn who pointed out that an increase in demand need not necessarily imply a change in elasticity, and consequently may leave the profit-maximising price unaffected.⁶

Despite the censure it has received from the profession, a substantial number of economists remained convinced of the fundamental validity of the Galbraith thesis. Indeed, several theorists developed more general theories of inflation which incorporated wholeheartedly Galbraith's explanation of the lag and catch-up phenomenon.

Weiss has advanced a latterday variant of the basic mechanism formulated by Galbraith. Adopting as his behavioural premise the maximisation of the present value of the firm, Weiss argues that a rational monopolist would not reduce prices in the face of recessionary conditions. He reasons as follows :

"A short-run fall in demand as might occur in a recession need not lead to a downward shift in price. The short-run elasticity of demand is surely less than the long-run elasticity, and in many cases must be less than one. This would imply that a monopolist considering a price cut to deal with a temporary recession would face a lower (and possibly negative) marginal revenue compared to the marginal revenue he would face in making general price policy. The natural

⁶ Kahn, A.E., op. cit., p. 265.

conclusion seems to be that optimal price policy in a recession would often be to hold prices stable or to change them only in response to changes in long-run expectations. It would follow that price increases in recovery periods would not be profitable unless they also reflected long-run expectations."⁷

Since this argument is clearly a rationalisation of price rigidity, rather than a vindication of differential price movements over the business cycle, it cannot satisfactorily suffice as an explanation of the lag and catch-up effect. In this sense, the Weiss model carries even less weight than its Galbraithian forebear.

Although broadly in the same tradition, Scitovsky's⁸ interpretation of the relationship between market structure and inflation differs significantly in certain respects. In point of fact, he disregards almost entirely the effects of changed demand conditions, but nonetheless, retains the notion of market power at the core of his explanation. Moreover, the Scitovsky theory represents an essentially long-run view of secularly induced inflation in contrast to the other predominantly short-run models.

At the heart of his thesis, Scitovsky contends that a primary cause of inflation should be sought in the relative power of buyers and sellers. Specifically :

⁷ Weiss, L., op. cit., p. 614.

⁸ Scitovsky, T., op. cit.

"Whenever the balance of power in the labour market differs from that in the product market, price formation in the two markets has conflicting impacts on the distribution of income; and I aim to show that the conflict, and the resolution of that conflict, leads to a one-way drift in the general level of wages and prices, which is part of the world-wide inflation we experience today."⁹

It is argued that originally both prices and wages were set by firms endowed with "double superiority".¹ Subsequently historical developments gradually altered this state of affairs; for various reasons sellers were able to increase their monopoly power in the product markets, whereas in juxtaposition, the growth of the trade union movement strengthened the position of labour. The resultant shift of economic power lent a new dimension to the third key variable in Scitovsky's model, namely; "staying power or each party's ability to absorb the costs or losses of industrial warfare. Parity of staying power in the labour market served to focus attention on the asymmetrical distribution of strength in the markets for output. Indeed, it is precisely this factor which imparts an inflationary bias to the system. While, "the change in labour earnings equals the change in wages; profits always change by less if the firm has the upper hand in the product market and so can escape part of the cost of a wage increase by

⁹ Ibid. p. 221.

¹ Ibid. p. 222.

² Ibid. p. 223.

shifting it on to its customers' shoulders in the form of a price increase."² Scitovsky couches the conclusion to his analysis very much in terms of discretionary behaviour :

"Since price-makers adjust output prices fairly easily in response to changes in their input costs, the asymmetrical, upwards only flexibility of wages goes a long way to explain the upward bias of price movements and thus the inflationary nature of modern economies."³

Insofar as the model ignores the competitive sector, it provides no explicit explanation for differential pricing over the business cycle. Nonetheless, because competitive firms are incapable of simply raising prices, their reactions to wage increases must necessarily contrast to those of oligopolistic enterprises. In this sense, the theory does at least tacitly explain the lag and catch-up effect. But of course, implicit recognition of the phenomenon is a far cry from an unambiguous theoretical exposition. To that extent, the Scitovsky model does not provide a satisfactory theoretical basis for the administered price hypothesis.

In his contribution, Wu concentrates on the nature of uncertainty confronting the monopolist. Essentially two kinds of uncertainty may be distinguished; "that generated exogenously and viewed by the decision maker as the state of the world, and that generated endogenously by the

³ Ibid. p. 223.

decision maker's attempt to exercise some conditional influence over his environment or from the interrelated nature of the human behaviour among market participants."⁴ Indeed it is possible to define monopoly power as the degree to which the latter form of uncertainty is present. Wu argues that given the futility of ex post price reductions in situations characterised by rivalry, oligopolists will resort to ex ante pricing in order to diminish endogenous uncertainty. In sum, market participants will adopt a stable price policy and compete in terms of other strategic instruments.

The Wu model is open to the same fundamental objection we leveled earlier at Weiss' hypothesis; it is a theory of price rigidity and not an explanation of differential price behaviour.

From our review of the theories which use the nature of monopoly power per se to explain the peculiarities of monopolistic pricing, it became clear that not one provided a satisfactory theoretical apparatus for the lag and catch-up effect. While such a conclusion does not necessarily indict the models themselves, since they may nonetheless yield interesting results in their own right, it does mean that from the point of view of the administered price hypothesis this line of inquiry has not proved particularly effective. We turn our attention therefore to the other, more fruitful approach to the problem.

⁴ Wu, S., op. cit., p. 61.

2.4.2 PRICING RULES AS AN EXPLANATION

A second school of thought contends that the theoretical key to the perplexing question of administered prices lies in the widespread application of rules of thumb to price determination. Of course, to the extent that the use of pricing rules implies at least some degree of monopoly power, the fundamental rationale behind this approach does not differ significantly from its relatively unsuccessful predecessor. But while those theories investigated the broader implications of monopolistic behaviour, here the analysis is restricted to one dimension of the problem. Theorists in this camp, whose members include Duesenberry,¹ Ackley,² Eckstein,³ Ross and Wachter,⁴ and John Blair,⁵ to name but a few, argue that firms sell on the basis of some standard mark-up on cost, and price so as to protect such mark-ups in the face of falling demand.

¹ Duesenberry, J., "The Mechanics of Inflation", Review of Economics and Statistics, Vol. 32, 1950, pp. 144-149.

² Ackley, G.C., "A Third Approach to the Analysis and Control of Inflation", American Economic Review Papers and Proceedings, Vol. 49, 1959, pp. 419-430.

³ Eckstein, O., "A Theory of the Wage Price Process in Modern Industry", Review of Economical Studies, Vol. 31, 1964, pp. 267-286.

⁴ Ross, S.A. and Wachter, M.L., "Wage Determination, Inflation, and the Industrial Structure", American Economic Review, Vol. 63, 1973, pp. 675-692.

⁵ Blair, J.M., "Market Power and Inflation : A Short-Run Target Return Model", Journal of Economic Issues, Vol. 8, 1974, pp. 453-477.

We saw previously that while it is possible to distinguish a great variety of pricing rules of thumb, they are ultimately all derivatives of two generic types; cost-plus and target return pricing.⁶ Analysts have enlisted both kinds of price determination in their models; although earlier attempts clearly favoured less sophisticated full-cost variants, in more recent work there appears to be a distinct trend towards target return on investment pricing. Accumulated empirical evidence seems to justify such a development.⁷

Despite individual peculiarities, a common theme does run through theories embracing pricing rules of thumb. It is argued that orthodox explanations of inflation share a common characteristic; prices and wages are presumed sufficiently flexible to permit continuous clearing of all markets. But in the real world "the fact is that most prices are not set by impersonal demand and supply forces any more than wage rates are."⁸ Indeed, the majority of prices are administered at the discretion of the seller according to pre-determined behavioural rules. Given that these rules usually take the form of a relatively stable mark-up on cost, changing demand conditions will not normally affect administered prices directly; generally, prices rise only in reply to cost increases. Moreover, in oligopolistic industries this type of price determination facilitates collusive agreements insofar as it

⁶ Chapter I, Appendix.

⁷ See, for instance, Blair, J.M., Economic Concentration, (New York : Harcourt Brace, 1972), chapter 18, and Lanzillotti, R.F., "Pricing Objectives in Large Companies", American Economic Review, Vol. 48, 1958, pp. 921-940.

⁸ Ackley, G.C., op. cit., p. 625.

represents a "... method of signalling when prices should change in response to changing demand and cost considerations."⁹

A more advanced prototype of this kind of model which employs a specific target rate of return on investment mechanism has recently been developed by Blair.¹ A unique feature of Blair's argument is the relatively short time horizon employed; "the thesis set forth here is that the company will seek to attain its target objective not simply over the long-run, with good and bad years averaging out around the target, but in each year, the term 'short-run target return model'".² In sharp contrast to earlier, rather crude cost-plus theories, Blair constructed his model in accordance with explicit and strict criteria. Thus :

"In most manufacturing industries, of course, demand and thus volume do not remain unchanged over any considerable period of time, and it is when output is falling below the standard volume that oligopolistic price behaviour assumes its most anomalous form. An explanation therefore requires something more than a simplistic adjustment of price to reflect the effect of changing volume on costs, profit margin, and price."³

Consider the following diagram :

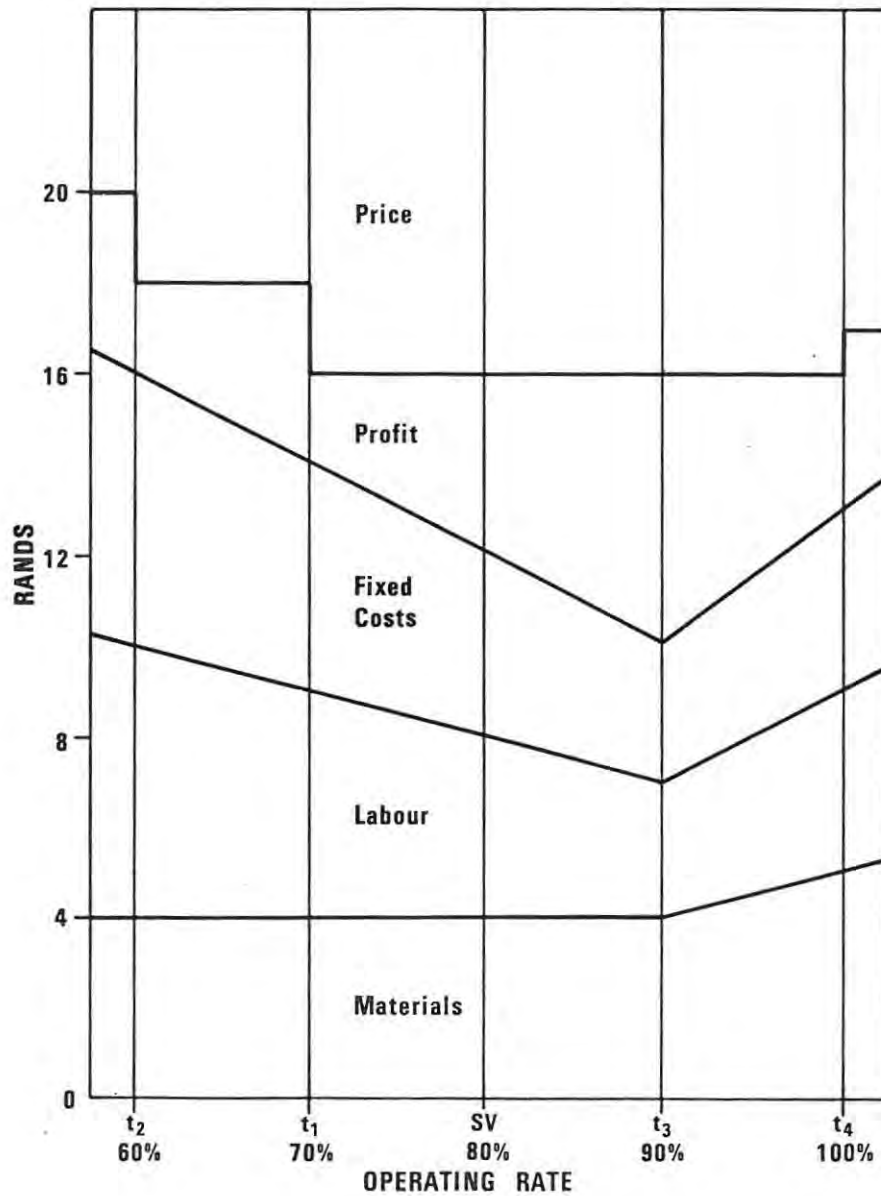
⁹ Ross, S.A. and Wachter, M.L., op. cit., p. 677.

¹ Blair, J.M., (1974), op. cit.

² Ibid. p. 468.

³ Ibid. p. 468.

FIGURE 4.



(Note: "Materials" or unit costs for the purchase of materials are assumed to remain constant up to t_3 with no quantity rebates. Thereafter, "... the general expansion of the economy will lead to shortages of needed material and components, premium prices, inferior quality, tie-in requirements, "grey markets", and other factors which raise costs directly or indirectly." Blair, J.M., "Inflation in the United States", in Means, G.C., The Roots of Inflation, (London: Franklin, 1973), p. 57).

A reduction in sales will result in a leftward shift away from standard volume (S.V.) which is assumed to exist at eighty per cent of capacity. As a consequence, costs will rise; since output has fallen fixed costs must obviously be higher, and because of a diminution of labour productivity, unit labour cost will increase. Blair justifies the latter observation on empirical grounds; in his words, "the existence of this direct relationship has been attributed to the belief that in the long run it is cheaper for a manufacturer to keep superfluous skilled workers on the job when demand falls than to try to locate and rehire them in a tight labour market or train unskilled workers to take their place when demand expands."⁴ Suppose output is compressed to t_1 ; once the decrease in demand has been confirmed as "not a transitory phenomenon,"⁵ the firm will raise its price to recoup the target profit margin originally obtained at S.V. The fact that time must elapse before confirmation of the stability of the altered demand conditions can be obtained, explains the adjustment of price at discrete intervals.

Consider an expansion in demand to t_3 from an initial position at S.V. While costs decline on the basis of the same reasoning applied to falling demand, price will nonetheless be maintained. The underlying rationale for price stability is drawn from conventional wisdom on the nature of collusive behaviour :

⁴ Ibid. p. 470.

⁵ Ibid. p. 473.

"Although his costs are decreasing, the oligopolist will not lower his price since the logic of imperfect competition theory comes into play when a price reduction is being contemplated. He will abstain from lowering his price since his output is large enough to affect the market and since he would expect that any price reduction on his part would be noted and matched by rivals whose production is sufficiently large to deprive him of the benefit of a lower price."⁶

Nor would the firm raise its price. The logic behind this contention is clear. The organisation is in any event achieving its target rate of return, and "... the large corporation in a concentrated industry tends to be profit satisficing rather than profit maximising."⁷ Moreover, a higher price might, in itself, have undesirable consequences "... such as an influx of newcomers, greater resistance by oligopsonistic buyers, an acceleration in the use of substitutes, and so forth."⁸ Should production expand beyond t_3 to t_4 however, price will eventually rise. When a situation of full or near-full capacity is reached, inputs will become more expensive thereby inducing cost increases; to protect target profitability, the firm must raise its price.

Given premises of target return pricing, the model does provide a lucid and theoretically rigorous microeconomic explanation of the admin-

⁶ Ibid. p. 475.

⁷ Ibid. p. 473.

⁸ Ibid. p. 473.

istered price hypothesis; it predicts unambiguously that oligopoly prices will not fall, and may even rise, in the face of a business contraction. Conversely, prices will only increase through either heavy or sustained demand, or through upward cost pressures. The success of the model with respect to the lag and catch-up effect is rather more limited; nonetheless, it does account for a hesitant response on the part of concentrated industries to changed demand conditions. The major shortcoming of the theory undoubtedly resides in its inability to explain how initial profit margins are determined. Of course, this weakness is shared by many other models of oligopolistic behaviour. Indeed, Blair himself anticipated just such a objection :

"What has been set forth above is not so ambitious as a general theory; it is merely one model or pattern, a paradigm, to explain an otherwise inexplicable type of behaviour. This model would appear to offer an explanation for (1) the tendency for oligopolistic prices to rise during recession; (2) their tendency to show a lesser price increase during reflation; (3) their failure to decline at any stage of the business cycle; and (4) their tendency to manifest their changes at irregular intervals in a 'ratchet' or 'stair-step' manner."⁹

2.4.3 OVERVIEW OF THEORETICAL BASES

The previous examination of the hypothesised theoretical bases for the doctrine of administered prices has shown clearly that the label "a

⁹ Ibid. p. 474.

phenomenon in search of a theory" no longer rings true. It was argued that two kinds of explanation had been advanced by the profession; on the one hand, theorists attempted rather unsuccessfully to analyse differential price behaviour in terms of monopoly power per se, while another school of thought based their models on the empirically justifiable assumption of the widespread application of pricing rules. The more sophisticated models of the latter group, which employed target return pricing, appear to have provided a reasonably satisfactory theoretical basis for at least the short-run version of the administered price hypothesis. Moreover, further development of this type of model by no means excludes the possibility of establishing support for the longer run interpretation of the doctrine; should the prediction of the downward inflexibility of administered prices be validated, then it is not difficult to see this as imparting an inflationary bias to the aggregate level of prices. An added advantage of models which apply pricing rules of thumb to concentrated industries resides in the potential microeconomic reinforcement they could receive from recent progress in the theory of the firm. Work on the nature of decision-making by the behaviouralists, for instance, can provide insights into the kind of pricing rule which the firm chooses. In addition, managerial theory may advance understanding on how the organisation evaluates a satisfactory rate of return on investment relative to other corporate goals. It is reasonable to conclude therefore, that theoretical investigation typified by the Blair model, has gone a long way towards reinforcing the administered price hypothesis.

CHAPTER III : RESEARCH OBJECTIVES, DESIGN AND METHOD

3.1 INTRODUCTION

Up to this point we have focussed almost exclusively on theoretical issues within the broad area of the theory of the firm. In the present chapter emphasis is shifted to certain empirical counterparts of the theory discussed thus far.

We have shown that it is possible to identify three major schools of thought within the theory of the firm, namely the neoclassical, managerial and behavioural theories. Given the lack of unanimity as to the purpose of the theory of the firm, it would appear at first sight that these theories represent competing hypotheses. However, an evaluation of the three schools of thought revealed some interesting conclusions. It was argued that because the behavioural theory concerned itself with "realism in process" or the analysis of actual decision-making, the questions it was designed to explore contrasted rather sharply with the emphasis neoclassicism and managerialism placed on investigating the attempts by the firm at maximising an objective function under constraints. In this sense, behaviouralism did not constitute a rival theoretical apparatus but instead a unique field of inquiry. On the other hand, the neoclassical and managerial theories did apparently represent competing hypotheses about the firm. However, this ostensible conflict is not irreconcilable.

If the modern economy is viewed as comprised of two distinct groups, a core of concentrated or "managerial" industries and a periphery of

smaller, more competitive firms, then both explanations are essential for a proper understanding of the workings of a capitalist economy.

Once the notion of economic dualism is accepted, it follows that different motivations and behaviour patterns are likely to occur in each sphere of activity. Moreover, policies of price determination could vary according to the state of competition, which not only influences relative prices but may also affect the absolute price level. In other words, significant relationships might exist between market structure and the process of inflation. And it is precisely this kind of conjecture which provides the raison d'être of the doctrine of administered prices. In sum, a substantial aspect of this study has attempted to show that it is possible to identify a consistent line of reasoning which originates in the empirical examination of price formation in the 'thirties, such as the work of Hall and Hitch, extends through the managerial theory of the firm, the dual economy hypothesis, and finally culminates in the doctrine of administered prices.

Although the broad genre of managerial theory does account for the discretionary latitude necessary for setting administered prices in the first instance, no specific mechanism is developed to explain the actual determination of prices other than a general allusion to rules of thumb. Clearly, if market structure does influence the conduct and subsequent economic performance of firms, then one should anticipate that the inevitable changes in demand and cost conditions which occur through the business cycle will affect individual industries differently depending on the particular market structure in which they find themselves in. Two main kinds of microeconomic theory are advanced in

order to explain the differential pricing suggested by the hypothesis of administered prices. After an analysis of these explanations, it was argued that those founded on the application of pricing rules proved theoretically the most plausible. In particular, the target return model of Blair appeared to provide a coherent basis for pricing in concentrated industries.

But how do firms set and vary their prices in practice? Does competition, or at least its surrogate the degree of market concentration, influence the determination of prices in the real world? What is the empirical validity of the administered price hypothesis? Are the assumptions and predictions of the Blair model borne out by actual market conduct? It is matters such as these which are investigated in the rest of this thesis.

3.2 RESEARCH OBJECTIVES

The empirical component of the present study attempts to investigate a number of propositions which emerged from the main body of the theoretical analysis. In general, we shall seek to establish whether any significant behavioural differences in price formation exist between firms belonging to industries of different degrees of economic concentration. The investigation itself may be sub-divided into five constituent elements to be tested in the context of South African manufacturing industry. Statistical data suited to the testing of these hypotheses are not normally, if ever, available from published sources. Hence it was necessary to directly approach a number of representative

firms in order to establish their methods of price determination, under different conditions of economic concentration, in the manufacturing sector of the South African economy. Each of the five areas of investigation is outlined below:

1. A major aim of the present investigation is to determine the empirical validity of the administered price hypothesis from a microeconomic point of view. The research effort which has been devoted to the doctrine has almost exclusively adopted an aggregative approach. The resulting evidence has been mixed.¹ Essentially three methods of testing the administered price hypothesis have been used:² to determine whether a long-term upward trend in the profit margins of highly concentrated industries has occurred, researchers have estimated the size of these margins through time. Secondly, some studies have compared the performance of profit margins in "high" as opposed to "low" concentration industries, and thirdly, attempts have been made to demonstrate a relationship between pricing policy and the level of market concentration. While not exclusively concerned with the

¹ For surveys of the empirical studies, see Mueller, W.F., "Industrial Concentration : An Important Inflationary Force", in Goldschmid, H.J., Mann, H.M. and Weston, J.F., Industrial Concentration : The New Learning, (Boston : Little Brown, 1974), pp. 281-307, Lustgarten, S., "Administered Inflation : A Reappraisal", Economic Inquiry, Vol. 13, 1975, pp. 191-206, Beals, R.E., "Concentrated Industries, Administered Prices and Inflation", (Washington : Council on Wage and Price Stability, 1975), and Scherer, F.M., Industrial Market Structure and Economic Performance, (New York : Rand McNally, 1980).

² Kottke, F., "Statistical Tests of the Administered Price Thesis : Little to Do About Little:", Southern Economic Journal, Vol. 44, 1977, pp. 873-882.

administered price hypothesis, the present study does fall squarely within the last camp. Moreover, in addition to examining the original monotonic view of market concentration and price formation espoused by Means, we are also interested in the more recent U-shaped hypothesis propounded by Qualls and outlined in the previous chapter.

2. A second area of interest resides in the micro-theoretic foundations of the doctrine of administered prices. We argued earlier that potentially the most useful microeconomic explanation of the lag and catch-up effect underlying the administered price hypothesis is the target rate of return model of Blair. Consequently, an attempt is made at evaluating the performance of this model in the context of South African manufacturing industry.
3. A third goal of the present study is to establish the importance which firms operating under different degrees of market concentration attach to certain objectives of pricing policy. The roots of this aspect of the study are found in the work of Hall and Hitch,³ Kaplan et al⁴ and Lanzillotti,⁵ with the added element

³ Hall, R.L. and Hitch, C.J., "Price Theory and Business Behaviour", Oxford Economic Papers", 1939, pp. 12-45.

⁴ Kaplin, A.D.H., Dirlam, J.B. and Lanzillotti, R.F., Pricing in Big Business, (Washington : Brookings Institute, 1955).

⁵ Lanzillotti, R.F., "Pricing Objectives in Large Companies", American Economic Review, Vol. 48, 1958, pp. 921-940.

of industrial concentration.⁶ It is clear that for the managerial theory of the firm to be vindicated empirically, profit maximisation should not be universally rated as the major objective of price formation by firms operating in highly concentrated markets.

4. A fourth aspect is to ascertain the relative importance firms accord to various competitive instruments. In our discussion of monopolistic competition in chapter I for instance, we saw that product differentiation achieved prominence in that kind of market form. It is similarly conceivable that the purported price stability characteristic of oligopolistic markets, might mask competitive activity conducted by means of strategic variables apart from pricing policy. In an effort to provide answers to questions such as this the present study attempts to establish the weighting firms of differing degrees of market concentration attach to the more important strategic variables.

5. Finally, an investigation is conducted into the employment of pricing rules of thumb in order to assess which attributes of the economic environment affect the extent to which they find application. A recurrent theme throughout the theoretical component of the present study has been the nature and incidence of pricing rules. For instance, in our analysis of the theory of oligopoly we

⁶ See also, inter alia, Saxton, C.C, The Economics of Price Determination, (London : Oxford University Press, 1942), Oxenfelt, A.R., Industrial Pricing and Market Practices, (New York : Prentice-Hall, 1951), and Thompson, A.A., "Absolute Firm Size, Administered Prices, and Inflation", Economic Inquiry, Vol. 12, 1974, pp. 240-254.

saw that a number of models embraced some version of the full cost doctrine. Moreover, it was argued that all the major managerial theories of the firm implicitly relied on pricing rules as their explanation of price determination. The behavioural theory represents a preliminary attempt at explaining how and why rules of thumb have arisen, including of course pricing rules. In an appendix to chapter I, the mechanics of pricing rules were outlined and contrasted with conventional marginalist pricing. In chapter II, pricing rules once again played a key role, and it was postulated that models founded on this concept were the most fruitful in explaining the lag and catch-up effect underlying both the Means' and Qualls' variants of the doctrine of administered prices.

3.3 DEFINITION OF POPULATION AND SAMPLING PROCEDURES

Since the relationship between industrial concentration and pricing policy is a central theme of this study, it is clear that the populations selected from the larger universe of all South African manufacturing companies must be chosen in such a way as to reflect varying degrees of concentration. Whilst prima facie this might appear a relatively simple matter, there are in fact a number of practical difficulties.

Information on economic activity is arranged in terms of the Standard Industrial Classification (SIC), whose objective "... is to classify data in respect of the economy, such as output, revenue, materials used, employment, salaries and wages, according to categories of activities which are as homogeneous as possible."¹

An understanding of the basic characteristics of the SIC system is essential for any empirical examination of industrial concentration. Briefly, production is divided into five principal categories each with a progressively narrower scope.² The one-digit classification distinguishes between the major areas of economic activity such as agriculture, mining, manufacturing; manufacturing is sub-divided into nine two-digit categories which represent industry groups like "food, beverages and tobacco" or "wood and wood products including furniture." Each two-digit classification is obviously very broad comprising numerous related industries, and is broken down into specific three-digit categories which are more closely aligned in terms of productive activities. Division 37 or "basic metal industries", for instance, decomposes into the two more homogeneous classifications of 371 "iron and steel basic industries" and 372 "non-ferrous metal basic industries." Three-digit industry groups are further sub-divided into their constituent four-digit industries. Since each industry typically manufactures a wide range of products, four-digit classifications are broken down into product classes of five-digit categories. This classification aggregates all firms engaged in similar operations, and multiproduct companies are grouped on the basis of their main activity. The rationale underlying the SIC system is made explicit by Blair:

¹ Standard Industrial Classification of All Economic Activities (SIC), (3rd ed.) - January, 1981, (Pretoria : Government Printer, 1981), p. 5.

² For a detailed exposition of the properties of the SIC system, see Blair, J.M., Economic Concentration, (New York : Harcourt Brace, 1972), pp. 3-22 and Shepherd, W.G., The Economics of Industrial Organisation, (Englewood Cliffs : Prentice-Hall, 1979), pp. 214-220.

"In essence the system seeks to establish spheres of economic activity which are unique and distinguishable from other spheres by a composite of similar characteristics which they have in common. Principal among these characteristics are similarity of processes, products, and materials used, and the bringing together of a group of plants that are economically significant in terms of their number, value added by manufacture, value of shipments, and number of employees. These standards flow very largely from the actual structure ... of business ... and it is these characteristics that make the system the best single one for the largest number of uses."³

From the perspective of the current study, the most important aspect of the SIC system is its indispensable role in measuring economic concentration. In principle, there exist two separate types of economic concentration, namely aggregate concentration and market concentration. Aggregate concentration measures normally refer to the share of a predetermined number of the largest organisations in the total output or employment or assets employed in a given economy. Market concentration, on the other hand, assesses the share of particular firms in a specific market.⁴

Numerous measures of concentration and monopoly have been developed

³ Blair, op. cit., p. 8.

⁴ See, for instance, Pickering, J.F., Industrial Structure and Market Conduct, (London : Martin Robertson, 1974).

in the literature.⁵ In essence, one can distinguish between three methods of gauging market concentration. By far the most widely employed are concentration ratios and concentration curves which are measures of relative importance; that is, the proportion of turnover, employment, fixed assets etc., controlled by a specified leading group of firms.⁶ More recently, certain summary measures like the Hirschman-Herfindahl index and the Rosenbluth index have been developed which attempt to include all the relevant features of a given market in a single statistic.⁷ Thirdly, various measures of the differences in firm size exist such as the well-known Lorenz curve, but in the main these have been used in investigations of aggregate concentration.⁸

All measures of concentration share a number of serious deficiencies. The most obvious difficulty lies in the classification of industries and markets. The taxonomical problem in this regard is two-fold. Firstly, the existence of high cross-elasticities of demand makes the definition of markets ambiguous, and in practice it is hard to develop rigorous guidelines. Moreover, the distinction between regional and national markets is often of great importance, although given the geographic distribution of South African manufacturing industry it is not

⁵ See, for example, Miller, J.P., "Measures of Monopoly Power and Concentration : Their Economic Significance", in NBER Business Concentration and Price Policy, (Princeton University Press, 1955).

⁶ Saving, T.R., "Concentration Ratios and the Degree of Monopoly", Institute of Economic Research, Vol. 11, 1970, pp. 139-146.

⁷ Adelman, M.A., "Comment on the 'H' Concentration Measures as a Numbers Equivalent", Review of Economics and Statistics, Vol. 51, 1969, pp. 99-101.

⁸ Marfels, C., "A Bird's Eye View to Measures of Concentration", Antitrust Bulletin, Vol. 20, 1975, pp. 485-503.

likely to be too significant. National, as opposed to regional measures of concentration nonetheless do tend to understate actual market concentration. Secondly, such important elements of market structure as vertical integration and conditions of entry are ignored. Influences of this nature may be crucial in the operation of particular markets. Since measures of concentration implicitly assume that each firm represents an independent decision-making unit in its own right, they ignore the interdependence induced through arrangements like interlocking directorships and parent holding companies. The result may be an understatement of actual concentration. Finally, concentration measures focus exclusively on domestic production, and by disregarding imports, may seriously overstate the degree of concentration.⁹

With respect to the South African manufacturing industry there exist four measures of concentration which have been estimated at three levels of the SIC system. In a wide-ranging study P.G. Du Plessis calculated concentration ratios for turnover, employment and fixed assets at the two, three and five digit SIC categories, as well as the Horvath comprehensive measure of concentration based on turnover at the three and five digit

⁹ See, inter alia, Hart, P.E., "Entropy and other measures of concentration", Journal of Royal Statistical Society, Vol. 134, 1971, pp. 73-85, Tideman, N., "Measures of Concentration", Journal of American Statistical Association, Vol. 62, 1967, pp. 162-168, Hannah, L. and Kay J., Concentration in Modern Industry, (London : Martin Robertson, 1977), and Schalmensee, R., "Using the H-Index of Concentration with Published Data", Review of Economics and Statistics, Vol. 59, 1977, pp. 186-193.

levels.¹ Since no other estimates are currently available for South Africa, a researcher interested in economic concentration must thus select the most suitable of these measures for his purposes.

Before dealing with the appropriate SIC category, we shall first turn our attention to the apposite measure of concentration. Of the three concentration ratios calculated by Du Plessis, convincing reasons exist for rejecting estimates based on either fixed assets or employment. Neither of them provide reliable indications of market concentration because of variations in the degree of capital intensity within an industry. Since capital intensity usually bears an inverse relation to employment, concentration ratios based on this variable will, in all probability, understate the general extent of economic concentration. Conversely, by virtue of the fact that capital intensity normally correlates positively with firm size, ratios based on fixed assets tend to overstate the level of concentration. While concentration ratios based on turnover do encounter problems in the case of multi-product firms, on the whole they provide rather more reliable estimates than those calculated from either employment or fixed assets.

The fourth measure of concentration calculated by Du Plessis, the Horvath comprehensive measure applied on turnover data, is not satisfactory for our purposes.² The primary deficiency of this index in

¹ Du Plessis, P.G., Concentration of Economic Power in the South African Manufacturing Industry, unpublished Ph.D. dissertation, University of Stellenbosch, 1977.

² Horvath, J., "Suggestion for a Comprehensive Measure of Concentration", Southern Economic Journal, Vol. 37, 1970, pp. 446-452.

the South African context resides in the fact that it includes the absolute share of the largest firm in an industry, and since in the highly concentrated South African manufacturing industry firm size often reflects diversification, turnover data may be misleading. Moreover, the Hovarth measure has been shown to possess several other unfortunate characteristics. For instance, under certain conditions, if the share of the leading firm increases the estimate of concentration falls.³

Once the matter of a suitable and reasonably reliable indicator of economic concentration has been settled, the question of the most appropriate SIC level must be decided. Since the one, two and three-digit classifications are so broadly defined, they have been generally employed in connection with aggregate concentration. Almost all studies which deal specifically with market concentration use either the four or five-digit classifications.⁴ With respect to South African conditions Du Plessis notes :

³ Horowitz, A.R., "Suggestion for a Comprehensive Measure of Concentration : Comment", Southern Economic Journal, Vol. 38, 1971, p. 602.

⁴ See, for instance, the classic work done by Bain, J.S., Industrial Organisation, (New York : Wiley, 1959), Kaysen, C. and Turner, D.F., Antitrust Policy - an Economic and Legal Analysis, (New York : Harvard University Press), and Sheridan, K., "An Estimate of the Business Concentration of Australian Industries", Economic Record, 1968, pp. 26-41.

"When a detailed analysis of market structure in a specific industry is to be made, the five-digit level will be the obvious level at which to do it. As for the identification of restrictive trade practices and of imperfect market structures, such as monopoly or oligopoly, this could hardly be done on any level other than a five-digit classification."⁵

In any event, practical limitations do not permit the use of the four-digit classification in an investigation of South African manufacturing industry since no concentration measures have been estimated at that level.

In sum, for the reasons outlined above the present study will employ the common concentration ratio based on turnover and calculated at the five-digit level of concentration.

Given the empirical objectives set out in the previous section, it is clear that the universe of 181 five-digit South African manufacturing industries must be sub-divided to yield high, medium and low concentration populations from which samples may be drawn. The most obvious problem inherent in this procedure stems from the ill-defined nature of the terms "high", "medium" and "low". Of course, it is never possible to rigorously demarcate industries according to this kind of terminology, and one must therefore seek guidelines from the relevant literature. But a priori it is evident that whatever criteria are employed must draw clear-cut

⁵ Du Plessis, op. cit., p. 233.

distinctions between the three groups thus avoiding "grey areas" where one category merges into another.

Although no unanimity exists in the literature, the differences between various studies do not appear marked and seem often to stem from data availability and other practical arrangements rather than theoretical observations. Kaysen and Turner based their concentration groupings on the share held by the eight largest companies.⁶ The "concentrated" category indicated those industries where the eight largest firms enjoyed a market share of 50 per cent or more, an "intermediate" category of market shares between 33 and 49 per cent, and an "unconcentrated" category in which the eight-company share was less than 33 per cent. Blair, on the other hand, used the market share of the four biggest companies, and defined high concentration as exceeding 50 per cent, "moderately concentrated" as between 25 and 49 per cent, and competitive industries as less than 25 per cent.⁷ A rather different approach was adopted by Sheridan; here high concentration denotes the case where the four largest firms account for at least 50 per cent of total employment in a given industry, medium concentration where the largest eight account for 50 per cent, and low concentration where 50 per cent of employment falls within the largest twenty companies.⁸

6 Kaysen and Turner, op. cit., pp. 295-297.

7 Blair, op. cit., pp. 11-12.

8 Sheridan, op. cit., pp. 26-41.

In South Africa, where Industrial Census enumeration regulations permitted the estimation of three-firm concentration ratios, Du Plessis identified four levels of market concentration as follows:

"Highly concentrated industries: where the three largest firms control at least 70 per cent of each variable [fixed assets, employment and turnover] in each industry;

- fairly concentrated industries: where the three largest firms control between 50 and 69 per cent of each variable in each industry;
- slightly concentrated industries: where the three largest firms control between 25 and 49 per cent of each variable in each industry; and finally
- unconcentrated industries: where the three largest firms control less than 25 per cent of each variable in each industry."⁹

⁹ Du Plessis, op. cit., p. 224.

Although this study will retain the three-firm concentration ratio based on turnover and estimated at the five-digit level by Du Plessis, we will not employ his classifications of market concentration, for the following two reasons. Most importantly, for our purposes we do not need a two-fold interpretation medium concentration. Indeed, as we have shown such a categorisation is out of line with major international investigations. Secondly, since concentration ratios represent only approximations of actual market concentration, it seems prudent to define concentration levels in terms of discrete intervals which do not have neighbouring boundaries. After all, can one really say that an industry with a three-firm concentration ratio of 0,4814 (SIC 31140 "Canned and preserved fish ...") is in fact more competitive than one with a ratio of 0,5045 (SIC 31190 "Chocolates, sugar confectionary and cocoa").

Consequently we have adopted the following tripartite classification which draws a more clear-cut distinction between the various classes of concentration, and is intended to remove the blurred areas where one level merges with another:

Highly concentrated industries: where the three largest firms control at least 70 per cent of turnover in a given industry,

industries of medium concentration: where the three largest firms control between 35 and 55 per cent of turnover in a given industry, and

industries of low concentration: where the three largest firms control less than 25 per cent of turnover in a given industry.

The introduction of a dividing margin between the three categories is an innovation which serves to highlight any behavioural differences associated with industrial concentration. The determination of the exact magnitude of the margin is, of course, problematic. After discussions with academics and civil servants with expertise in this area, it was decided to adopt the classification outlined above.

The application of these categories to the three-firm concentration ratios of the total universe of 181 five-digit South African manufacturing industries yielded the following breakdown; 60 highly concentrated industries, 46 industries of medium concentration, and 26 less concentrated industries. In percentage terms this clearly reflects the highly concentrated nature of South African manufacturing as a whole. The three stratified populations comprise roughly 33 per cent, 25 per cent and 14 per cent respectively of the universe, or a total of almost 73 per cent of all industries.

For various reasons not all the individual industries included within the stratified populations actually belong to these groupings. One important reason for this is the fact that although the concentration estimations provided by Du Plessis became available as late as 1977, they were based on the 1972 South African Industrial Census. While for the vast majority of industries this raises no particular problems, obviously some industries had undergone marked changes. In general, though the weight of evidence on trends in industrial concentration does indicate a long-term movement towards increases in both aggregate and market concen-

tration, observers are agreed on the gradual nature of the process.² In any event, by virtue of South African government regulations individual researchers are no longer given access to the necessary data.³

In order to identify those industries where extensive changes had taken place, the three stratified populations were carefully scrutinised in consultation with officials of the Board of Trade and Industries and the Competition Board. As a consequence, 4 of the highly concentrated category, 18 medium concentration, and 2 less concentrated industries were eliminated from the populations from which samples would be drawn. As a consequence the highly concentrated population now consists of 56 industries, the intermediate concentration population of 28 industries, and the low concentration population of 24 industries. The three stratified populations thus comprise approximately 31 per cent, 15 per cent, and 13 per cent respectively of the universe, or a total of almost 60 per cent of all industries. For the purpose of the present study, this means that 1,175 firms are classified as falling within highly concentrated industries, 1,808 firms in industries of medium concentration, and

² See, for instance, Blair, *op. cit.*, chapters 1 and 2, Hannah and Kay, *op. cit.*, Pickering, J.F., *op. cit.*, chapter 1, and for details of the position in South Africa, see Tregenna-Piggot, J.V., "An Assessment of Competition Policy in South Africa", *Economic Research Unit, University of Natal, Occasional Paper No. 8*, pp. 3-9.

³ See Du Plessis, *op. cit.*, for adverse comment and details of these policy reversals. *Inter alia*, the Official Secrets Act has been invoked.

7,409 firms are active in low concentration industries.⁴ It was felt the populations were now in a satisfactory state to be subject to sampling procedures.

3.4 QUESTIONNAIRE AND SURVEY DESIGN

Empirical research into economic phenomena typically makes use of data collected and published by government bodies or research institutions. Often however, the kind of information required does not exist in published form thus necessitating the direct collection of data by field work. Obviously the type of information sought constitutes the major influence on the method of data collection, and from the point of view of social research it is possible to distinguish seven varieties of information; behaviour, intentions, knowledge, socioeconomic traits, attitudes-opinions, motivations and psychological traits. Economic science, and this study is no exception, generally restricts itself to behaviour patterns in relation to socioeconomic information.

The selection of the most appropriate method of data collection rests on a number of universally applicable criteria. Schoner and Uhl have captured these succinctly:¹

⁴ Appendices 1, 2 and 3 at the end of chapter III provide details of the industries included in the high, medium and low concentration populations, and appendices 4, 5 and 6 indicate which industries were excluded.

¹ Schoner, B. and Uhl, K.P., Marketing Research : Information Systems and Decision Making, (New York : Wiley, 1975), p. 222.

"In attempting to collect information from respondents, investigators must strive to acquire sufficiently accurate and unambiguous information at appropriate costs and within specific time limits." (Original italics)

Given the physical constraints imposed upon him, and in terms of these criteria, the researcher must choose the specific means of seeking information. In essence, there are two methods of acquiring data; either respondents can be communicated with or they can be observed. Since by its very nature economic decision-making cannot be directly observed, methods of communication remain the only feasible way of gathering information.² Communication necessarily involves some or other form of survey, and "survey research is the systematic gathering of information from (a sample of) respondents for the purpose of understanding and/or predicting some aspect of the behaviour of the population of interest."³ There exist three principal ways of conducting surveys; personal interviews, by telephone and through the post.

Each of these methods suffers various drawbacks, and none is superior to the others in all situations.⁴ In order to assess the

² Delens, A.H.R., Principles of Market Research, (London : Crosby, Lockwood, 1959), chapter 1.

³ Tull, D.S. and Albaum, G.S., Survey Research : A Decisional Approach, (New York : Intext, 1973), P. 3.

⁴ Churchill, G.A., Marketing Research : Methodological Foundations, (New York : Dryden Press, 1979), p. 184.

advantages and disadvantages of the three techniques, it is useful to apply a set of criteria suggested by Tull and Hawkins;⁵ namely, informational control, sample control and administrative control. We shall briefly examine the three survey methods in terms of these criteria.

The criterion of informational control focuses on the complexity, volume and accuracy of the information sought. With respect to the complexity of the information required, it is argued for obvious reasons that the more complex the information required of the respondent the stronger is the case for personal interviews. Moreover, personal interviews are deemed most suitable in instances where a large quantity of information is needed. Surprisingly, however, several recent studies have concluded that the length of a mail questionnaire does not influence the response rate.⁶ Finally, the method of communication does not appear to affect the accuracy of the information sought.

The second criterion concerns sample control. The two constituent elements of sample control are deciding which members of the organisation included in the sample should be requested to provide information, known as "sample designation", and obtaining data from the sample. In industrial surveys the central problem of sample designation lies in the determination of which individuals are responsible for the specified organisational function the research is directed towards. Clearly, none

⁵ Tull, D.S. and Hawkins, D.I., Marketing Research, (New York : Macmillan, 1977), p. 377.

⁶ Kanuk, L. and Berenson, C., "Mail Surveys and Responses Rates : A Literature Review, Journal of Marketing Research, Vol. 12, 1975, pp. 440-453.

of the techniques possesses any special advantage in this respect. The principal differences between the three methods of communication stem from the actual procurement of information from the sample. The problem here is two-fold; primarily non-response but also ensuring that the person who provides the information is in fact the intended respondent. It is widely held that personal interviews are the most effective in regard to both these aspects.

The third criterion suggested by Tull and Hawkins is administrative control, which is of crucial importance in instances where the resources available to a researcher are severely limited. Administrative control is made up of the dual requirements of time and cost factors. When time is considered the crucial variable, the telephone survey is the obvious means of communication, with personal interviews the most time-consuming method.⁷ The high cost of field interviewing tends to be the primary influence in making personal interview surveys the most expensive of the three methods. Lower interviewing costs result in telephone surveys ranking second in terms of cost per respondent, while mail surveys remain the least expensive method.

While for the purpose of the current study the personal interview was considered the most desirable means of communication in principle, cost factors ruled out this method. The size of the sample and the fact that the research base Grahamstown is located a considerable distance from three of the four major metropolitan centres in South Africa implies a

⁷ Cox, W.E., "Response patterns to Mail Surveys", Journal of Marketing Research, Vol. 3, 1966, pp. 392-397.

prohibitively high level of expenditure. The telephone interview was deemed the least attractive technique given the practical difficulties of conveying the substance of long list of questions. Since dealing with respondents during the pilot phase of the study revealed no real problem with a mail survey, it was decided to employ this method in the present study.

The deficiencies inherent in mail surveys must be recognised. The major weaknesses have been outlined by Allt as :

- "(a) [D]ata gathering stage usually takes longer than the personal interview;
- (b) the researcher cannot control the attention given to the questionnaire or know when differences of interpretation are taking place, unless piloting on comprehension has been undertaken;
- (c) response material in free-response questions may be excessive or inadequate - it cannot be controlled as in a personal interview;
- (d) informants may be more unrepresentative of the population studied than in a personal interview study ...;
- (e) the informant may read and/or answer the questions in any order. Thus one cannot assume that answers to any questions are independent of the effects of reading and/or answering later questions;
- (f) tests of 'awareness' must be interpreted with great caution."⁸

⁸ Allt, B., "Mail Surveys", in Worcester, R.M., Consumer Market Research Handbook, (London : McGraw-Hill, 1972), p. 195.

Of course, not all of these shortcomings are applicable to the present investigation. Points (c) and (f) are irrelevant since none of the questions required that kind of response. Moreover, the initial pilot study indicated that difficulties of the nature of (b) were minimal. With respect to (d) the fact that respondents had to provide their names and positions, as well as the reasonably good response obtained, reduces any significant bias from this source. The only real problem would appear to arise from (e), and the nature and structure of the questions themselves tended to act as an attenuating factor. In short, it is felt that in this particular instance none of the above disadvantages presented any valid reason for rejecting the mail survey as an appropriate instrument of communication.

Mail surveys do not lack significant favourable attributes. Once again, Allt lists the more important of these as :

- "(a) [I]mmunity from variable interviewer effect;
- (b) survey as a whole is more reliable i.e., identically repeatable than a personal interview study;
- (c) informant can work at his own pace;
- (d) even ignoring cost, it is sometimes the only possible way of contacting the relevant population;
- (e) many of the contexts in which mail research is particularly appropriate also provide a basis for economies through differential rates of sampling of particular sub-groups;
- (f) the relative level of response to different parts of the questionnaire can provide a valuable indicator of informant interest and, hence, relevance;

(g) points (a) and (b) can make it a particularly suitable tool for multinational studies." (Original italics)⁹

Some of these qualities are obviously not relevant in the context of the present study, and here one has in mind particularly points (d) and (g). Moreover, given the relatively simple nature of the questions (c) would seem rather insignificant. However, there can be no doubt that (a), (b), (e) and (f) have distinct advantages over the other information gathering techniques.

Churchill has neatly summarised the attractive features of the mail survey in the domain of economic research :

"If there is an accurate, applicable, and readily available list of population elements, the mail questionnaire allows a wide and representative sample since it costs no more to send a questionnaire across country than it does to send one across town. Even ignoring costs, it is sometimes the only way of contacting the relevant population, such as with busy executives who will not sit still for an arranged personal or telephone interview but may respond to a questionnaire."¹

⁹ Ibid., p. 195.

¹ Churchill, op. cit., p. 177.

3.5 THE QUESTIONNAIRE

Questionnaire construction requires a combination of creative thought and good common sense, or as Boyd, Westfall and Stasch have noted :

"Questionnaire construction is still much more of an art than a science. No procedures have been established which will automatically lead to a good questionnaire. Most of what is known about making questionnaires is the result of general experience. Neither a basic theory nor even a fully systematic approach to the problem has been developed."¹

Compilation of the questionnaire begins with an assessment of the kinds of data required. In the present study of course, the information requirements have already been predetermined by the hypotheses under investigation. Once a comprehensive list of the prospective subject matter of the questionnaire has been compiled, the researcher must turn his attention to the actual process of questionnaire construction. There exist several key elements in the creation of the questionnaire, and the investigator ignores these at his peril.

The essential ingredients of any questionnaire may be summarised as the physical lay-out of material, the form of the questions, question sequence, and the wording of questions. We shall consider each of these components below.

¹ Boyd, H.W., Westfall, R. and Stasch, S.F., Marketing Research : Text and Cases, (Homewood : Irwin, 1977), P. 225.

It is widely accepted that the format of the questionnaire must not be viewed in isolation. Rather, the range of items the respondent should be seen as an integrated unity, and "... should aim to elicit maximum involvement on the part of the informant."² The appearance and content of the material obtained by the respondent must be such as to arouse his curiosity, make its importance and relevance to him quite clear, seem interesting, and be easy to comprehend, complete and return. In this particular instance the informant received an envelope containing a covering letter outlining the objectives of the survey, a questionnaire, and a stamped self-addressed envelope displayed so that the stamps were visible upon opening.³ It was felt that this would engender a more positive response. Moreover, at every opportunity the official crests, insignia and letterheads of Rhodes University were made use of as conspicuously as possible. The questionnaire itself was designed so as to convey an impression of simplicity and space. It was broken down into three separate sections according to the nature of the information sought. An introductory section aimed at obtaining details of the respondent. The underlying motives here were two-fold; to check whether a person in a suitable position had completed the questionnaire, and rather less importantly to instil a feeling of accountability in the respondent. Section A included 27 questions where the informant was required to tick one appropriate option. In every instance ample space was provided for the respondents to comment in writing, and they were freely invited to do so. Section B contained 2 questions where various

² Allt, op.cit., p. 203.

³ See appendices 7 and 9 for examples of the questionnaire and covering letter.

items had to be ranked in order of importance.

The choice of the addressee was problematic. After discussions with the informed parties, the designation "marketing manager" was finally adopted. This decision was justified on essentially two counts. Firstly, it was felt that the executive in charge of marketing was likely to be relatively sensitive to public relations, and consequently more favourably disposed towards responding. In addition, his position within the organisation makes him a suitable respondent per se given the data required.

The nature of the information sought generally represents the major determinant of the actual form of the questions.⁴ Broadly speaking, there are three prototype methods of formulating questions; the free-answer or open question where no fixed responses are provided, the dichotomous question which calls for a positive, negative, or neutral answer, and the multiple choice question where the respondent is confronted with a set of response categories. Section A of the questionnaire not only makes use of both the dichotomous and multiple choice forms but also, by adding "comments (if any)" and "other (please specify)" to all questions, contains elements of the free-answer form.

Part B of the questionnaire, which attempted to determine hierarchies of importance of various company goals and policies, employed the Rank Order technique. The device is not without its shortcomings, in

⁴ Green, P.E. and Tull, D.S., Research for Marketing Decisions, (Englewood Cliffs : Prentice-Hall, 1970), pp. 129-133.

particular "the forced choice and comparative nature of the technique results in a ranking of objectives regardless of the attitudinal position of the respondents to the objects as a group."⁵ Despite this, ranking scales are known to yield results comparable with those obtained using more complex techniques.⁶ Moreover, rank-order scales are especially suitable for mail surveys:

"It is simple in concept, easy to administer ... The instructions for ranking objects are easy to comprehend; consequently the technique can be used on self-administered questionnaires."⁷

Indeed, no problems whatsoever were encountered in the pilot study.

The sequence of questions, "like general form, makes a difference in recipients' understanding of what is being sought, in their willingness to be respondents, and even in their ability to respond".⁸ It is widely recognised that question sequence should be viewed in relation to the introduction to the questionnaire, which in the present case appears as a separate covering letter. The effect of subtle obligating

5 Kinnear, T.C. and Taylor, J.R., Marketing Research : An Applied Approach, (New York : McGraw-Hill, 1979), p. 238.

6 Kassarjian, H.H. and Nakanishi, M., "Study of Selected Opinion Measurement Techniques", Journal of Marketing Research, Vol. 4, 1967, pp. 148-153.

7 Kinnear, T.C. and Taylor, J.R., op. cit., p. 238.

8 Schoner and Uhl, op. cit., p. 232.

techniques in the covering letter must be reinforced by the first few early questions. According to Shoner and Uhl such questions should, in general, possess the following characteristics :

"... (1) call for short 'yes' or 'no' or check mark answers, (2) do not call for much thinking and recall, and (3) do not pose the respondents as either right or wrong."⁹

Once the initial phase of the questionnaire has been completed, and the informants' interest has hopefully been aroused, it is necessary to consider the principles of question sequencing. Although not universally appropriate, these criteria do appear for the most part valid:

1. A 'funnel sequence' should be used which results in ordering questions from the most general to the most specific.
2. Questions should be sequenced to engage interest at the beginning, obtain the most difficult or threatening information in the middle, and obtain amplifying and ancillary information at the end of the basic information section.
3. In general, a battery of questions is preferable to a single question, both for reasons of reliability and validity.

⁹ Ibid., p. 235.

4. Transitions between topic areas should be facilitated by 'bridging' materials written into the questionnaire."¹

While every attempt was made to adhere to the first two principles, in the interest of brevity points 3 and 4 were omitted. On balance, it was decided that the inherent advantages here were outweighed by the additional length this would have added to the questionnaire.

A major potential problem with respect to the sequence of questions lies in the fact that in a mail survey the researcher has no control over the order in which questions are answered. It has been argued by some that this will introduce a degree of bias into the results obtained. Experience gained during the pilot study seemed to indicate the problem was minimal. In any event, recent research suggests that any bias which may occur has been overestimated.²

The wording of questions is obviously a critical consideration in the formulation of a questionnaire. While the ability to construct clear unambiguous questions remains an art rather than a science, there are nonetheless five aspects of the process which should constantly be borne in mind. Firstly, question length is important. Since each word in a question represents a potential source of ambiguity, brevity is a virtue. Secondly, the investigator should avoid using words which are unfamiliar

¹ Tull and Albaum, op. cit., p. 145.

² Boyd, Westfall and Stasch, op. cit., p. 225.

to the respondent. Thirdly, words should never be placed in an ambiguous context where their intended meaning is unclear. Fourthly, if a question is carelessly worded it may sometimes result in two questions being asked as one, and finally, questions should not lack specificity; that is the core of the question must not be vague.³ In addition to these guidelines of course, the extensive pretesting of questions remains essential.

3.6 THE PILOT STUDY

The adage "no researcher can prepare a questionnaire so good that improvements cannot be discovered in field tests" was found to be perfectly fitting in the present study.⁴ Indeed, the entire process of piloting the questionnaire proved an invaluable source of assistance.

The pilot study itself fell into two stages, what may be termed an "internal" phase, and then the actual pretesting of a group from the population samples. During the initial period draft copies of the questionnaire and covering letter were given to academics and civil servants for comment. Modified versions of the documents were then prepared for use during the pilot study proper.

³ See Green and Tull, op. cit., pp. 133-136, and Delens, op. cit., pp. 124-131.

⁴ Boyd, Westfall and Stasch, op. cit., p. 250.

Delens had outlined six basic functions which a pilot study must perform. These include :

- "1. Whether the questions as they are framed will achieve the desired result by obtaining the required information ...
2. Whether the questions have been placed in the best order ...
3. Whether the questions are understood by all classes of respondents ...
4. Whether any bias is being introduced by the questions themselves or the way in which they are put ...
5. Whether additional or specifying questions are needed or whether some questions are redundant and should be eliminated ...
6. Whether the instructions are adequate ..."⁵

The method of conducting the pilot study is important; it is held that they "are best done by personal interview even if the survey is to be handled by mail."⁶ The procedure employed in this study attempted to simulate as closely as possible the conditions under which the eventual survey would take place. The test informants were given a sealed envelope

⁵ Delens, op. cit., p. 133.

⁶ Crisp, R.D., Marketing Research, (New York : McGraw-Hill, 1957), p. 384.

containing a covering letter, the questionnaire and a stamped, self-addressed envelope. They were requested to open the envelope and complete the questionnaire as though the material had come through the post in the normal way. Subsequently "de-briefing" was held with the filled-in questionnaire acting as a guide.

The respondents for the pilot study were chosen at random from the target population's with the stipulation that they be situated in the Port Elizabeth/Uitenhage metropolitan area, simply to avoid incurring excessive travel costs. In any event, "at this stage we are not interested in any statistical analysis but merely with the form of the questionnaire, and for this reason it is only necessary to ensure the representativeness of types."⁸ Nine firms were interviewed, three each from the stratified populations of high, medium and low concentration.

On the basis of the feedback from respondents during the pilot study certain changes were affected to some of the questions. Almost all of the alterations performed were of a minor linguistic nature, although some questions did require more drastic redrafting. Moreover, the average time taken to complete the questionnaire was found to be about twenty minutes, and this fact was added to the covering letter.

A final questionnaire was drawn up together with a revised covering letter examples of which may be found in appendices 7 and 9. At this stage, it was felt that all reasonable measures had been taken to ensure

⁸ Delens, op. cit., p. 134.

that the questionnaire was in the best possible form.

NOTE TO APPENDICES

The information contained in appendices 1, 2, 3, 4, 5 and 6 is based on P.G. Du Plessis' Concentration of Economic Power in South African Manufacturing Industry, (unpublished Ph.D. dissertation, University of Stellenbosch, 1977). The column headed "turnover of 3 largest firms" contains the concentration ratio calculated on turnover at the five-digit level of the SIC system. Thus for sub-group 31110 with a ratio of 0,8912 this means that the three largest firms in the industry control 89,12 per cent of turnover. The column headed "number of firms with at least 70 per cent of turnover" shows how many firms control a total of at least 70 per cent of turnover. For example, in the instance of sub-group 31110, 3 firms absorb at least 70 per cent of turnover whereas for 31112 only 2 firms are in a similar position.

APPENDIX 1.

FIVE-DIGIT THREE-FIRM CONCENTRATION RATIOS BASED ON
TURNOVER : HIGH CONCENTRATION

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
31110	Abattoirs: slaughtering, dressing and packing and small game for meat.	0,8912	3
31112	Natural sausage casings; tallow, dripping and lard	0,9200	2
31121	Condensed milk and milk powder and other edible milk products, except ice cream, ices, etc.	0,8184	2
31131	Pickles and sauces	0,7533	3
31132	Dried fruit packing	1,0000	1
31150	Crude oil and oilseed cake and meal.	0,9850	2
31152	Whale oil	1,0000	1
31161	Instant breakfast foods	0,9020	2
31171	Macaroni, vermicelli and spaghetti	0,9973	1
31210	Flavouring essences	0,9578	2
31211	Vinegar	0,7360	3
31213	Yeast	0,8316	3
31221	Chaff cutting; compressed fodder; and lucern meal milling	0,9673	2
31222	Bone-meal and blood-meal	0,7986	3

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
31330	Breweries, except Bantu beer breweries	1,0000	1
31331	Breweries - Bantu beer	0,8492	3
31400	Cigarettes, cigars, tobacco snuff, etc.	0,9840	2
32110	Wool scouring and combing	0,7426	3
32111	Cotton ginning	0,8442	2
32112	Fibre working (animal and vegetable)	1,0000	1
32113	Dyeing, bleaching, printing and finishing	0,9235	2
32114	Blankets	0,7883	3
32150	Rope, cable, cordage, twine, net and related products	0,9061	1
32190	Linoleum and coated fabrics	0,8871	2
33112	Wattle bark grinding and compressing	0,9973	1
33191	Coffins (excluding the manufacture of coffins by funeral undertakers)	0,9749	2
34110	Pulp, paper, paperboard and fibreboard	0,7426	3
35110	Tanning extract	1,0000	2
35120	Fertilizers	0,9065	2
35130	Manufacture of synthetic resins, plastic materials and man-made fibres, except glass	0,7802	2
35230	Soap, other cleaning compounds and candles	0,8046	2

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
35290	Polishes, waxes and dressings	0,7962	2
35291	Inks	0,8395	2
35292	Matches	1,0000	1
35293	Explosives and ammunition	0,9936	1
35300	Petrol, fuel, oils, lubricating oils and greases	0,7672	3
35510	Manufacture of types and tubes	0,8575	3
36200	Sheet and plate, glass containers and other glassware not elsewhere classified	0,9669	1
36201	Glass bevelling and silvering, safety glass and other glass products	0,7808	2
36202	Scientific and laboratory glassware, except the grinding of optical lenses	0,9807	1
36993	Abrasives	0,7360	3
37201	Precious metal refining on a free or contract basis	0,9293	2
38190	Tinware	0,7443	3
38210	Manufacture of engines and turbines	1,0000	1
38250	Manufacture of office computing and accounting machinery	0,9441	2
38291	Tractors - agricultural and other	0,9875	1
38391	Dry cell batteries	0,9773	1
38393	Electric bulb and fluorescent tubes	0,9132	2

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
38402	Radiators	0,8177	2
38520	Locomotives, coaching and goods-stock	0,7568	3
38540	Motor cycles, scooters, bicycles, tricycles and relevant specialized parts	0,9595	1
38550	Aircraft manufacture and repair	0,9517	1
38612	Surgical, medical and dental supplies	0,8224	2
38630	Manufacture of watches and clocks	0,9903	1
39019	Other precious and semi-precious stone cutting and polishing	1,0000	2
39092	Crayons, chalk, pens and pencils	0,8124	3

SOURCE : Du Plessis, P.G., Concentration of Economic Power in South African Manufacturing Industry, unpublished Ph.D. dissertation, University of Stellenbosch, 1977, Appendix 5.

APPENDIX 2

FIVE-DIGIT THREE-FIRM CONCENTRATION RATIO BASED ON
TURNOVER : MEDIUM CONCENTRATION

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
31130	Canned, preserved and dried fruit and vegetable juices; fresh fruit cordials and squashes; jams and jellies	0,3767	15
31140	Canned and preserved fish, fish meal and fish oil, including such processing on factory ships	0,4814	8
31180	Manufacture and refining of sugar; golden syrup	0,4820	7
31220	Balanced animal feeds	0,4383	8
31340	Aerated waters and soft-drinks including syrups but excluding establishments primarily producing fruit juices (subgroup 31130)	0,4226	13
32116	Spinning, weaving and finishing of non-woollen yarns and fabrics, except blanks, carpets and rugs	0,3549	14
32122	Tents, tarpaulins, sails and canvas goods	0,4155	9
32139	Other knitting mills	0,3447	9
32206	Millinery	0,3621	10
32339	General and small goods of leather and leather substitutes	0,4080	9
33120	Wood and cane containers	0,4605	9

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
34120	Manufacture of light packaging: non-corrugated, flexible, rigid and folding paper bags and boxes	0,3931	9
34121	Manufacture of heavy packaging: paper sacks balers and corrugated containers	0,4207	7
34191	Other paper products	0,4955	9
34201	Publishing only, as a separate business	0,4817	12
35210	Manufacture of paints, varnishes and lacquers	0,5476	8
35590	Manufacture of rubber products not elsewhere classified	0,4916	9
36910	Bricks, tiles, refractories, etc.	0,4223	13
36999	Other non-metallic products n.e.c.	0,4784	7
37101	Steel pipe and tube mills	0,4733	6
37200	Primary non-ferrous metal products excluding precious metals	0,3644	11
38191	Cables, wire products and gates	0,4311	9
38330	Manufacture of electrical appliances and housewares	0,3673	12
38610	Laboratory and scientific instruments, and measuring and controlling equipment, n.e.c.	0,4148	9
38620	Manufacture of photographic and optical goods	0,4736	6

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
39091	Brushes and brooms	0,4135	8
39097	Pattern-making, other than paper patterns	0,5007	7

SOURCE : Du Plessis, P.G., Concentration of Economic Power in South African Manufacturing Industry, unpublished Ph.D. dissertation, University of Stellenbosch, 1977, Appendix 5.

APPENDIX 3

FIVE-DIGIT THREE-FIRM CONCENTRATION RATIOS BASED ON

TURNOVER : LOW CONCENTRATION

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
31160	Flour and other grain mill products, including stock dry feeds	0,2178	22
31170	Bread, cakes and biscuits	0,1749	64
32130	Hosiery and other knitted clothing mills	0,1687	22
32200	Men's and boys' clothing factories	0,1464	47
32203	Bespoke tailoring	0,0691	136
32204	Women's and girls' clothing factories	0,0938	83
33110	Sawmilling from the round log and preservation of timber	0,1931	36
33113	Sawmilling, not from the round log: carpentry and joinery works and prefabricated wooden buildings (except on-site construction from purchased materials)	0,1533	33
33200	Furniture, including upholstered furniture	0,1929	87
34200	Printing and publishing	0,2483	56
35220	Manufacture of medicinal and pharmaceutical preparations	0,1524	24
35600	Manufacture of plastic products not elsewhere classified	0,1235	44

SUB-GROUP	TITLE OF CATEGORY	TURNOVER OF 3 LARGEST FIRMS	NUMBER OF FIRMS WITH AT LEAST 70% OF TURNOVER
36991	Cement products	0,2279	24
38130	Building hardware	0,2485	33
38131	Structural steel work; pre-fabricated steel buildings (excluding on site erection from purchased materials)	0,1534	33
38132	Ornamental and architectural metal work	0,2190	27
38194	Engineering workshops, welding, fitting and turning	0,0927	64
38195	Electroplating, anodizing, tinning, galvanizing, enamelling, industrial spray painting, plastic coating and sand blasting of metal products	0,1827	25
38199	All other metal products, n.e.c.	0,1712	66
38240	Manufacture of special industrial machinery and equipment, except metal and woodworking machinery	0,1497	51
38299	All other machinery n.e.c	0,2168	19
38401	Caravans, trailers and vehicle bodies	0,2199	22
38409	Specialised automotive engineering workshops working primarily for the trade	0,0957	85
39010	Jewelry and related articles composed of precious metals, precious and semi-precious stones and pearls	0,1642	37

SOURCE : Du Plessis, P.G., Concentration of Economic Power in South African Manufacturing Industry, unpublished Ph.D. dissertation, University of Stellenbosch, 1977, Appendix 5.

APPENDIX 4

INDUSTRIAL EXCLUDED FROM LOW CONCENTRATION POPULATION
FOR STRUCTURAL AND OTHER REASONS

SUB-GROUP	TITLE OF CATEGORY
33192	Picture frames and framing
38292	Air conditioning and ventilation machinery and refrigeration equipment

SOURCE : Unisa Bureau of Market Research Industrial Register - Standard Industrial Classification.

APPENDIX 5

INDUSTRIAL EXCLUDED FROM HIGH CONCENTRATION POPULATION
FOR STRUCTURAL AND OTHER REASONS

SUB-GROUP	TITLE OF CATEGORY
31152	Whale oil
35292	Matches
35400	Compound and blended lubricating oils and greases from purchased materials other than crude petroleum
36990	Plaster and other composite sheets, pipes, etc. from gypsum, cement, asbestos, etc.

SOURCE : Unisa Bureau of Market Research Industrial Register - Standard Industrial Classification.

APPENDIX 6

INDUSTRIES EXCLUDED FROM MEDIUM CONCENTRATION POPULATION
FOR STRUCTURAL AND OTHER REASONS

SUB-GROUP	TITLE OF CATEGORY
31190	Chocolates, sugar confectionery and cocoa
32121	Bags and sacks (from piece goods)
32123	Automotive textile goods (including seat covers, safety belts and upholstery)
32201	Men's and boy's hat and cap industries
32205	Furriers
32310	Tanneries - leather and fur
32332	Ladies' handbags
33111	Board - laminated, plywood, particle, etc.
33190	Woodcarving and woodturning
33199	Other wood and cork products
35121	Pesticides, insecticides, fungicides and herbicides
35294	Adhesives, glues and cements
35401	Other petroleum and coal products n.e.c.
36100	Manufacture of pottery, china and earthenware
38193	Headed and threaded articles
38230	Manufacture of metal and woodworking machinery
39093	Buttons, buckles, slide fasteners, etc.
39098	Engraving

SOURCE : Unisa Bureau of Market Research Industrial Register - Standard Industrial Classification.

APPENDIX 7



RHODES UNIVERSITY · GRAHAMSTOWN

P.O. Box 94, Grahamstown, 6140 South Africa

Telegrams 'Rhodescol' Telex 74 7227 Telephone (0461)



DEPARTMENT OF ECONOMICS

Dear Sir

I am a Lecturer in the Department of Economics at Rhodes University currently working towards a doctor's degree on price formation under South African conditions. A significant question in this regard is the extent to which actual practice differs from standard economic theory, and it is therefore important to establish the opinions of leaders in the business community. I would thus be extremely grateful if you would kindly complete the enclosed questionnaire and return it to me at your earliest convenience. A stamped, self-addressed envelope is provided for this purpose.

Whilst the questionnaire itself may initially appear rather lengthy, experience gained during the pilot study has shown that it requires less than twenty minutes to complete.

I am acutely aware of encroaching on the time of a very busy man, but trust that you will be sympathetic to my research endeavours. Similar studies undertaken in the United States have elicited an excellent response, and it is hoped that South African executives will likewise ensure the success of a local project.

You have my assurance that information gathered in this study will be treated as strictly confidential, and published aggregatively so as to render it impossible to identify individual firms or even industries. Should you have any questions you may wish to ask about the survey, please telephone me at Grahamstown (0461) 2023 ext. 89.

I look forward to hearing from you in the near future.

Yours faithfully

B.E. DOLLERY

APPENDIX 8



RHODES UNIVERSITY · GRAHAMSTOWN

P.O. Box 94, Grahamstown, 6140 South Africa

Telegrams 'Rhodescol' Telex 74 7227 Telephone (0461)



DEPARTMENT OF ECONOMICS

Dear Sir

Toward the end of April I sent you a questionnaire connected with my doctor's degree on price formation under South African conditions.

Since non-response creates severe statistical problems, I would be most appreciative of your kind co-operation. For this purpose, please find attached a copy of the original covering letter outlining the aims of the project and a copy of the questionnaire, together with a stamped self-addressed envelope.

Once again, you have my assurance that the information gathered in this study will be treated as strictly confidential, and published aggregatively so as to render it impossible to identify individual firms or even industries.

I look forward to hearing from you in the near future.

Yours faithfully

B.E. DOLLERY

APPENDIX 9

STRICTLY CONFIDENTIAL

DEPARTMENT OF ECONOMICS
RHODES UNIVERSITY

QUESTIONNAIRE

INTRODUCTION

The purpose of this questionnaire survey is to gauge the opinions and attitudes of top executives in South African companies with regard to certain selected topics. There are thus no right or wrong answers. What is important is your PERSONAL opinion.

PARTICULARS OF RESPONDENT

1. YOUR NAME :
2. POSITION :
3. ADDRESS :
.....
.....
4. TELEPHONE :

SECTION A

You are requested to make a tick (✓) in the appropriate block which best describes your opinion on each particular question.

Should the options provided not accurately pinpoint the position of your company, you are kindly requested to make use of the space provided under Comments (if any) or Other (please specify)

PLEASE PLACE A TICK (✓) IN THE APPROPRIATE BLOCK

1. With respect to the number of products produced by your company, which of the following most accurately describes the position?

- One product
- Two products
- Three to five products
- Six to ten products
- More than ten products

Comments (if any)

.....

.....

2. Does your company have an overall planned pricing policy?
(i.e. profit maximisation, cost-plus, etc.)

- Yes
- No

Comments (if any)

.....

.....

3. Which of the following best describes your company's adherence to its quoted or listed prices?

Adhere rigidly

Adhere closely

Adhere usually

Often deviate

Use listed prices only as rough guide

Comments (if any)

.....

.....

4. Which of the following statements best describes your company's pricing policy?

Price(s) are entirely cost-based

Price(s) are mostly cost-based with some consideration of market conditions.

Price(s) are mostly market-based with some consideration of cost.

Price(s) are entirely market-based.

Comments (if any)

.....

.....

5. Which of the following percentages do you regard as representing the level of plant capacity utilisation at which your total cost per unit of output is lowest?

90 - 100%

80 - 90%

70 - 80%

60 - 70%

50 - 60%

Comments (if any)

.....

.....

6. Does your company's unit cost of production vary greatly with the level of production?

YES

NO

Comments (if any)

.....

.....

7. If "YES", which of the following most accurately describes the behaviour of your company's unit cost of production?

Falls as production increases

Rises as production increases

First falls and then rises as production increases.

Other (please specify)
.....
.....

8. From the beginning of 1978 until the end of 1980, how did you usually detect a change in demand for your product(s)?

Change in sales

Change in inventories

Change in orders

Other (please specify)
.....
.....

9. For the boom period beginning 1978 until the end of 1980, in which of the following ways have you usually responded to an increase in the demand for your product(s)?

Increased price(s)

Decreased price(s)

Held price(s) constant

Comments (if any)
.....
.....

10. For the boom period beginning 1978 until the end of 1980, in which of the following ways have you usually responded to a decrease in the demand for your product(s)?

- Increased price(s)
- Decreased price(s)
- Held price(s) constant

Comments (if any)

.....

.....

11. For the boom period beginning 1978 until the end of 1980, how much time has usually elapsed before you have altered your price(s) in response to an increase in demand for your product(s)?

- One to four weeks
- One to three months
- Four to six months
- More than six months

Comments (if any)

.....

.....

12. For the boom period beginning 1978 until the end of 1980, how much time has usually elapsed before you have altered your price(s) in response to a decrease in the demand for your product(s)?

One to four weeks

One to three months

Four to six months

More than six months

Comments(if any)

.....

.....

13. For the boom period beginning 1978 until the end of 1980, in which of the following ways have you usually responded to an increase in the cost of producing your product(s)?

Increased price(s)

Decreased price(s)

Held price(s) constant

Comments (if any)

.....

.....

14. For the boom period beginning 1978 until the end of 1980, in which of the following ways have you usually responded to a decrease in the cost of producing your product(s)?

- Increased price(s)
- Decreased price(s)
- Held price(s) constant

Comments (if any)
.....
.....

15. For the boom period beginning 1978 until the end of 1980, how much time has usually elapsed before you have altered your price(s) in response to an increase in the cost of producing your product(s)?

- One to four weeks
- One to three months
- Four to six months
- More than six months

Comments (if any)
.....
.....

16. For the boom period beginning 1978 until the end of 1980, how much time has usually elapsed before you have altered your price(s) in response to a decrease in the cost of producing your product(s)?

One to four weeks

One to three months

Four to six months

More than six months

Comments (if any)
.....
.....

17. When you compute your cost of production for some future period, which of the following percentage of capacity utilisation do you work on?

90 - 100%

80 - 90%

70 - 80%

60 - 70%

50 - 60%

Comments (if any)
.....
.....

18. If actual production falls short of the level you specified in question 17, which of the following responses would you adopt?

Increase price(s)

Decrease price(s)

Hold price(s) constant

Comments (if any)
.....
.....

19. If actual production exceeds the level you specified in question 17, which of the following responses would you adopt?

Increase price(s)

Decrease price(s)

Hold price(s) constant

Comments (if any)
.....
.....

20. During the boom period beginning 1978 until the end of 1980, how frequently has your company evaluated the price(s) of its product(s)?

Every one to four weeks

Every one to three months

Every four to six months

More than six months

Comments (if any)
.....
.....

21. Which of the following represents the most common reason for your company to change its price(s)?

A change in demand

A change in cost

A change in competitors price(s)

Comments (if any)

.....

.....

22. Which of the following statements best reflects the importance of trade associations in the determination of price(s) in your industry?

Trade associations are the most important factor in the determination of price(s)

Trade associations are one of the most important factors in the determination of price(s)

Trade associations are not very important in the determination of price(s)

Trade associations have no influence in the determination of prices

Comments (if any)

.....

.....

23. In the determination of price(s), does your company lay down specific rules or procedures to assist executives in their calculations?

YES

NO

Comments (if any)
.....
.....

24. Are the product(s) produced by your company subject to either formal or informal price control?

YES

NO

Comments (if any)
.....
.....

25. Which of the following represents your most preferred percentage capacity level of utilisation?

90 - 100%

80 - 90%

70 - 80%

60 - 70%

50 - 60%

Comments (if any)
.....
.....

26. Which of the following statements best describes the sensitivity of demand for your product(s) to increases in price?

Demand is highly sensitive to price increases

Demand is fairly sensitive to price increases

Demand is slightly sensitive to price increases

Demand is totally insensitive to price increases

Comments (if any)

.....

.....

27. On average, which of the following statements best reflects the position of your company with respect to the market share of its product(s)?

Market share exceeds 70%

Market share exceeds 50%

Market share exceeds 30%

Market share exceeds 10%

Market share is less than 10%

Comments (if any)

.....

.....

SECTION B

Rank the six statements contained in the following two questions in order of importance.

Place a "1" beside the statement which in your opinion is the most important.

Place a "2" beside the statement which in your opinion is the second most important.

Place a "3" beside the statement which in your opinion is the third most important.

Place a "4" beside the statement which in your opinion is the fourth most important.

Place a "5" beside the statement which in your opinion is the fifth most important.

Place a "6" beside the statement which in your opinion is the least most important.

Once again there are no right or wrong answers.

What is important is your personal opinion.

28. Rank the following items in terms of their importance to your company's pricing policy.

Obtaining an acceptable rate of return on investment.

The maintenance of price stability in the industry.

Obtaining a target share of the market.

Meeting or preventing competition.

Obtaining the maximum possible profits.

Avoiding criticism from the general public and the government sector.

Comments (if any)
.....
.....

29. Rank the following elements of marketing policy in terms of their importance to your company.

Advertising, sales promotion, and public relations

Distribution channels and their control

Management of sales personnel

Pricing

Product strategy

Transportation and storage

Comments (if any)
.....
.....

PLEASE RETURN THE COMPLETED QUESTIONNAIRE IN THE ENCLOSED, STAMPED, SELF-ADDRESSED ENVELOPE.

Thank you very much for your kind co-operation.

CHAPTER IV : ANALYSIS OF SURVEY RESULTS (1) : THE ADMINISTERED

PRICE HYPOTHESIS, ORGANISATIONAL OBJECTIVES AND STRATEGY

In terms of the sample populations specified in the previous chapter, 598 questionnaires were finally mailed to potential respondents in April 1982. By the end of May 147 satisfactorily completed questionnaires had been received. At this stage the rate of response had dropped markedly, and it was therefore decided to send a reminder to the outstanding informants. The reminder consisted of the original covering letter outlining the aims of the project, an additional copy of the questionnaire and a stamped self-addressed envelope together with a special note urging a response. Within a month a further 115 replies arrived bringing the total of fully completed questionnaires up to 262. By late June, however, it was apparent that the frequency of returns had once again begun to fall conspicuously. In consequence, an attempt was made to establish direct telephonic contact with the intended respondent, and then follow this up immediately with a questionnaire mailed to him in person. This procedure elicited a further 24 replies for a total of 286 satisfactory returns. After this no further attempts were made to draw additional responses.

Of course, in addition to the satisfactorily completed questionnaires received, the survey encountered the usual twin problems of refusals and questionnaires filled in so badly as to be rendered unusable. A total of 34 refusals was recorded. With respect to the three sample populations the breakdown of refusals was as follows; 13 from the high concentration group, 12 from medium concentration, and 9 from firms in the low concentration category. It is apparent that the

proportion of refusals in each population sample bore a direct relationship to the actual number of returns received, and consequently bias from this source may be ruled out. Moreover, no apparent pattern was perceived in regard to particular industries, which obviates another potential statistical bias.

The reasons provided for refusal to participate in the survey were many and varied. A few examples will suffice to give an indication of the general tone of the letters expressing refusal:

"We refer to your letter regarding statistics and wish to inform you that we are not in a position to divulge confidential information."

"We regret that we work under continual pressure in our business and accordingly cannot afford the time to complete or comment on your questionnaire."

"Having just taken over from Mr N. I very much regret to inform you that because I am not yet fully acquainted with company policy I am unable to provide the information you require."

Of the 17 unusable questionnaires received, 5 were from the high, 6 from the medium, and 6 from the low concentration group of firms. In the majority of cases the respondents appeared to complete the first few questions satisfactorily and then lose interest in the remainder of the questionnaire. However, in some instances the informants seemed to misinterpret the questions entirely, so that their answers and comments were totally unusable.

A summary of the response pattern is provided in Table 1 below.

TABLE 1 : RESPONSE RATE TO QUESTIONNAIRE SURVEY

QUESTIONNAIRES	HIGH CONCENTRATION	MEDIUM CONCENTRATION	LOW CONCENTRATION	TOTAL
Sent	196 100%	201 100%	201 100%	598 100%
Returned Usable	104 53,06%	98 48,76%	86 42,79%	288 48,16%
Returned Unusable	5 2,55%	6 2,98%	6 2,98%	17 2,84%
Refusals	13 6,63%	12 5,97%	9 4,48%	34 5,69%
Not Returned	74 37,76%	85 42,29%	100 49,75%	259 43,31%
Total	196 100%	201 100%	201 100%	598 100%

A glance at Table 1 confirms that the response rate fell with lower market concentration. A plausible explanation for this observation may not be difficult to find. Generally, although not always, firms in the high concentration category are larger in absolute size than their medium and low concentration counterparts, and thus likely to have a well-developed public relations infrastructure which makes them more responsive to the requests made of the organisation.

Table 1 affirms that no significant differences exist between the

three sample populations in respect of the proportions of unusable returns and refusals.

The overall response rate of about 48 per cent of satisfactorily completed questionnaires obtained in the present study compares favourably with similar ventures undertaken in South Africa. This success may be ascribed to the following factors; thorough preparation of the questionnaire itself, effective follow-up methods, and diligence in dealing with all queries.

Largely for reasons of convenience the presentation and interpretation of the data gathered by means of the sample survey has been divided into two areas, with the present chapter focusing chiefly on the testing of comprehensive or established theory which we examined in chapters I and II, and chapter V more concerned with an evaluation of ad hoc but theoretically plausible expectations about the use of pricing rules of thumb.

The analysis presented in this chapter may be sub-divided into four components. Broadly speaking, the first two investigations deal with the administered price hypothesis whilst the latter half of the chapter is concerned with an evaluation of the objectives and relative importance of pricing policy in South African manufacturing industry. By way of introduction, the areas under examination are set out below :

1. Both the Means' and Qualls' variants of the theory are subjected to empirical scrutiny in two ways;

- (i) the predictions of Means and Qualls are tested in respect of increased demand in the upswing phase of the business cycle for the period beginning 1978 until the end of 1980; and
 - (ii) the predictions of Means and Qualls are tested in respect of increased input costs for the same time period.
2. Attention is then shifted to the Blair target return on investment model which, as we saw in chapter II, was proposed in an effort to explain the lag and catch-up effect purportedly underlying the thesis of administered prices. The investigation is threefold;
- (i) an attempt is made at determining the empirical validity of Blair's assumption that firms operating in markets characterised by intermediate and high degrees of economic concentration pursue the objective of obtaining a target rate of return on their investment in the short run;
 - (ii) the predictions of the model are tested in the instance where actual production falls short of standard volume; and
 - (iii) the predictions of the model are tested in the instance where actual production exceeds standard volume.
3. A third aim of the present chapter is to establish the importance which firms operating under different degrees of market concentration attach to certain objectives of pricing policy. It is clear that for the managerial theory to be vindicated empirically, profit maximisation should not be universally rated as the major objective of price formation by firms operating in highly concentrated markets.

4. Finally, an attempt is made at ascertaining the importance firms attach to various competitive instruments, and especially the relative importance of pricing policy. In our discussion of monopolistic competition in chapter I for instance, we saw that product differentiation achieved prominence in that kind of market form. It is similarly conceivable that the purported price stability characteristic of oligopolist markets might mask competitive activity conducted by means of strategic variables apart from pricing policy. In an effort to provide answers to questions such as these, this section attempts to establish the weighting firms of differing degrees of market concentration attach to the more important strategic variables.

Before proceeding with the investigation it seems worthwhile to recall the definitions of the three sample populations outlined in chapter IV. High concentration consists of industries where the three largest firms control at least 70 per cent of turnover, and may be taken to approximate monopolistic markets with a limited number of substitute goods, and consequently relatively inelastic demand. Medium concentration included industries where the three largest firms control between 35 and 55 per cent of turnover, and may be considered to approximate the oligopolistic market form with rather more substitutes than in monopoly, and relatively less inelastic demand. Finally, low concentration consists of industries where the three largest firms control less than 25 per cent of turnover, and while obviously not perfectly competitive do have a high elasticity of demand, and may be thought of as approximating workable competition or at least monopolistic competition.

4.1. EVIDENCE ON THE ADMINISTERED PRICE HYPOTHESIS

In chapter II it was argued that the doctrine of administered prices is currently manifest in two forms; the original Means formulation which predicted a monotonic relationship between the degree of market concentration and the velocity of price movements over the business cycle, and the more recent U-shaped hypothesis advanced by Qualls. The latter variant of the doctrine leaned heavily on the interdependency aspect of modern oligopoly theory which was seen to generate uncertainty in situations of intermediate concentration. One consequence of this behavioural characteristic was to induce hesitancy on the part of the oligopolists in making price adjustments in the face of fluctuating business conditions.

The Means and Qualls versions of the administered price hypothesis may be examined with respect to their predictions about the velocity of price adjustments in response to both (i) demand changes, and (ii) cost changes across the business cycle. The present study evaluated their predictions with respect to the recent upswing phase of economic activity in the South African economy which extended from about the beginning of 1978 until roughly the end of 1980.¹

¹ See, South African Reserve Bank Quarterly Bulletin, June 1982, pp. 48-55 and especially "historical diffusion index" on p. 53.

4.1.1 INCREASED DEMAND

With this background in mind, the question arises as to the respective predictive content of the two versions of the administered price hypothesis. The Means conception is straightforward; in response to increased demand conditions, the higher the degree of market concentration, the less rapid will be the consequent (upward) price adjustments. Given our sample populations this necessarily implies that prices of firms in the low concentration category should react fastest, medium concentration firms less rapidly, and highly concentrated companies the most slowly. By way of contrast, adherents to the Qualls view would expect that price adjustments would take longest to occur in industries characterised by intermediate market concentration due to uncertainties about competitive repercussions amongst rival firms. Neoclassical theory, on the other hand, would predict that the higher the level of market concentration, the faster will be the response in prices to increased demand because of the restraining effects of competition. Consider two firms with identical supply functions, one with an inelastic demand curve or a monopolistic firm, and the other with relatively elastic demand typical of the competitive firm, who are faced with an equal outward shift of their demand functions in a single period. Clearly, the monopolistic firm will respond with a proportionately greater increase in price. Abandoning the assumption of a given time period, it follows mutatis mutandis that firms with less elastic demand would effect a given increase in price more rapidly than firms with more elastic demand. Therefore, neoclassical theory predicts that monopolistic industries will adjust prices more rapidly than their competitive counterparts, in contrast to Means who argues that the velocity of price adjustments will be lowest for monopolistic industries.

Question 11 in the questionnaire dealt with the velocity of price adjustments to increased demand usually taken by the sample respondents for the period under examination. The resultant information can be presented in terms of a contingency table which cross-tabulates the level of market concentration experienced by participants with their normal period of response to more bouyant demand conditions. Table 2 represents the outcome of this process :

TABLE 2 : RESPONSE TO QUESTION 11 IN ABSOLUTE AND PERCENTAGE TERMS

RATE OF ADJUSTMENT	MEASURE	LOW CONCENTRATION	MEDIUM CONCENTRATION	HIGH CONCENTRATION	ROW TOTAL
ONE TO FOUR WEEKS	COUNT	5	4	7	16
	ROW %	31,3	25,0	43,7	
	COLUMN %	6,2	4,3	7,5	
	TOTAL %	1,9	1,5	2,6	6,0
ONE TO THREE MONTHS	COUNT	16	12	6	34
	ROW %	47,1	35,3	17,6	
	COLUMN %	20,0	12,8	6,5	
	TOTAL %	6,0	4,5	2,2	12,7
FOUR TO SIX MONTHS	COUNT	19	14	8	41
	ROW %	46,3	34,1	19,5	
	COLUMN %	23,7	14,9	8,6	
	TOTAL %	7,1	5,2	3,0	15,4
MORE THAN SIX MONTHS	COUNT	40	64	72	176
	ROW %	22,7	36,2	40,9	
	COLUMN %	50,0	68,1	77,4	
	TOTAL %	15,0	24,0	27,0	65,9
	COLUMN TOTAL %	80	94	93	267
		30,0	35,2	34,8	100,0

An inspection of Table 2 reveals a distinct relationship between the degree of market concentration and the speed of response to increases in demand, and in so doing provides prima facie evidence for the Means variant of the administered price hypothesis. For instance, while 50 per cent of "competitive" respondents fall in the category "more than six months", 68,1 per cent of "oligopolists", and 77,4 per cent of "monopolists" did the same. But the question arises as to whether this apparent correlation is significant, and the most appropriate statistical measure to use in determining its significance, and since most of the statistical analysis in the present study is of the same general form, it is important that the latter question be examined in some detail.

The data under consideration are drawn from three ostensibly independent groups of industries in terms of ordinal scaling. Generally speaking, the standard method would be to apply the t test and the one-way analysis of variance or F test. However, this method presumes that the data is drawn from normally distributed populations which all exhibit the same variance. Moreover, the F test requires at least interval measurement.² Since it is clear that the observations presently under analysis do not satisfy either of these requirements, such parametric tests of significance are rendered inappropriate. Instead so-called non-parametric tests may be employed. Non-parametric methods possess two important advantages for our current purposes. Firstly, although there are of course assumptions about the properties

² See, for instance, Ferguson, G.A., Statistical Analysis in Psychology and Education, (3rd ed.), (New York : Mcgraw-Hill, 1971) for a full exposition of the restrictive assumptions relevant to these tests.

of the parent distributions these are mostly fewer in number, weaker and more readily satisfied than those specified in parametric tests. Furthermore, non-parametric tests are appropriate for both nominal and ordinal data.³

Once it is accepted that non-parametric tests are the most suitable for the kind of analysis we are attempting here, the matter of which particular non-parametric technique to employ must be decided. Since we are interested in investigating the relationship or association of three independent population samples against a particular characteristic, and since our research data consists of frequencies in discrete categories presented in the form of a contingency table, the chi-square test of significance is the most appropriate statistical measure.⁴

The chi-square test for k independent samples requires the arrangement of frequencies in a k x r contingency table, and assumes the null hypothesis that the k samples of frequencies derive from the same or at least identical populations. The null hypothesis is tested via the formula :

$$\text{chi-square} = \sum_{i=1}^r \sum_{j=1}^k \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

where O_{ij} = observed number of cases categorised in the i th row of the j th column

E_{ij} = expected number of cases categorised in the i th row of j th column

k = number of columns

r = number of rows

³ See Siegel, S., Non-parametric Statistics for the Behavioural Sciences, (New York : Mcgraw-Hill, 1956).

⁴ Ferguson, G.A., op. cit., p. 182

It is clear that chi-square provides a measure of the discrepancy between the observed cell frequencies and those expected on the assumption of sample independence. In order to ascertain whether the value of chi-square is significant at a predetermined level of probability, one computes the degrees of freedom $df = (k-1)(r-1)$ and then refers to the table of critical values for chi-square. If the observed value of chi-square is equal to or larger than that given in the table, then the null hypothesis will be rejected in favour of the alternative hypothesis. For the chi-square test to provide a meaningful measure of association, it is often held that the expected frequencies in each cell should not be too small; more specifically it is held that where $df > 1$ fewer than twenty per cent of cells should have an expected frequency of less than 5, and no cell should have an expected frequency of less than one. However, this is no more than a rough working rule and because of the relatively large sample size used in the present study, presents no real problem.

Having selected the most appropriate statistical measure to deal with contingency tables embodying nominal or ordinal data, we now return to the analysis of Table 2. In this instance, the null hypothesis would hold that no relationship exists between the degree of market concentration and the velocity with which prices respond to increased demand. The alternative hypothesis, of course, states that such a relationship does exist. The value of chi-square obtained from Table 2 is 18,50172 with 6 degrees of freedom which is significant at the 5 per cent level; indeed, it is significant up to 0,0051. On this basis, we reject the null hypothesis and accept instead the alternative hypothesis.

At this point we have demonstrated a systematic statistical dependence between the level of concentration and the speed of price adjustments. But the question arises as to which variant of the doctrine of administered prices such a dependence supports. If the data obtained from Table 2 is consolidated into two sub-categories "less than six months" and "more than six months", the picture which emerges clearly verifies the Means version of the doctrine. Table 3 provides the relevant information :

TABLE 3 : RESPONSE TO QUESTION 11 IN COLUMN PERCENTAGE FORM

RATE OF ADJUSTMENT	LOW CONCENTRATION	MEDIUM CONCENTRATION	HIGH CONCENTRATION
LESS THAN SIX MONTHS	50,00	31,25	22,11
MORE THAN SIX MONTHS	50,00	68,75	77,89
COLUMN TOTAL	100,00	100,00	100,00

A glance at Table 3 confirms that as the degree of market concentration rises, so the rate of adjustment of prices to increased demand becomes progressively slower; in the "less than six months" category, for instance, we find half of all low concentration firms but only 31,25 per cent of intermediate concentration enterprises, and 22,11 per cent of highly concentrated respondents. Had the Qualls hypothesis been true, the slowest response should have occurred amongst firms of intermediate concentration - a contention patently in contradiction of the facts.

4.1.2 INCREASED INPUT COSTS

While the evidence we have examined thus far supports the Means version of the administered price hypothesis, at least as it applies to demand changes in the upward phase of the business cycle, the question naturally arises as to the velocity of prices adjustments in response to increases in the costs of inputs over the same period. Specifically, how does the level of market concentration affect the timing of a firm's adjustment to higher input prices?

In terms of the lag and catch-up mechanism underlying fluctuations in administered prices we analysed in chapter II, one would expect a priori that firms in more concentrated industries will adjust less rapidly to rises in the costs of production. Once again, it is possible to distinguish between the Means and Qualls conceptions of the process of adjustment. The view propounded by Means holds that a monotonic relationship exists between the rate of change of output prices and market concentration; that is, firms in the low concentration category will react fastest, medium concentration enterprises rather less rapidly, and highly concentrated companies the most slowly in response to higher input costs. Adherents to the Qualls variant of the hypothesis, on the other hand, believe that price adjustments will take longest to occur in industries characterised by intermediate economic concentration due to the intense rivalry precipitated by that kind of market structure. By way of contrast, the (short-run) neoclassical theory would predict that high concentration firms will raise prices more rapidly than their relatively less concentrated counterparts.

Question 15 on the questionnaire elicited information from respondents on the normal period of adjustment required to accommodate higher input costs into the final selling price during the upswing in economic activity for the period beginning 1978 until the end of 1980. The resultant information can be collated in terms of a contingency table which cross-tabulates the degree of market concentration experienced by participants with their usual period of response to increased production costs. Table 4 represents the outcome of this process :

TABLE 4 : RESPONSE TO QUESTION 15 IN ABSOLUTE AND PERCENTAGE TERMS

RATE OF ADJUSTMENT	MEASURE	LOW CONCENTRATION	MEDIUM CONCENTRATION	HIGH CONCENTRATION	ROW TOTAL
ONE TO FOUR WEEKS	COUNT	25	18	14	57
	ROW %	43,9	31,6	24,6	
	COLUMN %	31,3	19,1	15,1	
	TOTAL %	9,4	6,7	5,2	21,3
ONE TO THREE MONTHS	COUNT	31	38	33	102
	ROW %	30,4	37,3	32,4	
	COLUMN %	38,8	40,4	35,5	
	TOTAL %	11,6	14,2	12,4	38,2
FOUR TO SIX MONTHS	COUNT	9	17	15	41
	ROW%	22,0	41,5	36,6	
	COLUMN %	11,2	18,1	16,1	
	TOTAL %	3,4	6,4	5,6	15,4
MORE THAN SIX MONTHS	COUNT	15	21	31	67
	ROW %	22,4	31,3	46,3	
	COLUMN %	18,7	22,3	33,3	
	TOTAL %	5,6	7,9	11,6	25,1
	COLUMN TOTAL%	80 30,0	94 35,2	93 34,8	267 100,0

In this instance, the null hypothesis holds that no relationship exists between the degree of market concentration and the rate at which prices respond to increased costs; that is, acceptance of the null hypothesis amounts to a falsification of both the Qualls and Means versions of the theory of administered prices. An examination of Table 4 reveals no obvious pattern. The value of chi-square obtained from Table 4 is 11,37438 with 6 degrees of freedom which is not significant at the five per cent level. We therefore accept the null hypothesis, and by implication, reject the predictions of the doctrine of administered prices under these conditions.

In sum, we have seen that while the predictions of the Means version of the administered price hypothesis did receive empirical support in the case of increased demand, neither the Means nor Qualls variants of the doctrine seems capable of explaining the relationship between market concentration and the velocity of price adjustments to increased input costs.

What general conclusions can be drawn from this analysis? A potentially useful way of viewing these findings is in the context of the trade-off between competition and economies of scale. Given the relatively small market in which South African manufacturing industry operates, it is likely that competitive firms experience high average costs insofar as they are not able to reap the benefits of economies of scale. In contrast, monopolistic enterprises can be expected to enjoy at least some advantage from their relatively larger share of the market. Moreover, in the event of an increase in demand, firms operating in concentrated markets will move some distance along their long-run cost functions thereby attaining possibly substantial

reductions in unit costs. For this reason profit margins will widen which will temper price increases ceteris paribus. Competitive industries, on the other hand, are not likely to encounter any significant economies of scale since the increase in demand will be absorbed by so many firms that the individual effect is probably negligible. In other words, while economies of scale enable monopolistic industries to cushion the effects of demand inflation no such mechanism exists in competitive industries. Consequently, we would expect more rapid price adjustments in unconcentrated markets.

However, the trade-off between competition and economies of scale will not serve to dampen prices in monopolistic markets in the face of rising input costs since this involves an upward shift of both the short and long-run cost functions (and not, as in the case of demand increases, an outward move along the cost curves). In the instance of rising input costs, output prices will tend to increase to maintain profit margins especially if firms employ cost-plus or target return pricing strategies, a matter to which we now turn our attention.

4.2. EVIDENCE ON THE BLAIR TARGET RETURN MODEL

A substantial proportion of chapter II was devoted to an examination of the theoretical bases for the administered price hypothesis. It was argued that essentially two kinds of explanation have been advanced in support of the doctrine. On the one hand, a loosely grouped collection of theories postulated that the nature of, and failure to exercise, monopoly power per se is primarily responsible for the ostensible peculiarities of price behaviour in concentrated

markets. By way of contrast, a second school of thought perceived the outcome of discretionary behaviour as the widespread application of pricing rules. While the latter view embraced a great variety of pricing rules of thumb, ultimately all models are derivatives of two generic forms of price determination; cost-plus or target-return pricing strategies. The most plausible of the more sophisticated target-return theories, at least in the context of the administered price hypothesis, appeared to be Blair's target-return on investment model which we examined in some detail. In this section we attempt an empirical evaluation of the model in the context of South African manufacturing industry. The purpose of the investigation is three-fold;

- (i) to determine the empirical validity of Blair's assumption that firms operating in concentrated markets pursue a target rate of return on investment,
- (ii) to evaluate the predictions of the model when actual production falls short of standard volume, and
- (iii) to evaluate the predictions of the market when actual production exceeds standard volume.

4.2.1 THE ASSUMPTION OF A TARGET RATE OF RETURN ON INVESTMENT

The Blair view of price determination in markets characterised by a high degree of economic concentration is based on the assumption that even in the short run firms attempt to maintain a target rate of return

on their capital investment. Since his theory is not intrinsically instrumentalist in either its objective or its construction, the model stands or falls by the extent to which this supposition is validated by empirical reality. Likewise, the theory presumes that firms operating in relatively less concentrated industries will pursue maximum profits (as against a target return) in the manner envisaged by the perfectly competitive model. Question 28 required respondents to rank six major objectives of business in order of importance. For the Blair model to be vindicated we expect a significant difference in the way in which high and medium concentration companies rank option 1, "obtaining an acceptable rate of return on investment", in comparison with respondents in the low concentration category. Table 5 illustrates the outcome of the ranking process with respect to option 1 only in absolute and percentage terms :

TABLE 5 : RANKING OF OPTION 1 IN QUESTION 28 IN
ABSOLUTE AND PERCENTAGE TERMS

SAMPLE GROUP	MEASURE	RANKING OF ACCEPTABLE RATE OF RETURN ON INVESTMENT						
		1st	2nd	3rd	4th	5th	6th	ROW TOTAL
LOW	COUNT	32	25	7	11	2	0	77
	ROW %	41,6	32,5	9,1	14,3	2,6	0,0	
	COLUMN%	19,9	47,2	25,0	47,8	66,7	0,0	
	TOTAL%	11,9	9,3	2,6	4,1	0,7	0,0	28,6
MEDIUM	COUNT	63	12	8	10	1	1	95
	ROW %	66,3	12,6	8,4	10,5	1,1	1,1	
	COLUMN %	39,1	22,6	28,6	43,5	33,3	100,0	
	TOTAL %	23,4	4,5	3,0	3,7	0,4	0,4	35,3
HIGH	COUNT	66	16	13	2	0	0	97
	ROW %	68,0	16,5	13,4	2,1	0,0	0,0	
	COLUMN %	41,0	30,2	46,4	8,7	0,0	0,0	
	TOTAL %	24,5	5,9	4,8	0,7	0,0	0,0	36,1
	COLUMN TOTAL	161	53	28	23	3	1	269
		59,9	19,7	10,4	8,6	1,1	0,4	100,0

An examination of Table 5 reveals a large majority, or 59,9 per cent of all respondents ranked obtaining an acceptable rate of return on investment as their primary objective. Moreover, while 68,0 per cent of high concentration firms and 66,3 per cent of enterprises in markets of intermediate concentration rated this goal foremost, only 41,6 per cent of firms in unconcentrated industries followed suit. With a chi-square value of 29,27025 and 10 degrees of freedom such ranking profiles are statistically significantly different at 0,05 per cent; indeed, up to a confidence limit of 0,0011. It would seem therefore that Blair's basic behavioural postulate is well-rooted in actual market conduct, that is,

high and medium concentration firms tend to pursue a target rate of return on investment rather than the maximisation of profits.

4.2.2 ACTUAL PRODUCTION FALLS SHORT OF STANDARD VOLUME

Given the apparent empirical verification of the hypothesised assumption of a target rate of return on investment, it remains to be seen whether this leads to the kinds of behavioural patterns envisaged by the model. In our earlier analysis of the mechanism propounded by Blair, we saw that when the actual level of production falls short of standard volume,¹ the concentrated firm is expected to raise its selling price. Question 18 in the questionnaire dealt with the situation in which actual production does not reach standard volume. Table 6 below summarises the responses elicited from the sample populations :

¹ See chapter II.

TABLE 6 : RESPONSE TO QUESTION 18 IN ABSOLUTE AND PERCENTAGE TERMS

PRICE RESPONSE	MEASURE	LOW CONCENTRATION	MEDIUM CONCENTRATION	HIGH CONCENTRATION	ROW TOTAL
INCREASE PRICE	COUNT	17	14	13	44
	ROW %	38,6	31,8	29,5	
	COLUMN %	20,2	14,7	13,1	
	TOTAL %	6,1	5,0	4,7	15,8
DECREASE PRICE	COUNT	9	4	2	15
	ROW %	60,0	26,7	13,3	
	COLUMN %	10,7	4,2	2,0	
	TOTAL %	3,2	1,4	0,7	5,4
HOLD PRICE CONSTANT	COUNT	58	77	84	219
	ROW %	26,5	35,2	38,4	
	COLUMN %	69,0	81,1	84,8	
	TOTAL %	20,9	27,7	30,2	78,8
	COLUMN TOTAL %	84	95	99	278
		30,2	34,2	35,6	100,0

The null hypothesis appropriate to Table 6 denies a relationship between market concentration and the response in prices to a fall in actual production below standard volume. The value of chi-square in this instance is 9,83528 with 4 degrees of freedom which slightly exceeds 9,49, or the critical value required at the five per cent level of confidence. In other words, we are justified in rejecting the null hypothesis and accepting instead the alternative hypothesis that a systematic relationship does exist between the two sets of variables.

However, there are solid grounds for treating this tentative acceptance with caution. An examination of Table 6 reveals that the

vast majority of firms in all categories kept their prices constant despite a decrease in output, in apparent contradiction to the predictions of the Blair model. And the least concentrated industries seem to have experienced the greatest volatility with just over 20 per cent increasing their prices and more than 10 per cent lowering price. Moreover, it is clear from figure 4 in chapter II that the target-return model presumes an increase in unit costs if actual production falls below the level required for the firm to attain standard volume. But many of the firms who responded to question 18 in fact operate with either relatively constant or even rising unit costs (implying falling costs as output decreases) which induces an element of bias into the findings of Table 6. Consequently, if we omit firms with constant or rising average costs over the relevant range of output, then we are left with respondents whose cost structure conforms with the Blair model. In other words, we examine only those firms who can reasonably be expected to experience rising unit costs in the event of output falling below standard volume. Table 7 below provides a cross-tabulation of the responses to options one and three of question 7 against question 18 by low, medium and high concentration companies :

TABLE 7 : CROSS TABULATION OF QUESTION 18 AND
QUESTION 7

PRICE RESPONSE	MEASURE	UNIT COST FALLS			UNIT COST FALLS THEN RISES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
INCREASE PRICE	COUNT	5	6	5	3	1	1	8	7	6
	ROW %	62,5	85,7	83,3	37,5	14,3	16,7			
	COLUMN %	12,5	10,2	8,2	37,5	16,7	9,1			
	TOTAL %	10,4	9,2	7,1	6,2	1,5	1,4	16,7	10,8	8,6
DECREASE PRICE	COUNT	3	2	1	1	0	0	4	2	1
	ROW %	75,0	100,0	100,0	25,0	0,0	0,0			
	COLUMN %	7,5	3,4	1,7	12,5	0,0	0,0			
	TOTAL %	6,2	3,1	1,4	2,1	0,0	0,0	8,3	3,1	1,4
HOLD PRICE CONSTANT	COUNT	32	51	53	4	5	10	36	56	63
	ROW %	88,9	91,1	84,1	11,1	8,9	15,9			
	COLUMN %	80,0	96,4	89,8	50,0	83,3	90,0			
	TOTAL %	66,7	78,5	75,7	8,3	7,7	14,3	75,0	86,2	90,0
	COLUMN TOTAL	40	59	59	8	6	11	48	65	70
		83,3	90,8	84,3	16,7	9,2	15,7	100,0	100,0	100,0

Since Table 7 is clearly a three-way table, the most appropriate statistical tool would have been the analysis of variance. But "simple analysis of variance and covariance must have a dependent variable, sometimes called a criterion, that is measured at least on an interval scale",² a requirement our data does not satisfy. For this reason, we revert instead to the familiar chi-square test by breaking Table 7 down into three two-way tables for low, medium and high concentration companies respectively. Despite certain problems which have been associated with this procedure, it remains the most suitable method for our purposes.³

The question now arises as to our a priori theoretical expectations of the data contained in Table 7. As we have seen, the Blair model predicts that for medium and highly concentrated industries which experience rising average costs when actual output levels fall below standard volume, prices should rise, since oligopolistic and monopolistic firms will attempt to maintain their target rate of return. On the other hand, the model expects that competitive firms will reduce their prices, or at least keep prices constant.

The results obtained by means of the chi-square test do not

² Nie, H.N., Hull, C.H., Jenkins, J.G., Steinbrenner, K. and Bent, D.H., Statistical Package for the Social Sciences, (2nd ed.), (New York : McGraw-Hill, 1975), p. 399.

³ See, for instance, Upton, G.J.G., The Analysis of Cross-tabulated Data. (Chichester : Wiley, 1978), pp. 39-45, and Bishop, Y.M.M., Fienberg, S.E. and Holland, P.W., Discrete Multivariate Analysis : Theory and Practice, (Cambridge, Mass : M.I.T. Press, 1975)

confirm these expectations. For companies which fall within the highly concentrated category the value of chi-square is only 0,19175, or far below the level required for significance at the five per cent confidence interval. With a chi-square value of 0,42297 the same is true for firms of medium concentration. Moreover, in the instance of competition chi-square equals 3,50000 with 2 degrees of freedom which is not significant at 5 per cent. In sum, we are forced to accept the null hypothesis of no significant relationship between falling average costs and price changes in all three cases, and simultaneously reject Blair's alternative hypotheses for industries characterised by high and medium degrees of market concentration. In other words, when a decrease in demand causes firms in concentrated markets to shift inwards along a rising average cost schedule, they do not appear to increase their prices in accordance with the predictions of the Blair model.

4.2.3 ACTUAL PRODUCTION EXCEEDS STANDARD VOLUME

The second hypothesis emerging from the target rate of return on investment model deals with the situation in which actual output is larger than standard volume. Blair argues that price decreases will not occur "... since the logic of imperfect competition theory comes into play when a price reduction is being considered."⁴ Instead, firms in concentrated industries will tend to pursue a policy of price stability since they are already achieving their target rate of return. On the

⁴ Blair, J.M., Economic Concentration, (New York : Harcourt Brace, 1972), p. 475.

other hand, firms operating in a competitive environment are thought to increase their prices in the same circumstances in the absence of economies of scale. Question 19 addressed itself to this prediction of the Blair model. The resultant information is recorded in Table 8 below :

TABLE 8 : RESPONSE TO QUESTION 19 IN ABSOLUTE AND PERCENTAGE TERMS

PRICE RESPONSE	MEASURE	LOW CONCENTRATION	MEDIUM CONCENTRATION	HIGH CONCENTRATION	ROW TOTAL
INCREASE PRICE	COUNT	4	6	2	12
	ROW %	33,3	50,0	16,7	
	COLUMN %	4,8	6,3	2,0	
	TOTAL %	1,4	2,2	0,7	4,3
DECREASE PRICE	COUNT	5	3	2	10
	ROW %	50,0	30,0	20,0	
	COLUMN %	6,0	3,2	2,0	
	TOTAL %	1,8	1,1	0,7	3,6
HOLD PRICE CONSTANT	COUNT	75	86	95	256
	ROW %	29,3	33,6	37,1	
	COLUMN %	89,3	90,5	96,0	
	TOTAL %	27,0	30,9	34,2	92,1
	COLUMN TOTAL %	84	95	99	278
		30,2	34,2	35,2	100,0

The null hypothesis appropriate to Table 8 holds that there exists no significant differences in the manner in which firms in all three concentration categories responded to question 19. A glance at the table seems to confirm that the vast majority of respondents in all

sample populations held prices constant when actual production exceeded standard volume.⁵ The relevant chi-square is 4,41634 with 4 degrees of freedom which is not significant at the 5 per cent level. On this basis we accept the null hypothesis, and reject the alternative hypothesis proposed by Blair.

Once again however, the fact that many of the respondents have either constant or rising average costs must be considered. But because in this instance the resultant bias acts in favour of the alternative hypothesis, it is not necessary to instigate an investigation along the lines of question 18. In sum, we are fully justified in rejecting the predictions of the Blair model where actual output produced exceeds standard volume.

Given the findings of the present study, what generalisations may be drawn with respect to the empirical status of the target-return on investment model? At this stage it seems pertinent to recall the fundamental purpose behind the theory. In chapter II we saw that Blair put forward his model in an attempt to provide a microeconomic explanation for the so-called lag and catch-up effect which was argued to characterise the behaviour of prices in concentrated industries over the business cycle. In other words, the model predicts unambiguously

⁵ At first sight the information contained in Table 8 appears to contradict the results obtained on the Means version of the administered price hypothesis where an increase in demand did induce price increases which were especially fast in competitive industries. However, the respondents in that instance were asked to answer solely with respect to their actions in the period beginning 1978 until the end of 1980. In the case of Table 8 though, respondents were not restricted to this time period, and were asked to specify how they usually reacted in general.

that prices determined in concentrated markets will not fall, and may even rise, when demand decreases. Conversely, prices will only increase through very heavy and sustained demand, or through upward cost pressures. Implicit in this view, of course, is the notion that prices set in competitive, or at least less concentrated markets, will behave in accordance with the predictions of the neoclassical perfectly competitive model.

In terms of the data we have assembled on South African manufacturing companies, it is apparent that Blair's behavioural assumption of firms in concentrated markets being primarily concerned with achieving a target rate of return on investment is empirically plausible. However, the economic conduct which his model envisages as following from the pursuit of that objective is not applicable under South African conditions. Our conclusions in this regard are two-fold. Firstly, concentrated industries with falling average cost curves do not appear to increase their prices in response to decreases in demand, but rather seem to maintain constant prices under these conditions. Secondly, when increased demand causes actual production to exceed standard volume, there is a similar tendency towards holding prices constant. In general terms, this seems to suggest that demand induced movements along average cost schedules are not as important in the determination of prices as the Blair model indicates. It follows from these findings that potentially meaningful research in this area should retain Blair's basic behavioural postulate, while at the same time modifying the theoretical superstructure.

4.3 EVIDENCE ON THE OBJECTIVES OF THE PRICING POLICY OF THE FIRM

During the course of our discussion of the theory of the firm in chapter I it became apparent that a good deal of the dispute in this area focused on the question of the goals or aims of the business enterprise, and particularly the firm operating under conditions of imperfect competition. In terms of the three schools of thought on the theory of the firm, the debate over objectives has been especially important to advocates of the neoclassical and managerial theories with respect to oligopolistic and monopolistic firms. Proponents of the neoclassical view see the maximisation of profits as the predominant target of pricing policy irrespective of market concentration, whereas advocates of the managerial conception see profit maximisation as the primary objective of the firm only within the confines of pricing in competitive markets. Under conditions characterised by some degree of economic concentration, it is argued that goals other than profit maximisation assume major significance. The behavioural theory of the firm, on the other hand, which chiefly emphasises intra-firm resource allocation and the formation of organisational objectives, is not so centrally concerned with ascertaining empirically the most important aims of real-world enterprises which are bound to vary. Aside from their significance to the neoclassical/managerial debate, an empirical examination of the objectives of firms operating in markets of intermediate concentration can shed light on oligopoly theory per se.

Question 28 in the questionnaire addressed itself to the goals of the business enterprise and required respondents to rank six major objectives in order of importance to the pricing policy of their respective organisations; namely, "obtaining an acceptable rate of

return on investment", "maintaining price stability in the industry", "obtaining a target share of the market", "meeting or preventing competition", "obtaining the maximum possible profits", and "avoiding criticism from the general public and government sector." Two preliminary observations appear pertinent to the structure of question 28 before we proceed with an analysis of the response patterns. Firstly, none of the items requiring ranking referred to the acquisition of "managerial utility", a fundamental feature of many managerial theories and particularly the Williamson model as we saw in chapter I. The reason for this is straightforward. During the pilot study it was found that questions relating to managerial utility met with a considerable degree of reticence on the part of informants - so much so that it was felt that the resultant information would almost certainly be misleading. Moreover, given the negative reactions of respondents it was believed that inclusion of such an item might even induce a markedly lower response rate. Secondly, the number of options to be ranked was deliberately limited to six. Both experience gained during the pilot study as well as discussions with informed persons indicated that when more than six items are incorporated the process of ranking becomes increasingly arbitrary.

Since the managerial theory of the firm rests on the belief that in imperfect markets goals other than profit maximisation become of vital importance, it is clear that this class of theory stands or falls by the extent to which such an assumption is empirically verified. In terms of question 28, this implies that respondents from the intermediate and highly concentrated sample populations should have a significantly different ranking for the goal of profit maximisation, or item 5 in question 28, in comparison to their low concentration

counterparts. Table 9 shows how informants from the three groups did, in fact, rank option 5.

TABLE 9 : RANKING OF OPTION 5 IN QUESTION 28 IN
ABSOLUTE AND PERCENTAGE TERMS

SAMPLE GROUP	MEASURE	RANKING OF OBTAINING THE MAXIMUM POSSIBLE PROFITS						ROW TOTAL
		1st	2nd	3rd	4th	5th	6th	
LOW	COUNT	31	13	8	5	11	9	77
	ROW %	40,3	16,9	10,4	6,5	14,3	11,7	
	COLUMN%	46,3	25,5	15,4	18,5	26,2	30,0	
	TOTAL%	11,5	4,8	3,0	1,9	4,1	3,3	28,6
MEDIUM	COUNT	18	20	24	10	15	18	95
	ROW %	18,9	21,1	25,3	10,5	15,8	8,4	
	COLUMN %	26,9	39,2	46,2	37,0	35,7	26,7	
	TOTAL %	6,7	7,4	8,9	3,7	5,6	3,0	35,3
HIGH	COUNT	18	18	20	12	16	13	97
	ROW %	18,6	18,6	20,6	12,4	16,5	13,4	
	COLUMN %	26,9	35,3	38,5	44,4	38,1	43,3	
	TOTAL %	6,7	6,7	7,4	4,5	5,9	4,8	36,1
	COLUMN TOTAL	67	51	52	27	42	30	269
		24,9	19,0	19,3	10,0	15,6	11,2	100,0

An examination of Table 9 reveals that the ranking profile of low concentration firms does indeed differ from those produced by high and intermediate concentration enterprises. For instance, while over 40 per cent of respondents in the competitive group rated profit maximisation as the foremost objective of their pricing policy, this was true for only 18,9 per cent of oligopolistic firms and 18,6 per cent of monopolies. Moreover, the difference is statistically significant up to 0,0492 with the value of chi-square at 18,35716.

What conclusions may be drawn from this finding? It emerges from the data that the assumption of profit maximisation is far more applicable to firms operating under competitive conditions than appears to be the case with their relatively more concentrated counterparts. In other words, the results obtained do provide prima facie justification for the behavioural observations advanced by adherents to the managerial school of thought. Such a conclusion does not imply that the actual behavioural postulates selected as the bases for the various managerial models, or for that matter the predictions flowing from these models, are in any sense empirically supported. It means that the maximisation of profits is not universally appropriate to South African manufacturing.

Given the limited validity of the assumption of profit maximisation, the question naturally arises as to which goals of pricing policy respondents actually ranked foremost in terms of importance. Table 10 shows how members of the sample populations rated the various options as their first priority :

TABLE 10 : DISTRIBUTION OF OPTIONS RANKED FIRST BY RESPONDENTS

SAMPLE GROUP	MEASURE	ACCEPTABLE RETURN ON INVESTMENT	MAINTENANCE OF PRICE STABILITY	TARGET SHARE OF THE MARKET	MEETING OR PREVENTING COMPETITION	OBTAINING MAX. POSSIBLE PROFITS	AVOIDING PUB. & GOVERNMENT CRITICISM	ROW TOTAL
LOW	COUNT	32	5	7	0	31	2	77
	ROW%	41,6	6,5	9,1	0,0	40,3	2,6	
	COLUMN%	19,9	31,3	53,8	0,0	46,3	100,0	
	TOTAL %	11,9	1,9	2,6	0,0	11,5	0,7	28,6
MEDIUM	COUNT	63	7	3	4	18	0	95
	ROW %	66,3	7,4	3,2	4,2	18,9	0,0	
	COLUMN %	39,1	43,7	23,1	40,0	26,9	0,0	
	TOTAL%	23,4	2,6	1,1	1,5	6,7	0,0	35,3
HIGH	COUNT	63	7	3	4	18	0	95
	ROW %	66,3	7,4	3,2	4,2	18,9	0,0	
	COLUMN %	41,0	25,0	23,1	60,0	26,9	0,0	
	TOTAL %	24,5	1,5	1,1	2,2	6,7	0,0	36,1
	COLUMN TOTAL	161	16	13	10	67	2	269
		59,9	5,9	4,8	3,7	24,9	0,7	100,0

An examination of Table 10 is illuminating, and serves to confirm the findings of Table 9. Whereas only 32 respondents from the low concentration category or, 41,6 per cent, ranked a target rate of return as their primary objective, the corresponding figures for firms in markets of intermediate or high concentration are 66,3 per cent and 68,0 per cent respectively. Thus while competitive companies were evenly divided between a target return on investment or maximum profits, their oligopolistic and monopolistic counterparts overwhelmingly selected the target return option rather than maximum profits. Indeed this bears out

the validity of the behavioural postulate proposed by Blair and strengthens the case made out from the Table 5 in the previous section of this chapter. Not only does the marked difference in ranking stand out in an inspection of Table 10; it is also highly statistically significant. The value of chi-square for Table 10 is 30,72012 with ten degrees of freedom which exceeds the requisite 18,31 needed for a five per cent confidence interval, and in fact is significant up to 0,0007.

In order to broaden the evidence emergent from Table 10, we turn our attention to the ranking distribution of the option rated second most important by respondent firms. Table 11 below provides the relevant information :

TABLE 11 : DISTRIBUTION OF OPTIONS RANKED SECOND BY RESPONDENTS

SAMPLE GROUP	MEASURE	ACCEPTABLE RETURN ON INVESTMENT	MAINTENANCE OF PRICE STABILITY	TARGET SHARE OF THE MARKET	MEETING OR PREVENTING COMPETITION	OBTAINING MAX. POSSIBLE PROFITS	AVOIDING PUB. & GOVERNMENT CRITICISM	ROW TOTAL
LOW	COUNT	25	10	10	16	13	32	77
	ROW%	32,5	13,0	13,0	20,8	16,9	3,9	
	COLUMN%	47,5	29,4	18,7	33,3	25,5	30,0	
	TOTAL %	9,3	3,7	3,7	5,9	4,8	1,1	28,6
MEDIUM	COUNT	12	9	39	11	20	4	95
	ROW %	12,6	9,5	41,1	11,6	21,1	4,2	
	COLUMN %	22,6	26,5	53,4	22,9	39,2	40,0	
	TOTAL%	4,5	3,3	14,5	4,5	7,4	1,5	35,3
HIGH	COUNT	16	15	24	21	18	3	97
	ROW %	16,5	15,5	24,7	21,6	28,6	3,1	
	COLUMN %	30,2	44,1	32,9	43,7	35,3	30,0	
	TOTAL %	5,9	5,6	8,9	7,8	6,7	1,1	36,1
	COLUMN TOTAL	53	34	73	48	51	10	269
		19,7	12,6	27,1	17,8	19,0	3,7	100,0

An evaluation of the data contained in Table 11 provides further support for the trends apparent in Table 9; that is, the relatively low ranking of profit maximisation in industries characterised by a high level of market concentration. Moreover, the widespread significance of obtaining a target return on investment is reaffirmed. Of particular interest is the large number of respondents in the intermediate and high concentration categories who ranked the objective of achieving a target share of the market second. This is especially true of oligopolistic firms, 41,1 per cent of whom fell into such a bracket. Overall the

ranking distribution of respondents of differing industrial concentration revealed by Table 11 is statistically significantly different with a chi-square value of 27,14546 and 10 degrees of freedom.

As indicated above, Table 11 provides a further clue to the empirical status of the managerial theory of the firm in general, and the Baumol model of sales revenue maximisation in particular. From our analysis of Baumol's managerial theory in chapter I we saw that the model hinged on the belief that firms operating under conditions of oligopoly tended predominantly to pursue the objective of maximising sales revenue. In other words, strategic variables like pricing policy are accordingly aimed at achieving a predetermined market share which management perceives as maximising the monetary revenue accruing from sales. In this manner it is possible to translate the motivating assumption of sales revenue maximisation into operational terms which then allows for empirical testing to take place.

Table 12 singles out the ranking of "obtaining a target share of the market" by members of the three sample populations. The appropriate null hypothesis holds that there exists no statistically significant difference in the way in which respondents from the various categories rate the variable under investigation, whereas the alternative hypothesis presumes that such a difference does indeed hold in the way in which the three groups rank a target share of the market.

TABLE 12 : RANKING OF OPTION 3 IN ABSOLUTE AND PERCENTAGE TERMS

SAMPLE GROUP	MEASURE	RANKING OF OBTAINING A TARGET SHARE OF THE MARKET						ROW TOTAL
		1st	2nd	3rd	4th	5th	6th	
LOW	COUNT	7	10	25	18	15	2	77
	ROW %	9,1	13,0	32,5	19,5	19,5	2,6	
	COLUMN%	53,8	13,7	32,1	34,1	39,5	14,3	
	TOTAL%	2,6	3,7	9,3	6,7	5,6	0,7	28,6
MEDIUM	COUNT	3	39	26	11	13	3	95
	ROW %	3,2	41,1	27,4	11,6	13,7	3,2	
	COLUMN %	23,1	53,4	33,3	20,8	34,2	21,4	
	TOTAL %	1,1	14,5	9,7	4,1	4,8	1,1	35,3
HIGH	COUNT	3	24	27	24	10	9	97
	ROW %	3,1	24,6	27,8	24,7	10,3	9,3	
	COLUMN %	23,1	32,9	34,6	45,3	26,3	64,3	
	TOTAL %	1,1	8,9	10,0	8,9	3,7	3,3	36,1
	COLUMN TOTAL	13	73	78	53	38	14	269
		4,8	27,1	29,0	19,7	14,1	5,2	100,0

The value of chi-square applicable to Table 12 is 29,56446 with 10 degrees of freedom which is statistically significant at the five per cent level. On this basis we are therefore justified in rejecting the null hypothesis in favour of the alternative hypothesis. A scrutiny of Table 12 reveals that while nearly 72 per cent of intermediate concentration firms or oligopolists ranked obtaining a target share of the market as one of their top three objectives, only 55,6 per cent of monopolistic industries and 54,6 per cent of competitive respondents did likewise. We conclude that the analysis performed here provides tentative support for the behavioural postulate proposed by Baumol. But a caveat is necessary in this regard; it could well be that forces existing in the generally little-understood oligopolistic markets are

responsible for the results obtained rather than the reasons furnished by Baumol in chapter I.

In this section it remains for us to examine the residue of business objectives contained in question 28. None of these is of any considerable importance in the debate in the theory of the firm on the goals of the firm. Indeed, with respect to both the "maintenance of price stability" and "avoiding criticism from the general public and government sector" no statistically significant differences in the ranking of the three sample populations were detected, and both received low rankings. It is perhaps of interest to note, in passing, that the latter finding casts doubt on J.K. Galbraith's notion of countervailing power, at least insofar as firms perceive this to be relatively unimportant. In contrast, an examination of option 4 in question 28 or "meeting and preventing competition", did reveal statistical significance in the rankings of the three respondent groups. Contingency Table 13 below summarises the responses of informants :

TABLE 13 : RANKING OF OPTION 4 IN ABSOLUTE AND PERCENTAGE TERMS

SAMPLE GROUP	MEASURE	RANKING OF MEETING OR PREVENTING COMPETITION						ROW TOTAL
		1st	2nd	3rd	4th	5th	6th	
LOW	COUNT	0	16	17	19	17	82	77
	ROW %	0,0	20,8	22,1	24,7	22,1	10,4	
	COLUMN%	0,0	33,3	34,7	24,4	29,3	30,8	
	TOTAL%	0,0	5,9	6,3	7,1	6,3	3,0	28,6
MEDIUM	COUNT	4	11	12	41	17	10	95
	ROW %	4,2	11,6	12,6	43,2	17,9	10,5	
	COLUMN %	40,0	22,9	24,5	52,6	39,3	38,5	
	TOTAL %	1,5	4,1	4,5	15,2	6,3	3,7	35,3
HIGH	COUNT	6	21	20	18	24	8	97
	ROW %	16,2	21,6	20,6	18,6	24,7	8,2	
	COLUMN %	60,0	43,7	40,8	23,1	41,4	30,8	
	TOTAL %	2,2	7,8	7,4	6,7	8,9	3,0	36,1
	COLUMN TOTAL	10	48	49	78	58	26	269
		3,7	17,8	18,0	29,0	21,6	9,7	100,0

The value of chi-square for Table 13 is 22,41275 with 10 degrees of freedom which is significant at the five per cent level. Moreover, a scrutiny of the information contained in Table 13 discloses that while little over 28 per cent of intermediate concentration firms ranked meeting or preventing competition as one of their top three aims, the comparative figures for their low and highly concentrated counterparts were 43,9 per cent and 58,4 per cent respectively.

When seen in the light of the oligopoly theory reviewed in chapter I, and especially from the viewpoint of limit pricing models, such a result must be regarded as surprising. Indeed, on the basis of these models we would have expected that setting prices to meet or avoid

competition should have received relatively high rankings from oligopolistic respondents. The only feasible explanation seems to lie in the comparative unimportance of pricing as a strategic variable in oligopolistic markets - an area to which the next section of the present study is devoted.

Given this analysis into the primary business objectives underlying the pricing policy of the organisation, what conclusions can we draw with respect to the theory of the firm? The most vital inference we are able to make goes right to the heart of the neo-classical/managerial debate. As we argued earlier, proponents of the neoclassical view see the maximisation of profits as the predominant target of pricing policy irrespective of the degree of market concentration, whereas advocates of the managerial conception see profit maximisation as the primary objective of the firm only within the confines of pricing in competitive markets. Under conditions characterised by some degree of economic concentration, it is argued that goals other than profit maximisation assume major significance. The analysis conducted here has shown that the applicability of the assumption of profit maximisation is limited with respect to oligopolistic and monopolistic firms, at least within the context of the South African manufacturing industry. In other words, within the confines of imperfect markets in this particular empirical environment we have demonstrated that the raison d'être sustaining the managerial theory of the firm does appear to coincide with real-world experience. Whilst the pursuit of profit is of undoubted importance to firms in intermediate and high concentration markets (and our results testify adequately to this fact), it is clear that a target return on investment is even more important. Consequently the proponents of the managerial

theory of the firm are in accord with empirical evidence insofar as they have broadened the objective function of firms operating in imperfect product markets. It is clear that this might have important consequences for economic policy which is usually framed on the assumption that all firms attempt to maximise profits. In addition, some evidence did emerge to corroborate Baumol's suggestion that the maximisation of sales revenue might represent a significant objective of the oligopolistic business enterprise. And finally, the surprising results obtained on the ranking of meeting or preventing competition assisted little in lifting the uncertainties surrounding oligopoly theory.

4.4 EVIDENCE ON NON-PRICE COMPETITIVE VARIABLES

Conventional microeconomic theory has focused on the role that relative prices play in the allocation of scarce resources between competing ends. Moreover, the question of an optimum allocation of such resources has received much attention. However, recent developments in the theory of the firm have emphasised that in addition to price competition, non-price variables may be of importance in the allocative process. Koutsoyiannis, for instance, has noted that in some markets "... price competition was avoided and that firms were increasingly using non-pricing weapons in the rivalry."¹ The development of both

¹ Koutsoyiannis, A., Non-Price Decisions : The Firm in a Modern Context, (Hong Kong : Macmillan, 1982), p. 2.

the managerial theory and behaviouralism, as well as recent work in the theory of the oligopoly per se, has tended to focus attention on non-price aspects of market conduct which affect resource allocation in the real world. Indeed, as we argued in chapter I ever since the advent of the analysis of monopolistic competition, economists have come to recognise the importance of certain strategic variables apart from pricing policy in the competitive process. Without taking into account the impact of these other instruments of corporate strategy, it is often difficult to explain certain real-world behavioural patterns; this is nowhere more evident than in the immense diversity engendered by the oligopolistic market form, as we saw in our analysis of Table 13. Moreover, the oft-cited price stability in situations of oligopoly which has provided the rationale for a number of theories, notably the kinked demand model, may serve to conceal competitive activity operating through non-price strategic variables. Bearing in mind the aims or objectives of firms operating in South African manufacturing industry which we examined in the previous section, it is of interest to investigate whether they are pursued by a pricing policy or by some other means. It may be, for instance, that the more important these non-price measures, the more stable are prices. Consequently, the present section attempts to determine the relative importance of non-price competitive variables in comparison with pricing policy. Moreover, we are especially interested in the way in which market structure influences the firm's perception of the importance of the main competitive tools it has at its disposal.

Despite the recent advances in our understanding of the role of non-price variables in the competitive process, unfortunately no general framework has been developed. A researcher interested in this area must

thus derive insight from the piecemeal theoretical contributions which have been made.

At the outset it seems worthwhile to establish which of the most important strategic variables respondents rated as foremost in their marketing policy. Question 29 in the questionnaire sought to ascertain information in this respect, and for the same reasons outlined in the case of question 28 the number of options was restricted to six; namely, "advertising, sales promotion, and public relations", "distribution channels and their control", "management of sales personnel", "pricing", "product strategy", and "transportation and storage".

Table 14 summarises the resultant responses:

TABLE 14 : DISTRIBUTION OF OPTION RANKED FIRST BY RESPONDENTS

SAMPLE GROUP	MEASURE	AD., SALES PROMOTION & PUB. RELNS.	DISTRIBUTION CHANNELS & THEIR CONTROL	MANAGEMENT OF SALES PERSONNEL	PRICING	PRODUCT STRATEGY	TRANSPORT AND STORAGE	ROW TOTAL
LOW	COUNT	13	4	11	34	15	2	80
	ROW%	16,2	5,0	13,7	42,5	20,0	2,5	
	COLUMN%	41,1	16,7	25,0	40,0	22,2	40,0	
	TOTAL %	5,0	1,5	4,2	13,0	6,1	0,8	30,7
MEDIUM	COUNT	12	9	11	22	37	4	94
	ROW %	12,8	9,6	11,7	23,4	39,4	3,2	
	COLUMN %	38,7	37,5	25,0	25,9	51,4	60,1	
	TOTAL%	4,6	3,4	4,2	8,4	14,2	1,1	36,0
HIGH	COUNT	6	11	22	29	19	0	87
	ROW %	6,9	12,6	25,3	33,3	21,8	0,0	
	COLUMN %	19,4	45,8	50,0	34,1	26,4	0,0	
	TOTAL %	2,3	4,2	8,4	11,1	7,3	0,0	33,3
	COLUMN TOTAL	31	24	44	85	72	5	261
		11,9	9,2	16,9	32,6	27,6	1,9	100,0

The information embodied in Table 14 reveals a good deal about the relative importance of pricing in comparison with the other non-price competitive variables. Firstly, as one would have expected a priori, a large number of competitive firms select pricing as their most important variable. Indeed, well over 42 per cent of companies chose pricing, as

opposed to only 20 per cent for product strategy,² which achieved the second highest ranking. A scrutiny of Table 14 shows that an analogous result obtains for monopolistic firms, with 33,3 per cent selecting pricing, and 21,8 per cent choosing product strategy as their most important strategic variable. Perhaps most important of all, the data for firms in industries of intermediate economic concentration does lend credence to our earlier suspicions regarding the stability of prices in oligopolistic markets. In this instance, only 23,4 per cent rate pricing as their foremost strategic instrument, whereas almost 40 per cent give product strategy priority. A further significant feature of Table 14 is the considerable emphasis placed on the management of sales personnel by firms in monopolistic markets. However, when viewed in the light of the stress writers put on the cross-elasticity of demand which we examined in our discussion on monopoly theory in chapter I, this need not be surprising. Presumably, an efficient sales team can at least restrain customer switches into substitute products, and especially new products by means of persuasion. For the rest no startling differences are apparent, and the strategic variable "transportation and storage" seems to be particularly insignificant with a total ranking of only 1,9 per cent of all respondents. Finally, and rather obviously, it may be pointed out that the manner in which the three sample populations rated the various strategic instruments is statistically significant up

² By the term product strategy is meant "... generating, analysing, organising, planning, implementing and controlling the organisation's existing and new product efforts so as to satisfy the needs and wants of chosen customer segments, while satisfying organisational objectives". See Wind, Y.J., Product Policy : Concepts, Methods and Strategy, (New York : Addison-Wesley, 1982), p. 6.

to the 0,0033 level with the value of chi-square equal to 26,35205 and 10 degrees of freedom. In other words, the degree of market concentration does indeed influence the choice of the most important strategic variable. In sum, while pricing appeared to be the most important strategic variable for both competitive and monopolistic firms, product strategy achieves the highest ranking for oligopolistic enterprises.

Since the analysis of Table 14 showed that both pricing and product strategy received relatively high rankings in comparison with the other strategic variables, it is appropriate to examine in more detail the way in which market concentration influences the ranking profiles of these two competitive tools individually. Firstly, consider pricing. Table 15 illustrates how informants ranked pricing on a scale from one to six.

TABLE 15 : RANKING OF OPTION 4 IN ABSOLUTE AND PERCENTAGE TERMS

SAMPLE GROUP	MEASURE	RANKING OF PRICING						ROW TOTAL
		1st	2nd	3rd	4th	5th	6th	
LOW	COUNT	34	18	10	7	9	2	80
	ROW %	42,5	22,5	12,5	8,7	11,2	2,5	
	COLUMN%	40,0	22,8	25,6	19,4	29,3	30,8	
	TOTAL%	13,0	6,9	3,8	2,7	3,4	0,8	30,7
MEDIUM	COUNT	22	34	17	14	3	4	94
	ROW %	23,4	36,2	18,1	14,9	3,2	4,3	
	COLUMN %	25,9	43,0	43,6	38,9	20,0	57,1	
	TOTAL %	8,4	13,0	6,5	5,4	1,1	1,5	36,0
HIGH	COUNT	29	27	12	15	3	1	87
	ROW %	33,3	31,0	13,8	17,2	3,4	1,1	
	COLUMN %	34,1	34,2	30,8	41,7	20,0	14,3	
	TOTAL %	11,1	10,3	4,6	5,7	1,1	0,4	33,3
	COLUMN TOTAL	85	79	39	36	15	7	261
		32,6	30,3	14,9	13,8	5,7	2,7	100,0

Table 15 shows that for both the high and low concentration respondents the pattern of ranking of pricing diminishes smoothly from first to sixth, where the numbers involved are negligible. But for firms of intermediate industrial concentration a rather different order is evident, with only 23,4 per cent of informants ranking pricing as their foremost strategic instrument. Moreover, the large second rating is interesting when seen in conjunction with Table 14; that is, although product strategy is clearly predominant amongst oligopolistic firms, pricing would appear a close second. In all, there does exist a significant statistical difference in the manner in which respondents from the three respective sample populations rank pricing with the value of chi-square at 18,60428 with 10 degrees of freedom.

What economic meaning can we attach to these results? Firstly, we argued earlier that the purported price stability in situations of oligopoly which may have concealed competitive activity conducted through non-price variables would tend to diminish the importance of pricing in this kind of market. This is clearly not the case given large second ranking pricing obtained from respondents in the intermediate concentration category. Such a conclusion would suggest that an explanation for price rigidity in oligopoly should be sought in collusion, rather than in non-price rivalry. Secondly, it would appear that the degree of market concentration does influence the emphasis which firms place on pricing in their competitive activity.

The second aspect of Table 14 requiring further consideration is the relatively high ranking given to product strategy. Table 16 demonstrates how respondents ranked product strategy on a scale from one to six :

TABLE 16 : RANKING OF OPTION 5 IN ABSOLUTE AND PERCENTAGE TERMS

SAMPLE GROUP	MEASURE	RANKING OF PRODUCT STRATEGY						ROW TOTAL
		1st	2nd	3rd	4th	5th	6th	
LOW	COUNT	16	15	18	12	13	6	80
	ROW %	20,0	18,7	22,5	15,0	16,2	7,5	
	COLUMN%	22,2	27,8	32,7	34,3	52,0	30,0	
	TOTAL%	6,1	5,7	6,9	4,6	5,0	2,3	30,7
MEDIUM	COUNT	37	13	13	14	7	10	94
	ROW %	39,4	13,8	13,8	14,9	7,4	10,6	
	COLUMN %	51,4	24,1	23,6	40,0	28,0	50,0	
	TOTAL %	14,2	5,0	5,0	5,4	2,7	3,8	36,0
HIGH	COUNT	19	26	24	9	5	4	87
	ROW %	21,8	29,9	27,6	10,3	5,7	4,6	
	COLUMN %	26,4	48,1	43,6	25,7	20,0	20,0	
	TOTAL %	7,3	10,0	9,2	3,4	1,9	1,5	33,3
	COLUMN TOTAL	72	54	55	35	25	20	261
		27,6	20,7	21,1	13,4	9,6	7,7	100,0

An examination of Table 16 establishes not only the priority oligopolistic enterprises ascribe to product strategy, but also the relative unimportance of this variable to competitive firms. If the top two rankings are amalgamated for all categories, then this is readily demonstrated. For the high and intermediate concentration respondents, the relevant percentages become 51,7 and 53,2 respectively, whereas the corresponding figure for companies in unconcentrated industries is 38,7 per cent. In terms of economic theory, this might be taken to reaffirm the validity of the assumption of homogeneous products in the neoclassical competitive model. Statistically speaking, significant differences do occur at the 5 per cent level in the ranking of the three groups with chi-square equal to 26,01032 with 10 degrees of freedom. In

other words, market morphology does have a bearing on the importance of product strategy in corporate marketing. More specifically, oligopolistic and monopolistic firms attach greater importance to product strategy than their competitive counterparts. It seems plausible to suggest that the goals of the firm might have some bearing in this regard. In section 4.3 we saw that the pursuit of a target rate of return on investment appeared widespread amongst both intermediate and high concentration enterprises. It is not inconceivable that such an objective might be achieved through product strategy. In contrast, competitive firms attempt to maximise profits by responding to price signals.

In order to complete the analysis of the relative importance of strategic variables, we present further evidence which supports the hypothesis that market structure does have an impact on the way in which respondents rank the various strategic instruments. Contingency tables modelled along precisely the same lines as Table 14, but for the second, third, fourth and fifth ranking distributions, which are not reproduced here, revealed statistically significant differences in the rankings of the three sample populations. The respective chi-square values are 18,95482, 23,73201, 21,25522 and 30,20868, all with 10 degrees of freedom and significant at the five per cent level. Only in the instance of the sixth ranking distribution could the null hypothesis of no significant difference be accepted, and this ostensibly erratic result is easily explained by the fact that an individual's capacity to rank any items consistently exhibits rapidly diminishing returns at about six. A similar pattern emerged from a statistical analysis of the remaining options themselves. With 10 degrees of freedom, the values of chi-square for advertising, sales promotion, public relations,

distribution channels and their control, and the management of sales personnel are 24,45021, 25,44184 and 31,66040, all of which are significant at the five per cent level. For transportation and storage however, no statistically significant difference emerged. Once again, we can account for this on the basis of the very low rankings it received.

What main conclusions can we draw from this analysis? Firstly, and most importantly, it has been demonstrated that the degree of market concentration does influence the choice by firms of the most important competitive instruments. Second, pricing is significantly less important to oligopolistic firms than to their competitive and monopolistic counterparts, and thirdly, there may well be a link between the aims of the firm and the means with which it pursues those aims. It follows that not only does market concentration affect resource allocation in terms of its influence on price determination, but also through the selection and implementation of non-price variables.

CHAPTER V : ANALYSIS OF SURVEY RESULTS (2) : FACTORS AFFECTING THE
INCIDENCE OF PRICING RULES

A recurrent theme throughout the present study has dealt with the nature and incidence of pricing rules of thumb. In chapter I, for instance, we saw that a number of theories purporting to explain economic conduct within an oligopolistic market structure embraced some or other version of the full-cost doctrine. Moreover, it was argued that all the major managerial theories of the firm implicitly relied on pricing rules as the means whereby actual prices are set. The behavioural view of the business enterprise represents a preliminary attempt at explaining how and why rules of thumb have arisen, including of course pricing rules. In an appendix to chapter I we outlined the specific mechanics of pricing rules and contrasted them with conventional marginalist pricing. During the course of our analysis in chapter II the notion of pricing rules of thumb once again played an important role, and it was postulated that models based on this concept were the most fruitful in interpreting the lag and catch-up ratchet underlying both the Means and Qualls variants of the doctrine of administered prices.

The empirical analysis presented here is devoted to an evaluation of pricing rules in South African manufacturing industry. In contrast to the analysis contained in chapter IV, which was largely concerned with the empirical testing of established theory, the emphasis in the present chapter shifts to an evaluation of ad hoc though theoretically plausible expectations. Because of the lack of accepted theory in this

area, an attempt will be made at an essentially empirical investigation of pricing rules, with special emphasis on the role of market concentration in their implementation. In other words, what circumstances give rise to the establishment and application of pricing rules.

After an initial investigation aimed at determining the extent to which pricing rules find application amongst the three sample populations, the analysis may be sub-divided into four main components which are outlined below:

1. Initially we examine the relationship between pricing rules and four general attributes of economic conduct. These are;
 - (i) the relationship between pricing rules and a broader pricing philosophy,
 - (ii) the relationship between pricing rules and the number of products produced by the firm,
 - (iii) the relationship between pricing rules and trade associations, and
 - (iv) the relationship between pricing rules and causes of changes in price.

2. The influence of supply factors on the incidence of pricing rules, namely;
 - (i) types of cost functions, and
 - (ii) various measures of capacity utilisation.

3. The influence of demand factors on the incidence of pricing rules, namely;
 - (i) price elasticity of demand, and
 - (ii) the means through which demand changes are transmitted.

- (4) The influence of subsidiary aspects of price formation on the incidence of pricing rules. These are;
 - (i) the market share of the firm,
 - (ii) the firm's adherence to listed or quoted prices,
 - (iii) the frequency with which firm's evaluate their prices, and
 - (iv) the relative influence of cost and demand factors on the determination of prices.

Before proceeding with the analysis, it seems appropriate to briefly restate what is meant by the term pricing rules of thumb. A pricing rule is a decision rule which consists of a simple basic procedure and the specification of a list of considerations under which price may be modified, such as mark-up, mark-down, etc.

To what extent did respondents, in fact, make use of pricing rules? Question 23 sought to determine how widely pricing rules were employed by informants. The resultant information is recorded in Table 17 :

TABLE 17 : RESPONSE TO QUESTION 23 IN ABSOLUTE AND PERCENTAGE TERMS

USE OF PRICING RULES	MEASURE	LOW CONCENTRATION	MEDIUM CONCENTRATION	HIGH CONCENTRATION	ROW TOTAL
USE PRICING RULES	COUNT	63	69	78	210
	ROW %	30,0	32,9	37,1	
	COLUMN %	74,1	70,4	75,0	
	TOTAL %	22,0	24,0	27,2	73,2
DO NOT USE PRICING RULES	COUNT	22	29	26	77
	ROW %	28,6	37,7	33,8	
	COLUMN %	25,9	29,6	25,0	
	TOTAL %	7,7	10,1	9,1	26,8
	COLUMN TOTAL %	85	98	104	287
		29,6	34,1	36,2	100,0

A scrutiny of Table 17 indicates that a high percentage of firms in all three sample populations employed pricing rules of thumb. A priori one would have expected a positive relationship between the degree of economic concentration and the application of pricing rules, since the extent of monopoly power possessed by an organisation should provide the necessary latitude for discretionary behaviour to take place. With the value of chi-square at only 0,59708 and 2 degrees of freedom this is clearly not the case; that is, the degree of market concentration per se does not shed much light on the prevalence of pricing rules.

5.1 SOME GENERAL ASPECTS OF ECONOMIC CONDUCT

5.1.1 THE PRICING PHILOSOPHY OF THE FIRM

It seems reasonable to assume that pricing rules do not exist in a vacuum; that is, they are likely to be linked in some way to a broader pricing "philosophy" or strategy which should, in turn, bear some relationship to market concentration. More specifically, it seems prima facie plausible that in competitive situations pricing rules represent merely an adaptative mechanism which a firm employs to adjust its internal operations to pervasive market forces, whereas in more concentrated industries pricing rules are attuned more closely to the organisation's overall strategy or posture. In other words, in markets characterised by a high degree of economic concentration pricing rules are not merely a kind of institutionalised reflex action to environmental change, but rather a crucial link between the goal(s) of the enterprise and its day-to-day management. Clearly the distinction we have drawn here is subtle, but none the less is one of kind and not simply of degree, and may be likened to the distinction neoclassical theory draws between price-takers and price-makers.

Question 2 asked respondents about their adherence to a coherent or overall pricing policy. If there is any validity in the contention advanced above, one would expect a relationship between responses to question 2 and answers to question 23 which depends in some measure on the degree of market concentration experienced by informants. Table 18 below cross-tabulated these two sets of responses :

TABLE 18 : CROSS-TABULATION OF QUESTION 2 AND QUESTION 23

MEASURE		EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
HAVE PRICING PHILOSOPHY	COUNT	54	62	66	17	18	15	71	80	81
	ROW %	76,1	77,5	81,5	23,9	22,5	18,5			
	COLUMN %	85,7	89,9	85,7	77,3	62,1	57,7			
	TOTAL %	63,5	66,3	64,1	20,0	18,4	14,6	83,5	81,6	78,7
DO NOT HAVE PRICING PHILOSOPHY	COUNT	9	7	11	5	11	11	14	18	22
	ROW %	64,3	38,9	50,0	35,7	61,1	50,0			
	COLUMN %	14,3	10,1	14,3	22,7	37,9	42,3			
	TOTAL %	10,6	7,1	10,7	5,9	11,2	10,7	16,5	18,4	21,4
COLUMN TOTAL		63 74,1	69 70,4	77 74,8	22 25,9	29 29,6	26 25,2	85 100,0	98 100,0	103 100,0

As expected the relationship between the incidence of pricing rules and a pricing philosophy is influenced by market concentration. For both high and medium concentration companies, an analysis of the contingency table reveals statistical significance. In the case of high concentration respondents the value of chi-square is 7,49469 with 1 degree of freedom which is significant at the 5 per cent level, whereas for firms of intermediate concentration chi-square equals 8,74244 with 1 degree of freedom which is similarly significant. In the less concentrated category chi-square is only 0,34244 with 1 degree of freedom which lies far below the critical value of 3,84. While this analysis is of some interest, it does not in itself explain a great deal about pricing rules of thumb. Consequently, we must turn our attention to other factors which may provide further clues.

5.1.2 THE NUMBER OF PRODUCTS PRODUCED BY THE FIRM

The number of products manufactured by the firm might influence the incidence of pricing rules in two ways. Firstly, the more products produced by the firm, the greater will be the information requirements of the firm. In an effort to minimise the collection cost of such information the firm may decide to make use of pricing rules. Secondly, during our discussion of rules of thumb in chapter I, it emerged that some writers believed the primary motivation for the use of pricing rules stemmed from the attempt by firms (especially those in oligopolistic market structures) to cope with uncertainty. Since in practice it is very difficult to incorporate uncertainty into economic analysis in any systematic way, let alone venture to quantify it, such an assertion is not easy to evaluate empirically. However, it does seem

reasonable to suppose that the larger the number of products produced by a firm, the more uncertainty it must face in the market place. If it is possible to approximate uncertainty by means of this surrogate variable, then we can glean at least some information on the validity of such a contention. Question 1 determined the number of products manufactured by respondents. Table 19 cross-tabulates these responses with the information elicited by question 23.

TABLE 19 : CROSS-TABULATION OF QUESTION 1 AND QUESTION 23

NUMBER OF PRODUCTS	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
ONE PRODUCT	COUNT	9	11	5	4	7	5	13	18	10
	ROW %	69,2	61,1	50,0	30,8	38,9	50,0			
	COLUMN %	14,3	15,9	6,4	18,2	24,1	19,2			
	TOTAL	10,6	11,2	4,8	4,7	7,1	4,8	15,3	18,4	9,6
TWO PRODUCTS	COUNT	4	2	7	2	2	2	6	4	9
	ROW %	66,7	50,0	77,8	33,3	50,0	22,2			
	COLUMN %	6,3	2,9	9,0	9,1	6,9	7,7			
	TOTAL%	4,7	2,0	6,7	2,4	2,0	1,9	7,1	4,1	8,7
THREE TO FIVE PRODUCTS	COUNT	11	17	12	3	8	1	14	25	13
	ROW %	78,6	68,0	92,3	21,4	32,0	7,7			
	COLUMN %	17,5	24,6	15,4	13,6	27,6	3,8			
	TOTAL %	12,9	17,3	11,5	3,5	8,2	1,0	16,6	25,5	12,5
SIX TO TEN PRODUCTS	COUNT	11	8	17	2	2	2	13	10	19
	ROW %	84,6	80,0	89,5	15,4	20,0	10,5			
	COLUMN %	17,5	11,6	21,8	9,1	6,9	7,7			
	TOTAL %	12,9	8,2	16,3	2,4	2,0	1,9	15,3	10,2	18,3
MORE THAN TEN PRODUCTS	COUNT	28	31	37	11	10	16	39	41	53
	ROW %	71,8	75,6	69,8	28,2	24,4	30,2			
	COLUMN %	44,4	44,9	47,4	50,0	34,5	61,5			
	TOTAL %	32,6	31,9	35,6	12,9	10,2	15,4	45,9	41,8	51,0
	COLUMN TOTAL	63 74,1	69 70,4	78 75,0	22 25,9	29 29,6	26 25,0	85 100,0	98 100,0	104 100,0

A statistical analysis of Table 19 reveals no significant relationship between the number of products manufactured and the use of pricing rules of thumb for any of the population samples, with the values of chi-square for low, medium and high concentration firms being 1,33674, 2,58993 and 8,33111 with 4 degrees of freedom respectively. Given the imprecise nature of the surrogate variable for uncertainty however, it seems reasonable to assume that certain categories might give rise to more or less the same subjectively perceived degree of uncertainty on the part of respondents. For this reason, it was decided to experiment with the various categories contained in question 23. In the first instance, options 1, 2 and 3 of question 1 were combined, that is, we consider only three product categories - one to five products; six to ten products, and more than ten products. This approach yielded no statistically significant results. Next, options 1, 2, 3 and 4 were aggregated once again with no meaningful outcome. Finally three categories were formed with one product, two to ten products, and more than ten products. Only in the case of highly concentrated firms were the results of statistical significance at the 5 per cent level.

In sum, we are forced to conclude that the number of products manufactured by a firm bears no systematic relationship to its use or neglect of pricing rules. Moreover, upon reflection it was recognised that the purported relationship between uncertainty and the number of products produced may be more complex than at first thought. The nature of the products may in fact be more important, and especially the Hicksian notion of intercorrelation or inter-relatedness.¹ For

¹ See Hicks, J., Critical Essays in Monetary Theory, (Oxford : Clarendon Press, 1967), p. 24.

instance, should a firm produce substitute goods then it may be reducing "overall riskiness"; conversely should it manufacture complementary goods this could well increase the uncertainty it faces.

Consequently, the test performed on uncertainty and pricing rules may be regarded as inconclusive, and since our questionnaire did not gather data on the specific nature of the products manufactured by the firm, it is not possible to investigate the matter further. However, insofar as the number of products measures the information requirements of the firm, we can say that this did not affect the firm's use of pricing rules. We must thus turn our attention to other potentially fruitful avenues.

5.1.3 TRADE ASSOCIATIONS

During our discussion of the theory of the firm in chapter I, it emerged that some writers believed that a significant reason for the widespread application of pricing rules was the fact that they assisted in making the actions of rival firms more predictable which allowed for co-ordinated action to take place, particularly in oligopolistic market structures. One has in mind the case where all firms, for instance, use a cost-plus rule uniformly. In other words, pricing rules represent a means toward the end of tacit collusion. Trade associations generally provide the institutional mechanism for less subtle information transfer between firms operating in a specific industry for the purpose of securing co-operative stabilising behaviour. If this view of pricing rules has any validity then they should act as an alternative means of communication. Put differently, in a market where trade associations

are important in the determination of prices, one would expect a greatly diminished role for pricing rules. The converse of such a situation should also hold true.

Question 22 asked respondents about the importance of trade associations in the determination of prices in their particular industry. Table 20 cross-tabulates the responses to question 22 with question 23 :

TABLE 20 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 22

IMPORTANCE OF TRADE ASSOCIATIONS IN PRICING	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
TRADE ASSOCIATIONS ONE OF MOST IMPORTANT	COUNT	5	2	4	2	5	1	7	7	5
	ROW %	71,4	28,6	80,0	28,6	71,4	20,0			
	COLUMN %	7,9	2,9	5,3	9,1	17,2	3,8			
	TOTAL %	5,9	2,0	3,9	2,4	5,1	1,0	8,2	7,1	4,9
TRADE ASSOCIATIONS MOST IMPORTANT	COUNT	7	11	11	2	4	6	9	15	17
	ROW %	77,8	73,3	64,7	22,2	26,7	35,3			
	COLUMN %	11,1	15,9	14,5	9,1	13,8	23,1			
	TOTAL %	8,2	11,2	10,8	2,4	4,1	5,9	10,6	15,3	16,7
TRADE ASSOCIATIONS NOT VERY IMPORTANT	COUNT	17	18	18	5	8	6	22	26	24
	ROW %	77,3	69,2	75,0	22,7	30,8	25,0			
	COLUMN %	27,0	26,1	23,7	22,7	27,6	23,1			
	TOTAL %	20,0	18,4	17,6	5,9	8,2	5,9	25,9	26,5	23,5
TRADE ASSOCIATIONS HAVE NO INFLUENCE	COUNT	34	38	43	13	12	13	47	50	56
	ROW %	72,3	76,0	76,8	27,7	24,0	23,2			
	COLUMN %	54,,0	55,1	56,6	59,1	41,4	50,0			
	TOTAL %	40,0	38,8	42,4	15,3	12,2	12,7	55,3	51,0	54,9
	COLUMN TOTAL	63	69	76	22	29	26	85	98	102
		74,1	70,4	74,5	25,9	29,6	25,5	100,0	100,0	100,0

If Table 20 is considered as a two-way contingency table with trade associations taken in conjunction with the employment of pricing rules, and the influence of market concentration is ignored, then the value of chi-square is 2,68234 with 3 degrees of freedom which is not statistically significant at the 5 per cent level of confidence. It follows that in general no relationship exists between the variables in question. If, however, Table 20 is viewed as a three-way cross-tabulation which includes the possible effects of market concentration, then a rather different picture emerges. For both low and high concentration respondents apparently no statistically significant relationship exists between the use of pricing rules of thumb and the importance of trade associations in the determination of output prices. In the case of respondents in the intermediate concentration category the position is reversed; chi-square equals 8,70985 indicating statistical significance at the 5 per cent level.

How should we interpret this result? It was pointed out above that those analysts who saw the application of pricing rules as an alternative communication medium to the more formalised institution of trade associations, believed this to be particularly prevalent under oligopolistic conditions - a market form broadly identifiable with our intermediate concentration sample population. In other words, it is the interdependency aspect of oligopoly necessitating some kind of information channel which is at least partially responsible for the introduction of rules of thumb. For this reason, we find a statistically significant relationship between pricing rules and trade associations for firms of medium concentration, and not for their high and low concentration counterparts. While the outcome of the analysis conducted here has shed at least some light on the nature of pricing

rules, a great deal more remains to be empirically explored.

5.1.4 CAUSES OF CHANGES IN PRICE

Before proceeding with a rather different approach to the analysis of the application of pricing rules, it is appropriate to examine whether the main causes of changes in price have any influence on the use of pricing rules; that is changes in demand, changes in cost, and changes in competitor's price. Given the fact that all pricing rules of thumb are fundamentally derivatives of the full-cost or average-cost doctrine, we should anticipate a priori that cost induced price increases bear a strong relationship to rules of thumb. Question 21 invited respondents to indicate their most common reason for changing prices, and Table 21 cross-tabulates the resultant responses with those of question 23 :

TABLE 21 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 21

MOST COMMON REASON FOR PRICE CHANGE	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
CHANGE IN DEMAND	COUNT	2	2	3	1	1	2	3	3	5
	ROW %	66,7	66,7	60,0	33,3	33,3	40,0			
	COLUMN %	3,2	2,9	3,9	4,5	3,6	7,7			
	TOTAL %	2,4	2,1	2,9	1,2	1,0	2,0	3,5	3,1	4,9
CHANGE IN COST	COUNT	59	46	68	18	18	20	77	64	88
	ROW %	76,6	71,9	77,3	23,4	28,1	22,7			
	COLUMN %	93,7	67,6	89,5	81,8	64,3	76,9			
	TOTAL %	69,4	47,9	66,7	21,2	18,7	19,6	90,6	66,7	86,3
CHANGE IN COMPETITORS PRICE	COUNT	2	20	5	3	9	4	5	29	9
	ROW %	40,0	69,0	55,6	60,0	31,0	44,4			
	COLUMN %	3,2	29,4	6,6	13,6	32,1	15,4			
	TOTAL %	2,4	20,8	4,9	3,5	9,4	3,9	5,9	30,2	8,8
	COLUMN TOTAL	63 74,1	68 70,8	76 74,5	22 25,9	28 29,2	26 25,5	85 100,0	96 100,0	102 100,0

If Table 21 is considered as a two-way contingency table which examines the most common cause of price changes against the degree of market concentration, then a clear-cut relationship exists between the two sets of variables with chi-square equal to 26,01308 and statistically significant up to the 0,00001 level. An inspection of the data reveals that while the prices of competitors' output was of negligible importance to firms in industries of low and high economic concentration, over 30 per cent of intermediately concentrated enterprises cited it as playing a key role in their determination of price. This has important implications for the theory of oligopoly, and serves to emphasise the interdependency aspect of that market form on which so many models of oligopoly are founded. Moreover, since almost 70 per cent of respondents in this category made use of pricing rules, it supports the findings of Table 20 that such rules do function as a medium of communication.

In terms of the a priori theoretical expectations of the results contained in Table 21 which we outlined above, several revealing features emerge. A preponderance of all informants, and especially those from the low and high concentration sample populations, increase their prices primarily on account of cost increases whilst simultaneously employing pricing rules. And since this is statistically highly significant, we are justified in concluding that pricing rules are intimately linked to the costing side of a firm's operation - a deduction apparently in line with current literature. But what role does market concentration play here? If Table 21 is perceived as a three-way table embodying in addition industrial concentration, then we can provide a tentative answer to this question. For low, medium and high concentration categories no statistically significant association

emerges; the appropriate chi-square values are 3,37275, 0,10779 and 2,61038 all with 2 degrees of freedom. In other words, we seem justified in assuming that the degree of market concentration exerts minimal influence on the relationship between the use of pricing rules of thumb and the causes of changes in price.

5.2 SUPPLY FACTORS

In order to determine the extent to which the respective market forces of supply and demand are conducive to the firm's use of pricing rules, we shall examine supply factors in this section, and various aspects of demand in the following section.

5.2.1 COST

It is appropriate to begin our analysis of the relation between a firm's supply conditions and pricing rules with an examination of the influence of cost on the use of such rules. More specifically, does the existence of either constant or changing unit cost curves predispose a given respondent towards employing pricing rules, and what role, if any, does market concentration play? In this regard it is not at all clear what a priori theoretical expectations one should hold. Question 6 inquired of respondents as to the general form of their average cost structure, and Table 22 cross-tabulates the information obtained with the responses to question 23 :

TABLE 22 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 6

MEASURE		VARIABLE UNIT COSTS			CONSTANT UNIT COSTS			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
EMPLOY PRICING RULES	COUNT	37	51	56	26	17	21	63	68	77
	ROW %	58,7	75,0	72,7	41,3	25,0	27,3			
	COLUMN %	74,0	73,9	76,7	74,3	63,0	70,0			
	TOTAL %	43,5	53,1	54,4	30,6	17,7	20,4	74,1	70,8	74,8
DO NOT EMPLOY PRICING RULES	COUNT	13	18	17	9	10	9	22	28	26
	ROW %	59,1	64,3	65,4	40,9	35,7	35,6			
	COLUMN %	26,0	26,1	23,3	25,7	37,0	30,0			
	TOTAL %	15,3	18,7	16,5	10,6	10,4	8,7	25,9	29,2	25,2
COLUMN TOTAL		50	69	73	35	27	30	85	96	103
		58,8	71,9	70,9	41,2	28,1	29,1	100,0	100,0	100,0

If Table 22 is perceived as a two-way cross-tabulation which links the use of pricing rules to the kind of unit cost experienced by informants, then the resultant value of chi-square is 0,68055 with one degree of freedom which is not significant at the five per cent level. In other words, the particular form of the firm's cost function appears to have no bearing on whether or not it uses pricing rules of thumb. However, should Table 22 be viewed as a three-way contingency table, then it is possible to gauge any effect the degree of market concentration may have. In the present case, industrial concentration has no statistically significant influence on the data under investigation. In other words, constant unit costs were no more conducive to the application of pricing rules than changing unit costs.

In order to check the findings of Table 22, it was decided to cross-tabulate the responses to question 23 and 7, but given the statistical outcome of this process the resultant contingency table is not reproduced here. Ignoring the potential influence of market concentration, no statistically significant relationship between the use of pricing rules and the kind of cost structure of the firm emerged. When market concentration is brought in, no statistical significance is found.

The matter of interpreting these findings is straightforward. The nature of a manufacturing firm's cost structure has no statistically discernible impact on its use or otherwise of pricing rules of thumb, at least insofar as South African manufacturing industry is concerned. Moreover, the degree of market concentration has no influence on the relation between the two variables in question.

5.2.2 CAPACITY UTILISATION

The next aspect of the production side of the business enterprise to which we turn our attention deals with the (potential) interrelationship between pricing rules and various attributes of capacity utilisation, a distinctive aspect of the firm's cost structure.

Economic theory teaches that cost, in the short run, is determined by a complex interplay of factor productivity and input prices, with a given state of technology and plant size. In the short run therefore, the firm simply has to learn to live with its exogenously determined cost structure. The level of capacity utilisation, on the other hand, does allow for a degree of leeway. While ultimately dependant on sales, the ability of the business enterprise to build up or run down its inventory holdings in the short run means that some choice remains as to the selection of the desired level of capacity utilisation.

Question 26 asked respondents to indicate their most preferred level of capacity utilisation, and the forthcoming responses were cross-tabulated with those obtained from question 23. Table 23 below summarises the outcome of this process :

TABLE 23 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 25

PERCENTAGE CAPACITY LEVEL	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
90 - 100%	COUNT	22	33	31	8	17	15	30	50	46
	ROW %	73,3	66,0	67,4	26,7	34,0	32,6			
	COLUMN %	36,1	48,5	40,8	36,4	58,6	60,0			
	TOTAL %	26,5	24,0	30,7	9,6	17,5	14,9	36,1	51,5	45,5
80 - 90%	COUNT	32	29	37	12	6	6	44	35	43
	ROW %	72,7	82,9	86,0	27,3	17,1	14,0			
	COLUMN %	52,5	42,6	48,7	54,5	20,7	24,0			
	TOTAL %	38,6	29,9	36,6	14,5	6,2	5,9	53,0	36,1	42,6
70 - 80%	COUNT	5	4	6	1	5	2	6	9	8
	ROW %	83,3	44,4	75,0	16,7	55,6	25,0			
	COLUMN %	8,2	5,9	7,9	4,5	17,2	8,0			
	TOTAL %	6,0	4,1	5,9	1,2	5,2	2,0	7,2	9,3	7,9
60 - 70%	COUNT	1	2	2	0	1	0	1	3	2
	ROW %	100,0	66,7	100,0	0,0	33,3	0,0			
	COLUMN %	1,6	2,9	2,6	0,0	3,4	0,0			
	TOTAL %	1,2	2,1	2,0	0,0	1,0	0,0	1,2	3,1	2,0
50 - 60%	COUNT	1	0	0	1	0	2	2	0	2
	ROW %	50,0	0,0	0,0	50,0	0,0	100,0			
	COLUMN %	1,6	0,0	0,0	4,5	0,0	8,0			
	TOTAL %	1,2	0,0	0,0	1,2	0,0	2,0	2,4	0,0	2,0
	COLUMN TOTAL	61 73,5	68 70,1	76 75,2	22 26,5	29 29,9	25 24,8	83 100,0	97 100,0	101 100,0

If Table 23 is viewed as a two-way contingency table relating the preferred percentage capacity level to the employment of pricing rules, then a statistically significant result emerges with chi-square equal to 10,45974 and 4 degrees of freedom. Should Table 23 be seen as a three-way table incorporating the effects of market concentration however, no statistically significant differences between the three sample populations are exposed. An examination of the table itself reveals that regardless of the industrial concentration which they experience, the vast majority of respondents selected high levels of capacity utilisation and made use of pricing rules.

In addition to question 25, two further questions in the questionnaire addressed the matter of the utilisation of productive capacity. Question 5 inquired of informants as to which level of plant capacity utilisation represented least total cost per unit of output, and question 17 asked respondents to specify which percentage of capacity utilisation future costs were computed upon. When the resultant information was cross-tabulated with responses to question 23, in neither instance was statistical significance established. These results must inevitably cast doubt on the initial finding of Table 23. The converse is true with respect to cross-tabulations of questions 5 and 17 with question 23 which, when viewed as three-way contingency tables include the impact of market concentration. No statistically significant result was forthcoming which reinforces the conclusion drawn from Table 23.

How should we interpret these findings? Ignoring for the moment the influence of market concentration, only in the cross-tabulation of question 25 with question 23 did statistical significance occur, and

even then only up to the 0,0334 level. Given the non-significant results obtained for questions 5 and 17, it is clear that this should be viewed with suspicion. We conclude therefore, that the employment of pricing rules bears no systematic relation to the various attributes of capacity utilisation. When the degree of market concentration is taken into consideration, the position is straightforward; in no instance did any evidence emerge supporting the contention that industrial concentration affected the answers of respondents to the cross-tabulations performed. Therefore, we deduce that market concentration has minimal influence in this regard.

One way of generalising these findings on the relationship between capacity utilisation and the use of pricing rules of thumb is to view them in the context of the Blair target return on investment model which we investigated in chapter IV. We saw that Blair proposed that firms in concentrated markets use a target return pricing rule whose operation is dependent on actual capacity utilisation in relation to standard volume. In the present analysis we have effectively "collapsed" the Blair theory into a rule, in the sense that we have examined the relation between pricing rules in general and all aspects of capacity utilisation. The fact that no statistically significant results emerged therefore reinforces our conclusions in section 4.2 with respect to the Blair model.

5.3 DEMAND FACTORS

Having dealt with the influence of supply factors on the incidence of pricing rules of thumb, in terms of the schema outlined previously,

we now turn our attention to the potential influence of demand in this respect.

5.3.1 PRICE ELASTICITY OF DEMAND

Perhaps the most important aspect of the selling operations of the business enterprise requiring empirical examination is the elasticity of demand for its products which confronts the firm. In particular, we are interested in the relationship between price elasticity and the use of pricing rules, and especially the impact of market concentration on this relationship. Question 26 provided respondents with four categories pertinent to the approximate degree of price elasticity of demand with which they would classify their own situation in respect of an increase in price. Table 24 cross-tabulates the resultant responses with those gathered using question 23 :

TABLE 24 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 26

PRICE ELASTICITY OF DEMAND	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
DEMAND HIGHLY SENSITIVE TO PRICE INCREASE	COUNT	14	7	7	3	5	3	17	12	10
	ROW %	82,4	58,3	70,0	17,6	41,7	30,0			
	COLUMN %	22,6	10,1	9,0	13,6	17,2	11,5			
	TOTAL %	16,7	7,1	6,7	3,6	5,1	2,9	20,2	12,2	9,6
DEMAND FAIRLY SENSITIVE TO PRICE INCREASE	COUNT	26	39	36	7	15	10	33	54	46
	ROW %	78,8	72,2	78,3	21,2	27,8	21,7			
	COLUMN %	41,9	56,5	46,2	31,8	51,7	38,5			
	TOTAL %	31,0	39,8	34,6	8,3	15,3	9,6	39,3	55,1	44,2
DEMAND SLIGHTLY SENSITIVE TO PRICE INCREASE	COUNT	20	19	28	6	8	10	26	27	38
	ROW %	76,9	70,4	73,7	23,1	29,6	26,3			
	COLUMN %	32,3	27,5	35,9	27,3	27,6	38,5			
	TOTAL %	23,8	19,4	26,9	7,1	8,2	9,6	31,0	27,6	36,5
DEMAND TOTALLY INSENSITIVE TO PRICE INCREASE	COUNT	2	4	7	6	1	3	8	5	10
	ROW %	25,0	80,0	70,0	20,0	30,0				
	COLUMN %	3,2	5,8	9,0	27,3	3,4	11,5			
	TOTAL %	2,4	4,1	6,7	7,1	1,0	2,9	9,5	5,1	9,6
	COLUMN TOTAL	62	69	78	22	29	10	84	98	104
		73,8	70,4	75,0	26,2	29,6	9,6	100,0	100,0	100,0

Viewed as a two-way contingency table relating the employment of pricing rules to the degree of price elasticity of demand, the question arises as to our a priori theoretical expectations of the data embodied in Table 24. It may be presumed that relatively inelastic demand conditions should encourage the use of pricing rules in raising prices thus increasing the firm's total revenue; more specifically, the lower the coefficient of price elasticity, the greater the likelihood of firms employing pricing rules. While on the surface an examination of Table 24 does convey the impression that this is indeed so, in fact no statistically significant relationship exists with chi-square equal to 3,80461 and 3 degrees of freedom. Given the necessarily ill-defined nature of terms like "highly" and "fairly" however, it is possible that the responses to question 26 are not unequivocally representative of elasticities actually prevailing in the marketplace. For this reason, it was decided to amalgamate "highly sensitive" with "fairly sensitive" and "slightly sensitive" with "totally insensitive" in question 26 thence producing only two categories for the price elasticity of demand. The result is dissappointing. With the value of chi-square equal to 0,58442 and one degree of freedom, there is no statistically significant dependancy between the two sets of variables at the five percent level. A similar experiment produced equally bleak results. In this instance options 2 and 3 of question 26 were combined yielding three classes of elasticity; with chi-square equal to 3,65762 and 2 degrees of freedom, the relationship was significant only up to 0,1606. In other words, in all three cases we are obliged to abandon the alternative hypothesis in favour of the null hypothesis of no relationship.

What economic sense can be made of these findings? It would seem as if firms do not have sufficiently precise information on the price elasticities of demand for their products. Moreover, one can readily appreciate the difficulty and expense inherent in attempting to gather such information.

If Table 24 is seen as a three-way contingency table, then we can gauge any possible influence the degree of market concentration may have on the relationship between the two variables under investigation. In order to facilitate clarity of discourse, the results of the three statistical procedures performed above are presented in tabular form in Table 25:

TABLE 25 : INFLUENCE OF MARKET CONCENTRATION ON CROSS-TABLULATIONS
OF QUESTIONS 23 AND 26

FORM OF QUESTION 26	SAMPLE POPULATIONS	VALUE OF CHI-SQUARE	DEGREES OF FREEDOM	LEVEL OF SIGNIFICANCE
ALL OPTIONS	LOW	11,05459	3	0,0114
	MEDIUM	1,14585	3	0,7660
	HIGH	0,56262	3	0,9049
OPTIONS 1 & 2, & OPTIONS 3 & 4 COMBINED	LOW	1,72159	1	0,1895
	MEDIUM	0,00021	1	0,9885
	HIGH	0,05159	1	0,8203

An inspection of the findings contained in Table 25 shows that for both intermediate and highly concentrated firms, no statistically significant relationship exists between price elasticity of demand and the use of pricing rules, regardless of the way in which the options offered by question 26 are arranged. In contrast, such a relationship is evident for less concentrated enterprises in two out of the three cases. The nature of the relationship is however, the antithesis of our a priori theoretical expectations, as an examination of Table 24 confirms; for example, whereas 82,4 per cent of low concentration respondents who experience demand conditions highly sensitive to price increases use pricing rules, only 25,0 per cent of those whose demand is wholly insensitive to price rises do likewise. In other words, as far as relatively less concentrated industries are concerned, the higher the coefficient of the price elasticity of demand, the more likely firms are to use pricing rules of thumb.

This finding is surprising, and not in accord with conventional wisdom. If the tentative proposal advanced in conjunction with Table 18 is considered, then notwithstanding the information problem an ostensibly coherent explanation is possible. It may be recalled in this regard we argued earlier that it is conceivable for firms in competitive industries to employ pricing rules merely as an adaptative mechanism to adjust their internal operations to pervasive market forces, rather than as an instrument of corporate strategy. Consequently, it is not unreasonable for them to use pricing rules even where the price elasticity of demand is high.

5.3.2 MECHANISM THROUGH WHICH DEMAND CHANGES ARE TRANSMITTED

The next characteristic of demand requiring analysis, is the actual mechanism through which changes in demand are transmitted to the firm. One can distinguish three ways in which the business organisation can detect fluctuations in the demand for its products which are logically exhaustive; through changes in sales, inventories, or orders. Question 18 asked respondents to identify the most important of these in terms of their own experience, and the ensuing responses are cross-tabulated with those of question 23 in Table 26 below:

TABLE 26 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 8

HOW CHANGE IN DEMAND IS USUALLY DETECTED	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
CHANGE IN SALES	COUNT	22	25	50	6	14	14	28	39	64
	ROW %	78,6	64,1	78,1	21,4	35,9	21,9			
	COLUMN %	35,5	36,8	66,7	27,3	50,0	56,0			
	TOTAL %	26,2	26,0	50,0	7,1	14,6	14,0	33,3	40,6	64,0
CHANGE IN INVEN- TORIES	COUNT	1	0	0	0	0	2	1	0	2
	ROW %	100,0	0,0	0,0	0,0	100,0				
	COLUMN %	1,6	0,0	0,0	0,0	0,0	8,0			
	TOTAL %	1,2	0,0	0,0	0,0	0,0	2,0	1,2	0,0	2,0
CHANGE IN ORDERS	COUNT	39	43	25	16	14	9	55	57	34
	ROW %	70,9	75,4	73,5	29,1	24,6	26,5			
	COLUMN %	62,9	63,2	33,3	72,7	50,0	36,0			
	TOTAL %	46,4	44,8	25,0	19,0	14,6	9,0	65,5	59,4	34,0
	COLUMN TOTAL	62 73,8	68 70,8	75 75,0	22 26,2	28 29,2	25 25,0	84 100,0	96 100,0	100 100,0

Given the lack of theoretical prescriptions with respect to the three alternative ways in which changes in demand are perceived by, or transmitted to sellers, and their relationship to pricing rules, we cannot form a priori theoretical expectations of the data in Table 26. Moreover, no statistically significant relationship emerged in this regard. When the degree of market concentration is brought into consideration a similar result is established. We conclude therefore that the way in which demand changes are transmitted to the firm does not appear to influence the incidence of pricing rules.

5.4 SUBSIDIARY ASPECTS OF PRICE FORMATION

5.4.1 MARKET SHARE

In what way does the size of a firm's share of the market affect its use of pricing rules? It seems reasonable to expect that the larger the market share possessed by an enterprise, the greater its propensity to use pricing rules of thumb by virtue of the scope for discretionary action that monopoly power creates. Question 27 required respondents to indicate the market share secured by them, and Table 27 cross-tabulates this information with the responses to question 23 :

TABLE 27 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 27

MARKET SHARE	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
EXCEEDS 70%	COUNT	1	5	23	1	9	7	2	14	30
	ROW %	50,0	35,7	76,7	50,0	64,3	23,3			
	COLUMN %	1,7	7,2	30,7	4,8	31,0	28,0			
	TOTAL %	1,2	5,1	23,0	1,2	9,2	7,0	2,5	14,3	30,0
EXCEEDS 50%	COUNT	10	10	25	3	3	3	13	13	28
	ROW %	76,9	76,9	89,3	23,1	23,1	10,7			
	COLUMN %	16,7	14,5	33,3	14,3	10,3	12,0			
	TOTAL %	12,3	10,2	25,0	3,7	3,1	3,0	16,0	13,3	28,0
EXCEEDS 30%	COUNT	7	22	10	5	4	5	12	26	15
	ROW %	58,3	84,6	66,7	41,7	15,4	33,3			
	COLUMN %	11,7	31,9	13,3	23,8	13,8	20,0			
	TOTAL %	8,6	22,4	10,0	6,2	4,1	5,0	14,8	26,5	15,0
EXCEEDS 10%	COUNT	7	19	8	5	3	4	12	22	12
	ROW %	58,3	86,4	66,7	41,7	13,6	33,3			
	COLUMN %	11,7	27,5	10,7	23,8	10,3	16,0			
	TOTAL %	8,6	19,4	8,0	6,2	3,1	4,0	14,8	22,4	12,0
LESS THAN 10%	COUNT	33	13	9	9	10	6	42	23	15
	ROW %	78,6	56,5	60,0	21,4	43,5	40,0			
	COLUMN %	55,0	18,8	12,0	42,9	34,5	24,0			
	TOTAL %	40,7	13,3	9,0	11,1	10,2	6,0	51,9	23,5	15,0
	COLUMN TOTAL	60	69	75	21	29	25	81	98	100
		74,1	70,4	75,0	25,9	29,6	25,0	100,0	100,0	100,0

If Table 27 is viewed as a two-way contingency table relating market share to the use of pricing rules, then no statistically significant dependence arises with chi-square equal to 6,51847 and 4 degrees of freedom. In an attempt to broaden the validity of this finding, options 1, 2 and 3 of question 26 were combined such that all respondents with a market share of over 30 percent formed a single group. The effect of this procedure served to confirm the earlier result. Similarly, combining options 1 and 2 on the one hand, and options 3, 4 and 5 on the other (thus forming two groups of respondents on either side of 30 per cent), produced nothing of statistical significance. In other words we are obliged to accept the null hypothesis of no relationship between the two variables; that is, the employment of pricing rules does not appear to be influenced by the market share of the firm.

In order to assess the possible impact of market concentration on the relationship between market share and the application of pricing rules, Table 27 was considered as a three-way contingency table, and the procedure outlined above was repeated. Table 28 below summarises the statistical information generated :

TABLE 28 : INFLUENCE OF MARKET CONCENTRATION ON CROSS-TABULATIONS

OF QUESTIONS 23 AND 27

FORM OF QUESTION 27	SAMPLE POPULATIONS	VALUE OF CHI-SQUARE	DEGREES OF FREEDOM	LEVEL OF SIGNIFICANCE
ALL OPTIONS	LOW	2,65443	4	0,6172
	MEDIUM	15,68841	4	0,0035
	HIGH	5,89206	4	0,2074
OPTIONS 1, 2 & 3 COMBINED	LOW	1,99056	2	0,3696
	MEDIUM	4,82587	2	0,0896
	HIGH	3,01613	2	0,2213
OPTIONS 1 & 2 AND OPTIONS 3, 4 & COMBINED	LOW	0,6443	1	0,7996
	MEDIUM	3,02325	1	0,0821
	HIGH	3,50301	1	0,0613

It is evident from Table 28 that for both low and high concentration industries no statistically significant relationship emerges. However, for firms operating in markets characterised by intermediate economic concentration a rather different picture emerges. Although it is true that in two out of three cases the value of chi-square does not broach the 5 per cent confidence level, clearly under oligopolistic conditions market share does influence the employment of pricing rules. A possible explanation in this regard resides in the well known interdependence between competitors in oligopolies; in order to prevent potentially disruptive price warfare, firms with neither substantial nor negligible market shares might use known formulae to transmit mutually experienced demand and cost fluctuations into price changes. An examination of Table 28, for instance, shows an overwhelming preponderance of enterprises with market

shares of between ten and seventy per cent employ pricing rules. Conversely, firms with a very high share of the market act as dominant firms along the lines envisaged by that theory of oligopoly, and companies with less than ten per cent of the market can expect their independent actions to go unheeded by their larger rivals.

5.4.2 ADHERENCE TO LISTED OR QUOTED PRICES

To what extent does the firm's adherence to their listed or quoted price affect the incidence of pricing rules of thumb. A plausible hypothesis would run as follows; since pricing rules are applied in order to arrive at some final selling price, an observed divergence between listed prices and actual transactions prices would suggest that pricing rules do not find wide application. Put differently, the more a particular enterprise adheres to its predetermined listed prices, or the less it indulges in various discounting practices, the more likely it is to employ pricing rules. Question 3 inquired of respondents as to the extent of their adherence to quoted or listed prices, and Table 29 cross-tabulates the resultant data with the responses obtained from question 23:

TABLE 29 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 3

ADHERENCE TO LISTED PRICES	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
ADHERE RIGIDLY	COUNT	19	23	12	5	8	5	24	31	17
	ROW %	79,2	74,2	70,6	20,8	25,8	29,4			
	COLUMN %	30,2	33,3	15,8	22,7	27,6	20,8			
	TOTAL %	22,4	23,5	12,0	5,9	8,2	5,0	28,2	31,6	17,0
ADHERE CLOSELY	COUNT	28	23	38	10	9	12	38	32	50
	ROW %	73,7	71,9	76,0	26,3	28,1	24,0			
	COLUMN %	44,4	33,3	50,0	45,5	31,0	50,0			
	TOTAL %	32,9	23,5	38,0	11,8	9,2	12,0	44,7	32,7	50
ADHERE USUALLY	COUNT	14	18	17	4	8	4	18	26	21
	ROW %	77,8	69,2	81,0	22,2	30,8	19,0			
	COLUMN %	22,2	26,1	22,4	18,2	27,6	16,7			
	TOTAL %	16,5	18,4	17,0	4,7	8,2	4,0	21,2	26,5	21,0
OFTEN DEVIATE	COUNT	0	1	7	0	2	2	0	3	9
	ROW %	0,0	33,3	77,8	0,0	66,7	22,2			
	COLUMN %	0,0	1,4	9,2	0,0	6,9	8,3			
	TOTAL %	0,0	1,0	7,0	0,0	2,0	2,0	0,0	3,1	9,0
USE LISTED PRICES ONLY AS ROUGH GUIDE	COUNT	2	4	2	3	2	1	5	6	3
	ROW %	40,0	66,7	66,7	60,0	33,3	33,3			
	COLUMN %	3,2	5,8	2,6	13,6	6,9	4,2			
	TOTAL %	2,4	4,1	2,0	3,5	2,0	1,0	5,9	6,1	3,0
	COLUMN TOTAL	63	69	76	22	29	24	85	98	100
		74,1	70,4	76,0	25,9	29,6	24,0	100,0	100,0	100,0

A statistical analysis of the data embodied in Table 29 reveals no evidence in support of the proposition advanced above; the relevant chi-square value is 2,43980 with 4 degrees of freedom whose level of significance is only 0,6554. Furthermore, the degree of market concentration exerts no statistically discernible influence on the interaction between pricing rules and adherence to listed prices.

5.4.3 THE FREQUENCY WITH WHICH PRICES ARE EVALUATED

It is conceivable that the frequency with which companies evaluate their product prices might have some influence on the use of pricing rules. Two possible propositions might be advanced in this regard. Firstly, as we saw in chapter I some writers believe pricing rules serve as a means of dealing with uncertainty. It follows that if firms possess only limited information on current and expected future demand conditions, and base their pricing policy largely on known cost variables, then they are unlikely to make ad hoc price adjustments frequently. Rather, quarterly or even six monthly assessments of pricing policy are more likely since marked and permanent changes in demand conditions will become perceptible with that length of time. Secondly, and perhaps obviously, the very nature of pricing rules precludes continual adjustments in price unless cost inflation has become rampant. We would therefore hypothesise that the more frequently an enterprise evaluates its selling price, the less use it will make of pricing rules.

Question 20 asked respondent firms to indicate the frequency with which they evaluate their prices. The information obtained is cross-tabulated with responses to question 23, and presented in Table 30 below:

TABLE 30 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 20

FREQUENCY OF PRICE PRICES	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
EVERY ONE TO FOUR WEEKS	COUNT	7	8	13	4	4	1	11	12	14
	ROW %	63,6	66,7	92,9	36,4	33,3	7,1			
	COLUMN %	11,1	11,6	17,1	18,2	18,2	13,8	4,0		
	TOTAL %	8,2	8,2	12,9	4,7	4,1	1,0	12,9	12,2	13,9
EVERY ONE TO THREE MONTHS	COUNT	18	25	24	6	7	5	24	32	29
	ROW %	75,0	78,1	82,8	25,0	21,9	17,2			
	COLUMN %	28,6	36,2	31,6	27,3	24,1	20,0			
	TOTAL %	21,2	25,5	23,8	7,1	7,1	5,0	28,2	32,7	28,7
EVERY FOUR TO SIX MONTHS	COUNT	26	25	21	6	6	8	32	31	29
	ROW %	81,2	80,6	72,4	18,7	19,4	27,6			
	COLUMN %	41,3	36,2	27,6	27,3	20,7	32,0			
	TOTAL %	30,6	2,5	20,8	7,1	6,1	7,9	37,6	31,6	28,7
MORE THAN SIX MONTHS	COUNT	12	11	18	6	12	11	18	23	29
	ROW %	66,7	47,8	62,1	33,3	52,2	37,9			
	COLUMN %	19,0	15,9	23,7	27,2	41,4	44,0			
	TOTAL %	14,1	11,2	17,8	7,1	12,2	10,9	21,2	23,5	28,7
	COLUMN TOTAL	63	69	76	22	29	25	85	98	101
		74,1	70,4	75,2	25,9	29,6	24,8	100,0	100,0	100,0

An examination of Table 30 shows that almost one third of all respondents, or 32,4 per cent, assessed the prices of their products every four to six months in contrast to only 13 per cent who performed this task every one to four weeks. Moreover, 62,3 per cent of all informants fell into the range of one to six months. Considered as a two-way contingency table, the value of chi-square for Table 30 is 10,33220 with 3 degrees of freedom which is significant at the 5 percent level. In other words, we are justified in rejecting the null hypothesis, and accepting instead the alternative hypothesis which holds that a systematic relationship does exist between the variables under examination. The frequency with which firms evaluate their prices does influence the incidence of pricing rules. However when Table 30 is considered as a three-way contingency table with the effects of market concentration taken into account, then no statistically significant relationships emerge.

5.4.4. THE RESPECTIVE INFLUENCE OF COST AND DEMAND

The final investigation into factors affecting the incidence of pricing rules deals with the respective strengths or influences that demand and cost factors have in determination of price. Since pricing rules are inexorably linked with the costs of production, one would presume that respondents who perceive cost as the major factor underlying the pricing decision would tend to employ pricing rules, and vice versa.

Question 4 on the questionnaire requested respondents to weigh up the relative importance of demand and cost influences on the pricing

31 below summarises the outcome : policies of their organisations, and the information acquired through this process was cross-tabulated with responses to question 23. Table

TABLE 31 : CROSS-TABULATION OF QUESTION 23 AND QUESTION 4

DESCRIP- TION OF PRICING	MEASURE	EMPLOY PRICING RULES			DO NOT EMPLOY PRICING RULES			ROW TOTAL		
		L	M	H	L	M	H	L	M	H
ENTIRELY COST- BASED	COUNT	10	12	8	8	6	7	18	18	15
	ROW %	55,6	66,7	53,3	44,4	33,3	33,3			
	COLUMN %	15,9	17,4	10,4	36,4	20,7	26,9			
	TOTAL %	11,8	12,2	7,8	9,4	6,1	6,8	21,2	18,4	14,6
MOSTLY COST-BASED SOME MARKET CONSIDER- ATION	COUNT	39	31	57	10	13	16	49	44	73
	ROW %	79,6	70,5	78,1	20,4	29,5	21,9			
	COLUMN %	61,9	44,9	74,0	45,5	44,8	61,5			
	TOTAL %	45,9	31,6	55,3	11,8	13,3	15,5	57,6	44,9	70,9
MOSTLY MARKET- BASED SOME COST CONSIDER- ATION	COUNT	10	19	11	3	10	2	13	29	13
	ROW %	76,9	65,5	84,6	23,1	34,5	15,4			
	COLUMN %	15,9	27,5	14,3	13,6	34,5	7,7			
	TOTAL %	11,8	19,4	10,7	3,5	10,2	1,9	15,3	29,6	12,6
ENTIRELY MARKET BASED	COUNT	4	7	1	1	0	1	5	7	2
	ROW %	80,0	100,0	50,0	20,0	0,0	50,0			
	COLUMN %	6,3	10,1	1,3	4,5	0,0	3,8			
	TOTAL %	4,7	7,1	1,0	1,2	0,0	1,0	5,9	7,1	1,9
	COLUMN TOTAL	63 74,1	69 70,4	77 74,8	22 25,9	29 29,6	26 25,2	85 100,0	98 100,0	103 100,0

An analysis of Table 31 does not confirm our earlier expectations. Seen as a two-way contingency table, the value of chi-square for Table 31 is 7,39820 with 3 degrees of freedom which is not significant at the 5 per cent level. We therefore accept the null hypothesis of no relationship between the variables, and reject the alternative hypothesis. An interesting feature of Table 31 however, is the preponderance of respondents in all categories who perceive cost as the most crucial element of price. If the first two options of question 4 are combined, then this accounts for 75,8 per cent of all informants.

The influence of the degree of market concentration on the variables in question is minimal. The values of chi-square (with the relevant significance level given in brackets) for low, medium and highly concentrated firms are 4,14193 (0,2465), 3,39597 (0,3345) and 5,39512 (0,1451) respectively, all with 3 degrees of freedom.

We conclude that the respective influence of demand and cost factors does not affect the incidence of pricing rules - a result which bears out our earlier findings in respect of both demand and supply factors.

5.5 CONCLUDING REMARKS

Before concluding the empirical component of the present study with a brief overview of the main findings of chapter IV and V it seems appropriate to preface our remarks by reiterating a caveat issued in chapter III. Given the deficiencies inherent in all measures of economic concentration, the only available method of securing a

quantitative estimation of market concentration, and despite every effort at excluding industries whose concentration ratios were misleading, the fact remains that some firms included in the sample populations may not reflect conditions actually prevalent in their industries with any high degree of precision. Since any bias stemming from this source will act against obtaining statistically significant differences between the three groups, it follows that substantial confidence can be attached to those instances where such differences did emerge.

Viewed in this light, the administered price hypothesis, or at least the Means version of that theory, performed particularly well. In terms of their reactions to increased demand in the upswing phase of the business cycle in South Africa for the period beginning 1978 until the end of 1980, the behaviour of respondents conformed with the predictions of the model. The same cannot be said of the Blair target rate of return on investment model. While the fundamental behavioural postulate appeared well-founded in actual economic life, the two kinds of performance envisaged by the model were not borne out by the data received from informants. It was argued that potentially meaningful future research may retain the motivational assumption underlying the theory whilst modifying its theoretical superstructure. The major finding to emerge from the investigation into the objectives of the firm served to confirm this view; that is, the limited applicability of profit maximisation at least within the context of South African manufacturing industry. The theoretical significance of this result lies in the empirical support which it provides for the managerial theory of the firm. In the analysis of the importance of strategic variables, it was demonstrated that the degree of market concentration

does influence the relative weighting by firms of various competitive instruments, such as pricing policy and product strategy.

While the analysis conducted in chapter IV was largely concerned with the empirical testing of established theory, the emphasis in chapter V fell on the evaluation of ad hoc though theoretically plausible expectations concerning the incidence of pricing rules of thumb. Despite their widespread use, the role of market concentration appeared rather restricted in respect of pricing rules. Moreover, various other aspects of price determination explained little. Consequently, there would seem to be scope for the behavioural theory of the firm in this area given the ostensibly minor importance of conventional economic magnitudes.

CONCLUSION

The present study has dealt with various aspects of price formation in South African manufacturing industry within the broad framework of the theory of the firm. But how do the findings of the thesis relate to the wider context of economic theory and public policy? It seems possible to assess any contribution to knowledge, however modest, in terms of a tripartite classification. On the first, and perhaps "highest" level there exists pure or theoretical knowledge; then there is the domain of practical or applied knowledge, and finally, there is empirical knowledge which is useful for either verifying or falsifying specific theoretical propositions and identifying areas of importance, or ignorance.

On the theoretical level, the theory of the firm is centrally concerned with the role of prices in determining the optimum allocation of scarce resources with alternative uses, as well as the efficient utilisation of those resources. Firms purchase and employ inputs in order to produce and sell outputs, and relative output prices serve to allocate available factors between different products. Consequently, pricing has a direct bearing on the composition of aggregate output. However, the policies pursued by firms also determine how much of the total stock of productive resources will be employed, ie whether there will be full employment or unemployment. Do the pricing policies followed by firms have any direct bearing on this issue of economic efficiency? While it may be difficult to provide a categorical answer in this regard, pricing probably does affect the level of employment of resources. Consider the following argument; profit is the difference

between revenue derived from sales and outlay on inputs, and it is for example possible that profit maximisation may require a selling price which can only be realised if output is deliberately restricted. This, in turn, normally entails curtailment of input, and hence gives rise to unemployment or economic inefficiency. Should the firm's objective function differ from profit maximisation then this may still exert some influence on the extent of its demand for available production factors. As long as we lack a numerical index of economic efficiency,¹ the role of firms in the process of resource utilisation and allocation must be approached indirectly. In brief, the amount and nature of the resources that a firm employs is closely determined by its objectives, which in turn, determines the quantity and composition of output on a micro- as well as macroeconomic level.

If the behaviour of firms does influence the degree of both efficient utilisation and optimal allocation of a given resource endowment, then it is clearly important to discover the nature and extent of application of a firm's objectives and policies. A number of economists in South Africa have in fact considered the matter, and more particularly the imputed motive of profit maximisation; Reynders² and Rädcl, ³ for instance, have stressed the general yet varied nature of

¹ Graaff, J. De V., "Economic Efficiency", in Truu, M.L., (ed.), Public Policy and the South African Economy, (Cape Town : Oxford University Press, 1976), pp. 13-24.

² Reynders, H.J.J., "Aspects of the Goal of the Firm in the World of Today", South African Journal of Economics, Vol. 43, 1975, pp. 421-445.

³ Rädcl, F.E., "Profit Maximisation - Can It Be Justified?" South African Journal of Economics, Vol. 37, 1969, pp. 32-41.

the concept, without explicitly discussing the South African situation. In contrast, the present study was expressly aimed at manufacturing industry in South Africa. More specifically, it showed that market concentration affects the objectives of firms; in general, while competitive firms adhere to conventional profit maximisation it appeared that their oligopolistic and monopolistic counterparts aim at securing a target rate of return on investment. Moreover, some evidence emerged to suggest that firms in imperfect markets seek to maximise the revenue accruing from sales. What implications does this hold for economic efficiency? In other words, are these policies conducive to a larger or smaller output? Insofar as the pursuit of these objectives implies relatively lower prices than would prevail under profit maximisation, the result may be a greater utilisation of productive resources than would otherwise prevail. Consequently, although firms operating in markets characterised by a high degree of market concentration do have the power to "make" prices thereby affecting the pattern of relative prices and the allocation of resources, it would appear that they do not exercise this market power to the full extent. A useful way of conceptualising South African manufacturing industry would seem to be in terms of the dual economy hypothesis, which holds that there is a structural dichotomy between the large corporate organisations which possess considerable market power, and smaller more competitive firms with less market power.

In what way have the findings of the present study made at least some contribution to applied knowledge? In other words, what policy proposals can be deduced with respect to the management of the South African economy? A discussion of the role of pricing in this regard does not so much pertain to relative prices as to the influence that

firms may have on the absolute price level, or the process of inflation. In South Africa, as elsewhere, this issue has received the attention of several economists, particularly in recent years. Commenting on this development within the economics profession on the nature of inflation in South Africa, Spandau has observed that "... consideration has shifted to the area of microeconomic market behaviour and the assertion has been made that monopolistic practices must be seen as the main contributor to inflation."⁴ Indeed, some local economists and other social scientists have gone as far as to argue that the policies of firms in concentrated markets do in fact represent an important cause of inflation in South Africa. Keenan, an outspoken proponent of this point of view has argued as follows:

"How then, are we to explain inflation. (sic) The explanation is to be found in the changing nature of capital and the capital accumulation process in South Africa during the 1970's ... what we have been witnessing is the process of transition from a competitive to a monopoly phase of accumulation."⁵

Although his approach to the problem of inflation is less ideological, Botha has drawn similar inferences. Adopting the premise

⁴ Spandau, A., "Competition Policy in South Africa : Further Comments," South African Journal of Economics, Vol. 43, 1975, p. 322.

⁵ Keenan, J., "The Nature of Economic Growth in South Africa - 1978-1980 : Monopoly Capital and the Erosion of Black Living Standards", unpublished paper delivered at the Association of Sociologists in Southern Africa annual conference, July, 1981.

that "we have too many monopolies who do what they like with prices,"⁶ he argues that "it is largely a cost inflation, caused by factors in the real (rather than monetary) sphere"⁷ (translation).

The findings of the present study do not support this view of the inflationary process in South Africa. Firstly, monopolistic and oligopolistic enterprises pursue objectives other than the maximisation of profits, which implies that in their pricing policies they do not charge what the market will bear but leave an undiscounted margin of unliquidated monopoly gains. Secondly, at least in the upswing phase of the South African economy for the period beginning 1978 until the end of 1980, the evidence which emerged seems to indicate that prices determined in concentrated markets of the manufacturing sector rose more slowly than competitively determined prices, thus having a dampening effect on inflation. An important reason for this is the apparent trade-off between economies of scale and competition, caused by the relatively small size of the South African market for manufactured goods. More specifically, increased demand allowed monopolistic industries to take advantage of falling average costs which competitive industries were unable to enjoy.

Moreover, in an econometric study of the causes of inflation in South Africa during the decade of the 1970's, Strydom found no

⁶ Botha, D.J.J., "Die Minister en die Ekonomie," South African Journal of Economics, Vol. 49, 1981, p. 75.

⁷ Ibid, p. 82.

significant evidence of a spontaneous cost-push on the part of local private enterprise, in contrast with the effects of imports and government-administered prices.⁸

In general terms, the policy implications that follow from the findings of the present study are three-fold. Firstly, demand management as an instrument of anti-inflationary policy is unlikely to be of much assistance in restraining prices within the manufacturing industry, given the relatively unresponsive nature of prices to changes in demand. Secondly, any measures taken within the broad field of competition policy should be carefully considered in the light of the apparent importance of economies of scale in South African manufacturing. It seems probable that under local conditions cost reductions resulting from large plant size may well outweigh the advantages accruing from increased competition. In other words, competition policy might represent a double-edged sword in a wider anti-inflationary strategy. Finally, the importance of cost in price determination and the widespread incidence of pricing rules of thumb casts doubt on the efficacy of exchange depreciation as an instrument of demand management in South Africa, particularly during 1981 and 1982; that is, cost increases generated via a depreciating rand exchange rate will be rapidly transformed into local price rises virtually regardless of the prevailing state of aggregate demand.⁹

⁸ See, Senbank Economic Opinion, September 1980, p. 2.

⁹ This is likely to be highly significant. It has been calculated that "secondary effects" which are made up overwhelmingly of costs, is the source of about 38 per cent of South African inflation. Ibid., p. 2.

At the third level of enquiry mentioned at the outset, even a modest contribution to knowledge may be assessed in terms of the light its empirical contents shed on existing theories and hypotheses, and the extent to which it identifies areas of importance and of ignorance. Sir Karl Popper, for example, proposed the principle of falsifiability as the criterion to guide the development of a scientific discipline; that is, theoretical propositions must be confronted with empirical evidence in order to evaluate their validity.¹

Broadly speaking, the analysis of the present survey findings consisted of five major components. The first investigation was concerned with evaluating the validity of the administered price hypothesis during the most recent upswing phase of the South African business cycle from the beginning of 1978 until the end of 1980. In terms of their reaction to increased demand, the behaviour of respondents conformed with the Means variant of the hypothesis, though not in terms of their response to increased input costs. The latter result was explained in the context of a trade-off between competition and economies of scale. On balance, the Means version of the administered price hypothesis appeared to perform rather well. The same cannot be said of the Blair target rate of return on investment model, which formed the subject of the second empirical investigation. The Blair model was formulated with the specific purpose of explaining in microeconomic terms the lag and catch-up effect purportedly underlying the thesis of administered prices. Although the data did confirm the

¹ See, Popper, K., Conjectures and Refutations, (London : Routledge and Kegan Paul, 1963).

basic behavioural postulate that firms in imperfect product markets do attempt to achieve a target rate of return on investment, the predictions of the model with respect to actual production either exceeding or falling short of planned output did not have statistically significant explanatory power. It was argued that meaningful future developments should retain the motivational assumption underlying the theory, whilst modifying its theoretical superstructure. The third area of investigation dealt with the objectives of the firm and served to confirm this conclusion; that is, the limited applicability of profit maximisation amongst firms operating in markets characterised by a high degree of concentration. This finding in turn supports the contention advanced by advocates of the managerial theory of the firm that goals other than the maximisation of profit should be included in the objective function of the firm under imperfect competition. While a target rate of return appeared to be the most important of such goals, some evidence did emerge to corroborate Baumol's hypothesis that the maximisation of sales revenue might represent a significant aim of the oligopolistic business enterprise. On the reasoning that there may well be a link between the aims of the firm and the means with which it pursues those aims, a fourth topic of interest was the relative importance which firms attach to the major competitive instruments at its disposal. In this context, it was established that the degree of market concentration does influence the choice of the most important strategic variables. Moreover, pricing policy is significantly less important to oligopolistic firms than to their competitive and monopolistic counterparts. It follows that not only does market concentration affect resource allocation in terms of its influence on price determination, but also through the selection and implementation

of non-price variables.

An analysis of factors which determine the possible incidence of pricing rules of thumb, constituted the subject matter of the final empirical investigation. Although wide reference is made in the literature to the concept of pricing rules, no comprehensive theory exists which explains their nature or application. Consequently, no single "model" was tested against the data assembled on the South African manufacturing industry; instead a series of ad hoc though theoretically plausible propositions were examined. Contrary to a priori expectations, the degree of market concentration exerted no statistically significant influence on the incidence of pricing rules, which was found to be high amongst all three sample populations. Moreover, conventional supply and demand factors explained little about the incidence of pricing rules. In some respects, the functions of pricing rules in oligopolistic markets could be distinguished from competitive and monopolistic markets, especially with regard to market share and trade associations. In general, it seemed that the role of pricing rules is not uniform in markets of differing degrees of market concentration, and it may be suggested that the behavioural theory of the firm is the most appropriate vehicle of analysis given the ostensibly minor importance of conventional economic magnitudes.

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