

THE POTENTIAL FOR
DECENTRALIZED COMMUNITY INDUSTRIES

by

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ABSTRACT

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This study explores the potential utility of strategies for the economic development of depressed areas based on industrial plants located in and controlled by communities. Two specific aspects are studied; the relevance of size and scale to efficiency and viability, and the effect of community as against entrepreneurial control. The conclusions are: first, much manufacturing could be efficiently carried out at considerably smaller scale (especially of firms), and second, collective control offers specific advantages in certain combinations of industrial and market sectors.

ACKNOWLEDGMENTS

This dissertation is merely the tip of an iceberg. I therefore take this opportunity to acknowledge both those who helped make possible my re-entry to academic life after a lapse of many years, and those who contributed to making it a rewarding and satisfying experience.

I wish to thank, first of all, the staff of the Center for Community Economic Development, and particularly Dr. Stewart E. Perry, its director, for providing the opportunity in the first place. My very introduction to the field, and my conviction of both the importance of these issues, and their intellectual challenge, came about by virtue of my position on the CCED staff. In this process, my colleagues' encouragement and support was critical. Without their willingness to let me remain on the CCED payroll during my studies, it is likely that there would have been no such acknowledgment to write.

As to those whom I came to know during my stay in the Department of Urban Studies and Planning at M.I.T. - students and faculty alike - it is impossible to express my feelings adequately. I can only wish others an opportunity to experience the same sense of excitement, flexibility, collegueship, and reward which I found. I owe a great and particular debt to Prof. John R. Harris, who, in his several roles as advisor, teacher, and dissertation committee chairman was unfailingly

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The above notwithstanding, it remains for me to publicly acknowledge Dr. Rosabeth Moss Kanter as the single most important influence during these events in my life. As colleague, friend, sponsor and wife, she has shared my dreams, bandaged my wounds, added to my understanding, and rejoiced in my successes. And finally, although my parents have long since given up direct control over me, the habits of thought and the intellectual values which bear fruit here signify that their early efforts were not unrewarded. My father, himself a proud graduate of M.I.T., would be pleased. For that and many other reasons, I dedicate this work to the memory of Hyman Stein.

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INTRODUCTION

Much of the continuing debate on alternative public policies related to economic growth and development concerns their effects on the distribution of wealth, income, power, and opportunity. In particular, the widely held feeling that these items are too inequitably distributed at present has generated increasing interest in specific social policies which utilize programs of economic development to rebuild decaying or lagging areas, to provide more jobs and job opportunities to unemployed people, and to offer poor groups or communities the means by which they can gain a more equitable share in the general level of prosperity.

Two very different strategies exist; one utilizing conventional economic structures but providing incentives capable of shifting their focus more toward areas of public concern, and the second developing new economic institutions expressly for work in such areas. The former approach, for example, typically seeks to entice businesses to invest in the designated sector by improving the physical infrastructure or providing special tax benefits. The latter approach, in contrast, might provide resources or legislation necessary

to permit local communities either to form cooperative development entities or to act as entrepreneurs in their own right. In particular, the strategy which has become known as community economic development is based on establishment and initial funding (by grants typically) of institutions (generally known as community development corporations or CDC's) controlled by residents of depressed communities (urban and rural) and which carry out a broad range of activities designed to transform the social and economic environment of the area.(1) Key among their activities are business enterprises, which become critical determinants of long range success since they are intended to provide the basic economic resources needed by the CDC or community.

Criticisms of several types have been levelled at the idea of community economic development; these have been discussed at length elsewhere.(2) The most important ones, however, bear on the role of the CDC's in more narrowly economic activities. In particular, such federal policies and programs have often been criticized for supporting uneconomical enterprises - firms that are really too small to succeed in the American economy, or if they manage to succeed, too small to have a significant impact upon locally depressed areas. Programs that have been criticized on this basis include those of the Small Business Administration (loans and minority assistance efforts) and the Office of Economic

Opportunity (support for cooperatives and CDC's). For example, Theodore L. Cross, when he was special consultant to the Director of OEO for economic development programs, told CDC's that they would be handicapped by the "nickle-and-dime" approach of small and medium-sized firms.(3)

In general, however, whether firms are conceived in terms of classical entrepreneurial mechanisms or newly minted participative devices for poor communities, it is assumed that starting a business is a viable and appropriate means by which the economically disenfranchised can gain their birthright. The community corporations further assume that the incomes thus gained can be used to solve related social problems. It is not surprising that such assertions are challenged. New ventures have an appallingly high rate of failure even when there is no problem of access to the necessary resources, and even when rooted in a highly supportive environment. In 1969 alone, for example, although 274,000 new businesses were incorporated in the United States, a nearly equal number went out of existence.(4) Roughly 2/3 of all new ventures fail to survive 5 years; 4/5 die by age 10.(5) Clearly, the odds against success are great. Despite this, increasing numbers of people elect to make the attempt. The number of businesses started has risen fairly steadily, the momentum generated, at least in part, by the classical American creed as exemplified in the stories of Horastio Alger.

However, this phenomenon, which until recently was most

visible in the American middle class, has now been broadened by such notions as minority enterprise, black capitalism, and community-based economic development. The additional difficulties facing black, poor, or community ventures compound the usual problems considerably. To give one example only, a new venture which explicitly sets out to hire a significant fraction of its workforce from the ranks of those without the training, education, or attitudes regarded as generally necessary are forced absolutely to spend more time and money, and to deal with far greater organizational complexities at the very time when the risk of failure is greatest.(6)

It ought, therefore, to be agreed that it is difficult to start a new venture, especially under these latter circumstances. However, a different question, to which this dissertation is addressed, concerns the longer view. Assume that problems of start-up can be resolved by some combination of extra help and physical resources. What can be said about the possibility or likelihood of success and self-sufficiency in the future? If the venture is inherently unsound or inefficient, no amount of start-up help will solve those problems. As a matter of public policy it may still be appropriate to maintain the enterprise via some form of continuing subsidy, in exchange for social benefits not easily quantified. This situation, however, should be seen clearly for what it is; it should not be viewed as a conven-

tional business, and it should be treated, from the outset, very differently.

With regard, however, to ventures aiming at some degree of self-sufficiency, one of the fundamental questions is the size or scale required to attain a reasonable degree of economic efficiency, and thus, competitive power. Since greater size, other things being equal, requires more capital investment as well as greater human resources, entrepreneurs often seek opportunities where modest size is adequate initially, but with potential for subsequent growth. Manufacturing industries, in particular, are the subject of extended debate on these issues since, on the one hand, they tend to be the most capital intensive businesses, but on the other, they provide an economic base of great power and potential leverage. For that reason, and because the necessary data are more available, they are the major focus of the present work.

In the special case of ventures rooted in poorer communities, these concerns are also exacerbated appreciably. Capital is much scarcer, even with Federal programs aimed at providing more of it, trained people are less available, the time scale over which success (or failure) is to be measured is often distinctly reduced, and the psychosocial climate is not conducive to large scale risk-taking. If present opportunities exist, there is a great temptation to

seize them as if they were likely to be the last available - as, indeed, they may be. Seasoned entrepreneurs, not to mention corporations in their institutional role as generators of new ventures, are used to a series of trials, some, but probably not most of which will succeed. No such luxury is available to poor communities. The decision to start a venture is thus more critical in these cases, and for that very reason, tends to be highly conservative.

In that regard, the issue of size is double-edged. To the extent that certain ventures are seen as requiring great resources, they are likely to be rejected out of hand. Real opportunities may thus be overlooked or passed-by. At the same time, ventures which are conventionally regarded as amenable to a small scale of operation, and which meet as well the conservative criteria mentioned above, tend to be those least likely to generate significant capital returns, to provide a solid and extensible economic base for the community, and to capture any significant share of the wealth-producing instruments for the community's benefit.

To the extent, then, that the need for larger firms is exaggerated by the conventional wisdom, that perception itself becomes a limiting factor in the generation of and public support for strategies of social/economic change based on smaller, less centralized productive entities.

On the other hand, there are real and important advantages

which accrue from increased size, and it would be equally foolish to underestimate these. The critical questions, to which this dissertation is addressed, concern the nature of these advantages and disadvantages, and centrally, how their importance and extent changes with size. In economic terms, for example, do returns to scale continue to increase, remain constant above some identifiable point, or eventually decrease?

As a part of this, it is also necessary to look at the effects of size and scale in a larger and more encompassing context since it is clear that social welfare does not necessarily increase, *pari passu*, with enterprise or firm scale. Ultimately, this dissertation argues that the conventional wisdom overstates the virtues of size, at least as regards its effect on efficient operation and potential competitive strength. It argues further that the present state of the American economic system is such as to enhance the benefits and opportunities for smaller enterprises, as contrasted to larger ones, and that visible trends are likely to make this even more true in the future. In short, there are not only some definite advantages to smaller size, but certain equally definite disadvantages to larger size.

These conclusions do not, in and of themselves, suggest particular approaches for decentralized community industries, but they provide a basis for further research toward that end.

Plainly, these basic conclusions confirm that industries could be decentralized with respect to control structures, and thus more widely dispersed, both in ownership and in number of productive units without loss of efficiency. However, this says nothing about what is meant by community, or community-based, and how these considerations would modify the general conclusions on size and scale. This involves two related but separable issues; the effect of collective or communal vs. private entrepreneurial control, and the possibility that some categories of manufacturing would be more consistent with the community focus than others. In other words, does either the form of enterprise control or its product/market orientation make a difference, and if so, what? The conclusion reached is that several distinctions are important and fundamentally more consistent with a community orientation. These include, in particular, collective control and production oriented toward consumer goods for local markets. To put it another way, import substitution offers definite benefits, though this is not to be taken as a drive for self-sufficiency. It is, rather, a shift of emphasis.

Chapter I investigates the economic data of the effects of scale and the behavior of firms in the marketplace. It seeks to distinguish, in particular, the effects of scale on plants or single plant firms from those related to multi-plant firms. Chapter II extends the discussion to the actual operation of enterprises and seeks to de-

fine the effects of scale on internal functional efficiency, particularly with regard to planning, innovation and the use of human resources.

Chapter III considers the relationship between firms, the market, and consumers to evaluate again the effects of scale and size on these matters (including size as a possible source of market power) along with the relationship between production costs and other elements determining final price.

Chapter IV then, builds on the conclusions on size and scale to sketch out a line of further research and theory concerning decentralized community industries which could contribute to more truly productive communities. Chapter V, finally, summarizes briefly the conclusions reached in the previous sections and in the dissertation as a whole.

NOTES TO INTRODUCTION

1. See, for example, Geoffrey Faux, CDCs: New Hope for the Inner City, N.Y., Twentieth Century Fund, 1971; Stewart E. Perry, "Federal Support for CDCs: Some of the History and Issues of Community Control," Review of Black Political Economy (Special Issue: Community Development Corporations), Vol. 3, #3, Spring 1973; Law and Contemporary Problems (Special Issues: Community Economic Development), Part I (Winter 1971), Part II (Spring 1971); and publications of the Center for Community Economic Development (CCED), Cambridge, Mass.
2. In several articles in Law and Contemporary Problems, op. cit.; see also Barry Stein, "The Centerville Fund, Inc.," Journal of Applied Behavioral Science, Spring 1973 and "How Successful are the CDCs? An Interim Response," Review of Black Political Economy, loc. cit.
3. Personal communication, Stewart E. Perry, CCED, following a meeting at OEO offices in March, 1970.
4. U.S. Statistical Abstract, 1971, Washington, G.P.O., 1971.
5. Edward D. Hollander et al., The Future of Small Business N.Y., Praeger, 1967, pp. 106-107.
6. See, for elaboration of this point, Thomas Vietorisz and Bennett Harrison, "Ghetto Development, Community Corporations and Public Policy," Review of Black Political Economy, Vol. II, #1, Fall 1971.

CHAPTER I
ECONOMIC STUDIES OF SCALE

This chapter considers the economic evidence on size and scale, primarily in manufacturing industry. It focuses on economies and diseconomies related to production processes, and on use of resources, and seeks to evaluate these effects by observation of productive entities taken as wholes. A particular distinction is drawn between plants, single-plant firms such as orthodox economic theory generally considers, and multi-plant or conglomerate (multi-industry) firms, which constitute by far the bulk of American industrial effort. Evaluation of scale effects in elemental or functional aspects of enterprises are discussed in Chapter II.

THEORETICAL FOUNDATIONS

It is useful to begin by distinguishing between size and scale, two concepts which so far have been used more or less interchangeably. The distinction is simple; size refers to absolute magnitude, whereas scale is a purely relative or comparative concept. It is always appropriate, for example, to speak of the size of a firm or a plant, whether by that is meant numbers of workers, value of assets, volume of sales,

etc. Strictly speaking, scale can not be used in the same way; to speak of the scale of a plant or firm is to consider its size relative to some other plant or firm, used as a standard of comparison. Some of the important effects considered in later chapters are properly considered functions of size (e.g., access to resources, risk bearing ability, or market power) whereas many others are more properly related to scale.

Economies of scale concern, therefore, the differences in efficiency, cost, resource utilization, and the like among units of different sizes producing the same product. With regard to scale effects, the important questions concern whether cost and efficiency changes in proportion to size of the entity under consideration and how that relationship itself changes over the range of sizes involved. In ordinary usage, size and scale are not so carefully distinguished, nor is it generally important that they be so. That is equally true of this dissertation, but if the distinction is kept in mind, there will be less chance of misunderstanding.

The Idea of Economies of Scale

At root, the notion of economies of scale derives from the fact that some of the factors required for production are "lumpier" (i.e., less divisible) than others. In principle, capital can be subdivided as finely as desired, but the same cannot be said for tools or people. In consequence,

those resources can only be used efficiently when the scale of activity is large enough to employ them fully. Furthermore, even those which are relatively or completely divisible (capital, raw materials) generally cost more per unit quantity in small amounts. Since these costs can be reduced by operating on a larger scale, there is a scale economy involved. Lastly, increased specialization of functions can provide further returns to scale since subdividing tasks more and more finely can permit less divisible factors to be efficiently employed in those more specialized tasks.

There is only one absolute basis for economies of production scale, and it follows from geometric considerations. (There is, however, an absolute basis for non-production economics of scale, in connection with reduction of risk.) The volume or capacity of physical objects (containers, buildings, vehicles) increases with the third power of length or radius and thus faster than the surface area, which only increases as the second power. Since the costs associated with material needs and construction tend to be related to the surface area, larger units have greater capacity or volume per unit cost. There is therefore an economy of scale associated with larger structures. Of course, even in these cases, as size increases other costs can eventually rise to the point where they outrun the economies from this source. Production processes and facilities are sometimes

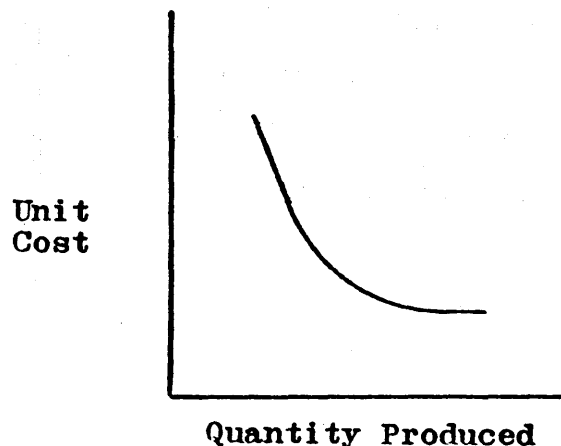
evaluated for returns to scale using this kind of engineering approach.

Conceptually, all of these economies follow from specialization of one kind or another. The ability to use relatively indivisible resources is the result of an organization specializing in production of a given good or service. The lower unit costs of resources purchased in greater quantity stem from the fact that some other entity is enabled to specialize in the provision of those resources, and thus use their factors of production more efficiently. And, of course, specialization of labor is the basic device on which rests the organization of present industrial civilization.(1) The point to be noted is that all of these sources of economies are related. The potential specialization which permits goods to be produced at lower cost is only itself possible because of the system that connects good and services, producers and consumers, since all people and firms are at different times are both suppliers and users of these various economic goods. As Bjork has pointed out:

The large number of firms in the machine-tool industry, each specialized in particular processes, is important in the achievement of true economies of scale. It may seem paradoxical but it is true that a large number of small firms buying and selling to each other may enjoy more economies of scale than a large vertically integrated company that produces to satisfy all its own needs.(2)

The market mechanism, which attempts to appropriately link the separate production and consumption units, must therefore be taken into consideration even in discussions of economies of scale, since the apparent or theoretically achievable economies will otherwise remain illusory. One implication of this issue is that in the presence of untapped markets - possible new users of goods and services - the need for standardized consumption can be met by drawing on that fraction of the total market available which can usefully employ the product. However, in mature markets, as the U.S., the need to market standard products tends to require that consumers who would otherwise be uninterested in a given product be persuaded to desire it.(3)

These effects combine to produce a general result; the unit cost of production of any good or service tends to drop as the quantity produced by a given facility (the scale of operation) increases. This is represented by the so-called "L-shaped" curve below.



In practice, these economies in production must be balanced against the generally increasing costs that arise because of transport to more distant consumers. Thus, even though there is a market demand for the product, and even if higher level of output (greater scale of production) could be justified in terms of production economies, increased costs of transport (which may also arise in connection with necessary supply materials) will set an upper limit. These effects are discussed in more detail in Chapter III.

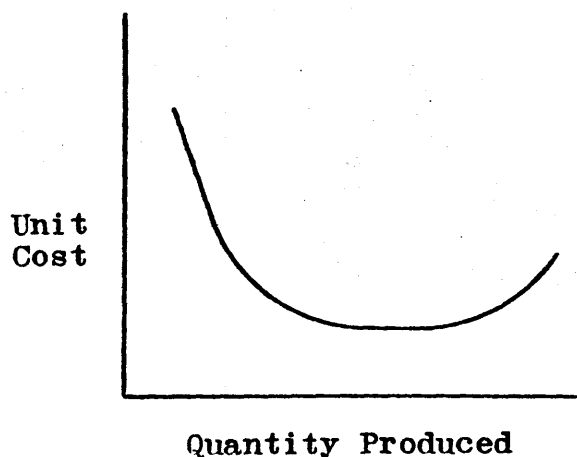
There are four distinct levels of aggregation that can be evaluated for returns to scale; the process, the plant, the firm, and the industry. Roughly speaking, each of these is subsumed by the next level. Processes are operated in a plant; plants are operated by firms; firms combine to form an industry. For present purposes, firms are also differentiated into those operating only one production facility (single-plant firms), those operating more than one but in the same industry (multi-plant firms) and those operating plants in more than one industry (conglomerates).

A process includes only the physical elements required to convert input materials into a product. It includes machinery or chemical apparatus, sources of energy and power, and material costs, but not building, land, labor or overhead. The addition of those generates the next level of aggregation, the plant. The firm, includes, in addition, ad-

ministrative, financial, developmental, marketing, and planning functions and their costs, and profit or margin as well. Scale considerations at this level take on very different significance because the firm is the smallest unit legitimately viewed as an independent decision-making element in the marketplace.(4)

The Idea of Diseconomies of Scale

There is no disagreement about the existence of economies of scale. The same cannot be said about the effects of continually increased scale. Is there, in short, such a thing as a diseconomy of scale, or to put it more accurately, are there inavoidable diseconomies of scale, and if so, what are they? If they exist, then the full curve, instead of being L-shaped is, in fact, U-shaped as shown below.



The difficulties of understanding diseconomies stem largely from the problem of coming to grips with the theoretical

factors which could justify a U-shaped curve. Nicholas Kaldor put it as follows:

Orthodox theory postulates a U-shaped cost curve, which asserts that each firm has an 'optimum size' beyond which it becomes progressively less efficient. But whereas the assumption of failing costs can be adequately supported on account of indivisibilities and economics of scale, to explain the upward sloping part of the curve, reliance must be placed on the existence of diseconomies of large-scale organization; a rather shadowy factor which may be important in creating obstacles to fast rates of growth, but not to size as such.(5)

In point of fact, these "rather shadowy factors," where they have been considered in detail, are generally assumed to be related to greater difficulties of administration and control as scale increases. That is, there is said to be little likelihood of observing diseconomies of plant scale, because even assuming that such diseconomies exist above some point, greater output than that would permit merely requires replication of that efficient unit as often as necessary.(6) Needless to say, this suggests in fact that there are diseconomies even in plants. These effects will be considered in detail in Chapter II. Empirically, the issue thus reduces itself to diseconomies of firm scale when, for example, several such optimum plants are managed by a single enterprise.

Kenneth Boulding formulated one view of the basis of diseconomies of overall scale in the following words:

There is a great deal of evidence that almost all organizational structures tend to produce false images in the decision-maker, and that the larger and more authoritarian the organization, the better the chance that its top decision-makers will be operating in purely imaginary worlds. This perhaps is the most fundamental reason for supposing that there are ultimately diminishing returns to scale.(7)

Frank Knight described the problem in a somewhat different way:

But any system of bringing large numbers of people into intercommunication and coordinating their activities must involve enormous costs in actual human and physical effort... the larger (organizations) are, the more easily broken into pieces, the larger in proportion is the amount of energy that must be consumed in merely holding them together.(8)

The problem with such statements is, of course, that they are difficult to quantify and test. Even granting the existence of diseconomies from such sources, it is not clear at what point associated costs become significant, nor in what ways they would show up in practice. Their existence in the general case (as opposed to the specific effects of poor or inadequate management) should, it has been argued, be evident through empirical examination over time of firms of various sizes. It is thought, in other words, that diseconomically large firms should be less efficient in the marketplace. In general, this is the basis for most of the common techniques used to measure the effects of scale.

Measures of Scale

The techniques used to measure and observe scale effects have in general provided quite inconsistent results. This in itself is curious. In a concept of such importance, subject to so much effort, something must be askew; otherwise, there should be greater agreement. In fact, sources of these difficulties are not hard to find, as examination of the techniques makes clear.

The central thrust of economic studies of scale has concerned firms, rather than plants, for one overriding reason. In mainstream economic theory, the true test of efficiency, or effectiveness, concerns behavior in the competitive market. But plants do not compete in markets; only firms do. Most economic studies of scale therefore attempt to observe the results of market processes, in the assumption that from such observations of different sized firms, the effects of scale can be inferred. Such inferences, however, require heroic faith in a complex set of social institutions, which deserve some discussion.

Business enterprises are the key structural elements of the economic system. As such, they exist to serve societies' economic needs. Since economics is "that body of knowledge which treats of the creation and appropriation of goods and services for the satisfaction of human wants,"(9) then the economic system in general, and businesses in particular,

are to be judged in the final analysis by how well they satisfy those human wants.

Thus, the notion of the efficiency of a firm, or for that matter an industry, should refer ultimately to the population whose wants can, in theory, be met by that firm or that industry. By the same token, the maximum possible efficiency, if it existed, would have been reached when the distribution of those goods and services came as near as available resources allowed, to meeting the total wants of the population in question. These formulations of course raise additional questions of meaning, but that is the basic problem. The determination of the true state of affairs with respect to any of these functional criteria is at least overwhelmingly difficult, and very probably, impossible.

It is necessary, therefore, to recognize that the measurement of economic efficiency in its truest sense is quite beyond the realistic ability of available tools. Instead, we are forced to rely on distinctly less direct but more feasible techniques, which are supposed to be proxies for the measures sought. At the level of the firm, such secondary measures involve either monetary profits or changes in size (computed variously). The connection between these indicators and the kind of socially defined efficiency mentioned above is made by assumption of certain

market mechanisms. The extent to which market actions cause the environment of firms to reflect accurately the wants and satisfactions of consumers thus becomes of critical importance.

If, for instance, a factory producing buggy whips is in operation, its efficiency as a plant or as a process (the technology) could be measured by reference to its purely internal dynamics. Given the available technology and materials of construction, the most efficient scale can be derived from engineering considerations. Few would be misled by such statistics, since in the absence of a sufficient number of customers willing to acquire that production at the prices needed to cover the costs, the so-called efficiency is irrelevant. We rely in principle on the competitive operation of an open market to provide that information.

Similarly, it is assumed that market mechanisms assure that any business must pay, for the factors of production which it requires, the amount which reflects the integrated effect of supply and demand on each of those elements, whether land, labor, capital or managerial talent. If, on the other hand, there are forces operating which bias the market in one direction or another, then it is not possible to assume that costs and prices are consistent with optimum allocation of goods and services in the light of the desired

satisfaction of human wants. Whether or not the idea of "optimum allocation" is achievable, it is the assumption of such a market that permits inference from measures of profitability or size to true economic efficiency.

With respect to profitability, John Eatwell, in a recent survey of available data, concluded that

It is difficult to develop any rationale for the utilization of the profit ratio as a measure of efficiency, other than its ready availability. The size distribution of the profit ratio would seem to have little relevance, in either a theoretical or a practical framework, to the problem of long-run costs associated with size of firms.(10)

And H.O. Stekler, in his own study of profitability, noted that ".....we have not yet devised a means of using the profit ratio as a measure of economies of scale." The effect of scale as such concerns the relative performance of firms of different size, all of which have access to the same resources at the same price.(11) Profit data are not closely related to this issue.

Techniques observing changes in size over time assert in essence that establishments competing in the same business (even under conditions of oligopoly) will, over time, drive out of existence relatively less efficient firms. Moreover, to the extent that size is a determinant of competitive efficiency, firms will tend to move toward the optimum. However, as Shepherd has noted, ".....there are

many reasons beside social efficiency why plants - in small, medium or large size classes - may survive, too many in fact to permit normative interpretations without extreme caution."(12) There is, in addition, a fundamental problem with the size approaches. It has been described by Dean and Smith:

Assume...the true long-run cost curve is U-shaped... Firms that are at a cost disadvantage because they are too large will sooner or later shrink...As we proceed past the point of optimum size, the number of firms available for study will thus become increasingly small and unrepresentative. We might incorrectly conclude that there is no upper limit to the size of a firm from an observation of the effects of that limit!(13)

The other major approach is exemplified by the work of Joe S. Bain.(14) It consists of detailed estimates of overall economies of scale which accrue either to plants or firms, as determined by discussion with executives of major firms in the industries analyzed. The pivotal issue, as Bain formulated it, primarily concerns the economics of the multi-plant firm since, as noted, one can always compensate for expected diseconomies of too large plant scale by replication of the unit, and since no such firm would construct a plant which it regarded as too small to gain available scale economies.

Data generated by such approaches are valuable because they represent the sense of those most directly concerned with the benefits or defects of various sized units, and because in principle the findings should be essentially free

of the limiting assumptions underlying market-based approaches. On the other hand, these "questionnaire" approaches suffer from the fact that those offering opinions may be thinking only along lines to which their own education and practice has accustomed them. In any case, Bain's work in particular has become something of a benchmark in the study of economies of scale. Before considering studies of scale in detail, however, it is appropriate to display briefly the anatomy of manufacturing industry in the United States.

ANATOMY OF MANUFACTURING

In the aggregate, American manufacturing is highly concentrated. The Fortune 500 - Fortune magazine's list of the 500 largest American industrial (excluding financial, trade, and utility firms) companies - in 1970 (a poor year) sold \$463.9 billion of goods (65.0 percent of all the manufactured goods in the country) employed 14,607,581 people, (75.3 percent of all U.S. manufacturing employment) had total after-tax profits of \$21.7 billion (75.8 percent of all U.S. industrial profits), and owned assets worth \$423.1 billion (78.0 percent of the assets of all American manufacturing corporations).(15) And this is so, despite the fact that they represent but one-sixth of one percent of all manufacturing firms. Such firms are obviously enormous. General Motors (#1 on the list) employed 695,796 people, owned assets of

\$14,174,360,000, and earned after-tax profits of \$609,087,000 on total sales of \$18,752,354,000. Westvaco Corp. (#255) had total sales of \$420,344,000 and 15,660 employees. Even #500 - Arvin Industries - employed 7,850 in 20 plants with total assets of \$108,811,000.(16) What is more, these large firms are steadily increasing their share of employment and production in manufacturing, along with the number of separate plants they own and operate.

Table I-1 distinguishes between employment and establishments (plants essentially) contained within firms which have only one production unit, and those which control more than one. It is clear that employment is concentrated in multi-unit companies. Moreover, between 1954 and 1967, multi-facilitied firms increased their share both of the number of separate manufacturing establishments controlled, and total employment. In the former case, the share increased from 11.1 to 16.9 percent. As for the latter, whereas only 61.0 percent of all manufacturing employment was in units of multi-facilitied corporations in 1954, it had reached 71.9 percent by 1967. Issues of economies associated with firms owning multiple plants are therefore of central importance, since it is just those which are at the core of the American economy.

As to the fraction of firms owning more than one plant, it is useful to distinguish between firms operating their

CHANGE IN NO. OF MANUFACTURING ESTABLISHMENTS CONTROLLED BY
MULTI-UNIT AND SINGLE-UNIT COMPANIES

Table I-1

	<u>1954</u>	<u>1958</u>	<u>1963</u>	<u>1967</u>
<u>Total</u>				
Establishments (1000's)	287	298	307	306
Employees (1000's)	15,600	15,400	16,200	18,500
<u>Single Unit Companies</u>				
Establishments (1000's)	225	256	261	254
Employees (1000's)	6,200	5,300	5,200	4,900
<u>Multi-Unit Companies</u>				
Establishments (1,000's)	31.8	41.9	45.9	51.7
Percent of all Establishments	11.1%	14.1%	14.9%	16.9%
Employees (1,000's)	9,500	10,100	11,000	13,300
Percent of all Employees	61.0%	65.6%	68.0%	71.9%

Source: 1967 Census of Manufacturers, Vol. I, Bureau of the Census, 1971

several facilities in a single industry and those operating in more than one industry. These latter, in essence, are conglomerates, which until recently were the most glamorous companies of all. Table I-2 indicates the significance of these distinctions to both numbers of employees and units. It is also obvious that these distributions are highly skewed. In fact, even within each category, that is also true. For example, although the mean number of units owned by conglomerate firms is 18.9, the largest such firms typically own many hundreds of separate facilities.

As to the distribution of numbers of establishments and of employment within different size classes, these are shown in Table I-3 for 1968 and 1970, along with the population in each category. It is interesting to note that the fraction of employment in units with over 500 employees decreased slightly between those years, the change being accommodated by a corresponding increase within moderate sized units. Finally, as a brief indication of the geographic spread of larger manufacturing facilities, Table I-4 displays, as of 1968, the fraction of statewide manufacturing employment in units employing over 250 person. This fraction exceeds 40 percent for all but eight states: Alaska, Montana, Nevada, New Mexico, North Dakota, South Dakota, Wyoming and Hawaii.

Several points are relevant. First, those states are

**NO. OF COMPANIES, SEPARATE MANUFACTURING UNITS,
AND EMPLOYEES BY CLASS OF OWNERSHIP (1963)**

Table I-2

	Independent Units	Multi-Unit Single Industry	Multi-Unit Multi-Industry
Number of Companies	263,000	4,500	6,550
Number of Units	263,000	15,300	123,800
Mean Units/Co.	1.0	3.4	18.9
Number of Employees	5,570,000	1,369,000	11,602,000
Mean Emp./Unit	21.2	91.4	93.8
Mean Emp./Co.	21.2	310.0	1,770.0

Source: Enterprise Statistics, Bureau of the Census, 1963

NUMBER OF UNITS AND EMPLOYEES IN MANUFACTURING UNITS
OF DIFFERENT SIZE CATEGORIES

Table I-3

<u>No. of Employees per unit</u>	<u>No. of Units</u>		<u>Total No. of employees (1,000's)</u>		<u>Percent of all employees in class</u>	
	1968	1970	1968	1970	1968	1970
1-3	71,600	68,900	133	128		
4-7	48,200	47,400	257	253	6.2%	6.1%
8-19	66,000	66,000	825	825		
20-49	51,000	52,000	1,600	1,640		
50-99	26,400	26,800	1,840	1,870	17.5	17.8
100-249	20,900	21,500	3,240	3,330		
250-499	8,100	8,600	2,810	2,980	30.7	32.0
500-999	3,750	3,800				
1,000-1,499	1,050	1,100				
1,500-2,499	680	710	9,020	8,730	45.6	44.1
2,500-4,999	480	460				
Over 5,000	220	200				
TOTALS	298,500	297,800	19,720	19,760		

Source: 1968 County Business Patterns, Bureau of the Census, 1969
1970 County Business Patterns, Bureau of the Census, 1971

FRACTION OF STATEWIDE MANUFACTURING EMPLOYMENT IN UNITS
OF GREATER THAN 250 EMPLOYEES

Table I-4

% of state manufacturing
employment in plants of
greater than 250 employees

Less than 30%	Alaska, Montana, Nevada, New Mexico North Dakota, South Dakota, Wyoming
30-40%	Hawaii
40-50%	Florida, Idaho, New York, Oregon, Rhode Island, Utah
50-60%	Texas, Vermont, Arkansas, California, Colorado, D.C., Georgia, Massachusetts, Louisiana, Minnesota, Nebraska, New Hampshire, New Jersey, Oklahoma
60-70%	North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, Washington, West Virginia, Missouri, Wisconsin, Alabama, Arizona, Connecticut, Illinois, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Mississippi
greater than 70%	Delaware, Indiana, South Carolina

Source: 1968 County Business Patterns, Bureau of the Census, 1969

substantially the least industrialized ones. Apparently, and not surprisingly, increasing industrial development corresponds to some extent with larger sized plants. Second, what is anomalous is the position of New York (and to some extent Rhode Island), which may indicate that large plants tend to be proportionately less numerous if development took place over long times (since both states were among the first settled), or in areas characterized by high population density.(17) Against this background, available data on scale effects can be considered.

STUDIES OF FIRM SCALE

A considerable number of studies have been made by direct evaluation of various profit measures (absolute, or as a function of sales or assets) as related to size, which is ordinarily ranked by reference to sales income. This is of course appropriate, since it directly evaluates the market response to the firms' product outputs. One of the earliest such studies, by Blair, compared the return on assets exhibited over some years by the largest ten or so companies in each of 30 different industries. Of these, seven show profits roughly increasing with size, eight decreasing, and the remaining 15 scattered and variable. A list of the industries in these several categories is presented in Table I-5. Thus, in 23 out of the 30, profit rates either decrease monotonically with size or are apparently unrelated to it. Nor,

RELATIONSHIP BETWEEN SIZE OF LARGEST FIRMS AND RATE OF RETURN

Table I-5

<u>Direct</u>	<u>Inverse</u>	<u>Varying</u>
Candy and Chocolate	Meat Products	Dairy Products
Textiles (Woven and Knit)	Sugar	Bread, Cakes and Pastries
Paperboard Boxes	Malt Liquors	Periodicals
Machine Tools	Distilled Liquors	Drugs and medicines
Business Machines	Pulp, Paper and Paperboard	Products of Petroleum Refineries
Motor Vehicles	Blast Furnaces and Steel Mills	Rubber Products
Ships	Textile Machinery	Footwear, except rubber
	Aircraft	Glass Containers
		Hydraulic Cement
		Plumbing Fixtures, Valves and Fittings
		Iron and Steel Foundries
		Smelting, Rolling and Drawing of non-ferrous Metals, except Aluminium
		Ball and Roller Bearings
		Radio and T.V.
		Motor Vehicle Parts

Source: Economic Concentration, Part 4, Hearings of Senate Monopoly Subcommittee, 1965, p. 1755-1760.

for that matter are those that increase with size perfectly so arranged. In 3 of 7 cases, the highest return is not to the largest firm, and in every case, a representative of the smaller half of firms analyzed in that industry is among the top three in profitability. And finally, it may be noted that the profit rates in question vary widely within these industries; not untypically from a few percent to about 20.(18)

More generally, Stekler has analyzed the profit performance of manufacturing firms, both by asset size and industry grouping. Overall, as he says, "...for the profitable firm, there is a declining relationship between profitability and size."(19) Table I-6 shows, for all profitable manufacturing firms, the relative rate of returns on assets and sales, and the ratio of sales to assets for different size classes of firms. It is clear that, per asset dollar (which is related to investment), smaller firms are more efficient users of capital. Table I-7 breaks this down further into separate industry classes. These results, though highly variable, again suggest that smaller firms are not by any means penalized by their size, at least as regards effective market competition.

It is important to note that even though smaller firms are more profitable per dollar of assets than large firms, the opposite is true of profitability per sales dollar. This is so because the average asset value per dollar of sales

INDEX NUMBERS OF RATE OF RETURN ON ASSETS, SALES TO
ASSETS AND PROFITS TO SALES FOR ALL PROFITABLE
MANUFACTURING FIRMS, BY SIZE CLASS, 1949

Table I-6

(Index for Largest Class Equals 100 for Each Distribution)

Asset Size Class ('000 Dollars)	Rate of Return on Assets	Sales-Assets Ratio	Profits-Sales Ratio ^A
(1) 0-50	137	261	52
(2) 50-100	130	226	58
(3) 100-250	120	209	57
(4) 250-500	118	194	61
(5) 500-1,000	119	181	66
(6) 1,000-5,000	113	151	75
(7) 5,000-10,000	108	133	81
(8) 10,000-50,000	105	123	86
(9) 50,000-100,000	107	118	91
(10) 100,000 or more	100	100	100

^AThe profit-sales ratio can be obtained from the profit-
asset and sales-asset ratios for $\frac{P}{S} = \frac{P}{A} \cdot \frac{A}{S}$, (i.e.) Col. 1 ÷ Col. 2)

Source: H.O. Stekler, Profitability and Size of Firm, Berkeley, U. of Cal., 1963, p. 83.

PERCENTAGE RATE OF RETURN ON ASSETS OF PROFITABLE FIRMS
(PRE-TAX PROFITS PLUS INTEREST PLUS
OFFICERS' COMPENSATION ADJUSTMENT DIVIDED BY ASSETS)
BY ASSET SIZE AND INDUSTRY GROUPING,
1955-1957 AVERAGE

Table I-7

Asset Size ('000 Dollars)	Industry Grouping				
	-- All Mfg.	20. Food/Bev.	21. Tobacco	22. Textile	23. Apparel
0-25	25.7	20.3	a	21.6	19.8
25-50	21.9	16.3	a	13.1	21.8
50-100	19.9	14.8	a	17.6	16.1
100-250	17.1	14.2	a	16.0	12.6
250-500	15.6	12.7	11.3	11.4	11.3
500-1,000	15.8	14.2	11.3	12.2	10.5
1,000-2,500	15.9	12.8	10.4	11.1	10.3
2,500-5,000	15.3	12.7	14.1	10.7	11.3
5,000-10,000	15.5	15.0	9.4	8.6	11.6
10,000-25,000	15.8	12.1	12.8	11.5	12.3
25,000-50,000	14.5	14.2	10.5	7.3	9.6
50,000-100,000	14.1	14.8	--	8.4	9.7
100,000-250,000	14.6	13.7	12.1	10.5	--
250,000 plus	13.4	11.0	16.0	6.7	--

^aData not available for the entire period, 1954-1957; therefore no average rate of return was calculated for this class.

Table I-7
(Continued)

Asset Size ('000 Dollars)	Industry Grouping				
	24. Lumber	25. Furniture	26. Paper	27. Printing	28. Chemical
0-25	26.6	18.7	26.2	23.9	23.9
25-50	20.6	17.4	16.1	19.3	21.0
50-100	18.1	19.2	13.3	18.6	20.3
100-250	13.7	15.4	16.6	17.6	18.1
250-500	13.4	15.2	14.5	17.1	18.0
500-1,000	13.4	14.5	16.9	17.1	15.3
1,000-2,500	13.1	16.2	14.8	19.1	16.5
2,500-5,000	11.4	16.3	14.5	15.2	17.7
5,000-10,000	11.0	18.2	16.3	17.0	17.2
10,000-25,000	11.9	21.2	15.0	18.8	18.1
25,000-50,000	10.4	25.6	14.2	14.5	16.3
50,000-100,000	11.0	15.9	14.0	14.7	13.6
100,000-250,000	6.7	--	15.5	14.6	17.5
250,000 plus	14.8	--	17.7	--	18.8

Table I-7
(Continued)

Asset Size ('000 Dollars)	Industry Grouping				
	29. Petroleum	30. Rubber	31. Leather	32. Stone, Clay, Glass	33. Primary Metal
0-25	—	a	21.4	18.3	48.3
25-50	—	a	13.5	18.1	19.9
50-100	a	20.7	17.7	17.8	24.0
100-250	a	21.7	12.8	16.9	20.1
250-500	17.2	15.6	11.1	14.2	20.2
500-1,000	17.3	20.1	13.0	16.0	17.3
1,000-2,500	17.0	17.1	12.5	16.7	19.5
2,500-5,000	14.9	15.7	11.7	17.0	17.8
5,000-10,000	10.8	19.1	13.3	17.7	17.1
10,000-25,000	10.2	11.9	19.3	16.4	19.1
25,000-50,000	9.1	12.8	14.5	14.7	18.4
50,000-100,000	9.3	14.6	10.3	17.4	14.3
100,000-250,000	9.0	7.0	11.2	22.5	12.8
250,000 plus	6.6	14.3	--	19.5	14.3

^aData not available for the entire period, 1954-1957; therefore no average rate of return was calculated for this class.

Table I-7
(Continued)

Asset Size ('000 Dollars)	Industry Grouping					
	34. Fabricated Metal	35. Machinery	36. Elec. Mach.	37. Trans- portation	38. Scientific	39. All Others
0-25	28.2	28.8	21.1	a	21.4	35.5
25-50	25.5	24.3	25.4	a	27.1	27.8
50-100	21.1	23.3	28.3	21.2	23.8	21.1
100-250	18.3	21.6	18.8	23.5	22.5	16.5
250-500	17.0	17.5	19.5	18.1	17.2	16.7
500-1,000	17.6	17.8	19.7	19.3	18.1	14.6
1,000-2,500	17.5	18.4	19.2	17.9	16.4	15.7
2,500-5,000	16.5	17.2	19.8	12.6	16.6	16.0
5,000-10,000	16.8	16.5	17.9	14.1	18.5	13.8
10,000-25,000	16.4	17.2	17.3	16.1	18.9	15.1
25,000-50,000	15.6	16.2	15.3	16.1	12.1	12.3
50,000-100,000	19.0	14.9	18.3	12.4	12.3	13.2
100,000-250,000	13.1	14.5	14.1	13.9	14.9	b
250,000 plus	11.3	13.9	11.5	22.3	19.8	--

^aData not available for the entire period, 1954-1957; therefore no average rate of return was calculated for this class.

^bData for this class included with next smaller class.

Source: H.O. Stekler, Profitability and Size of Firm, Berkeley, U. of Cal., 1963, pp. 78-79.

increases more rapidly with size than does profit. The more commonly used figures show the relationship of profit to sales, and are assumed to indicate the superior financial performance of large firms. This is misleading. Indeed, since other studies (e.g., Blair, reported above) generally support the same findings on assets, it is clear that real efficiency in the use of capital resources is more consistent with small than large firms. Actually, availability of investment capital and stock prices both reflect return on assets rather than sales. Even if one looks at the value of output in goods attainable with given levels of assets, it is clear that, for example, ten firms in the \$5-\$10 million asset class would produce, on the average, 12.7 percent more than a single firm with equivalent total assets (\$50-\$100 million).

The conglomerates have particularly attempted to make the case for the virtue of combining a strong central staff apparatus and common capital resources with relatively small decentralized units operating in widely different lines. At the moment, profits are down and divestiture (or in Newspeak, "fractional acquisition") seems more common; the virtues claimed for large scale can therefore be questioned even on the very crude measure of overall performance. There is in fact data (see below) to indicate that small companies, when acquired by larger ones, often decrease in profitability, al-

though it is unfortunately difficult to observe this in detail, because of consolidated presentation of financial/operating figures.(20)

However, where such studies have been made, the indications are quite clear. The staff of the house antitrust subcommittee drew the following conclusions with respect to the performance before and after acquisition of 28 companies by Litton Industries, ITT, Gulf and Western, and LTV - all major and highly regarded conglomerate firms:

Of (these) 28 acquired companies, only seven had a majority of its (profitability) ratios in the years after acquisition higher than the corresponding ratio in the year before acquisition. In three companies, the ratios were evenly divided...Eighteen companies had ratios lower in the years after acquisition...it would be reasonable to conclude that these ratios reflect ineffective management.(21)

It would be equally reasonable, however, to conclude that management was as efficient as it could plausibly be, but that the concept of large organizations offering a sound operating environment for smaller entities is basically faulty. In fact, as has been pointed out, when a viable firm in the marketplace is taken over and subsequently eliminated as a competitive entity, that actually contributes to market inefficiency.

An independent study of the influence on product diversification on profitability of large industrial firms has been

made by Eslick:

The results indicate a rather strong tendency for diversified firms to be less profitable than more specialized firms that are about equal in size, whether or not they are in the same broad primary group...This suggests that product diversification may...cause managerial diseconomies of scale that cannot be overcome by efficiencies achieved through combining similar activities required by the firms various products...(22)

It is admittedly difficult, nevertheless, to draw hard conclusions from available studies which, in the final analysis, often conflict with one another. Thus, two other studies showed "that conglomerates grew faster than other industries and that they were nearly as profitable (the difference not being significant)".(23)

The most careful and detailed study of performance as a function of merger activity and size is that of Ansoff and colleagues, whose major conclusion is that the key variable is related to the "relative aggressiveness of the managements" in terms of use of resources, drive and ability, an issue which is not necessarily related to size.(24) However, their data also indicate very strongly that smaller firms (less than \$30 million of sales before embarking on an acquisition program) show much greater percentage change in sales growth, earnings per share growth, earnings per common equity growth, earnings per total capital growth and price per share growth, and moreover, that moderate-sized companies do better than large

ones on most of the same measures. Ansoff et al attribute this to the fact that the smaller companies tend also to be the initially slower-growth firms in the sample. They thus have an easier time both in increasing their size and rate of growth. Nevertheless, the data give no comfort to proponents of the "big is better" thesis.

This point has not been lost even on Wall Street. Occasionally, the capital market and the major stock exchanges tend to reduce the total valuation of a new combination of merging or acquired firms to less than the pre-existing sum of the values of the separate stocks. This is by no means the typical response of the stock market, since the conglomerate merger move which crested in the late 1960s was partly fueled by the "instant profit" which upward revaluation of acquired corporations produced. Even so, in a number of cases where calculations have been made, stockholders of acquired companies have suffered as a result (e.g., in the cases of E.R. Squibb and Sons when acquired by Matheson Chemical; Sharp and Dohme by Merck, Bridgeport Brass by National Distillers and American Marietta by Martin co.).(25)

Studies using changes in size of firm over time are generally users of what has become known as the survivor technique, first utilized in an important way by Stigler, who described it as follows:

Classify the firms in an industry by size and

calculate the share of industry output coming from each class over time. If the share of a given class falls, it is relatively inefficient, and in general is more inefficient the more rapidly the share falls.(26)

Stigler's basic results for 48 manufacturing industries are displayed in Table I-8.

It should be noted that the optimum size and range shown is for companies - firms - rather than plants, and that size is here described by total assets. As indicated above, the extent of economies of multi-plant firm scale is modest, at best. Stigler's results may therefore illustrate the strength or staying power of firms in these industries, but are doubtful indicators of true scale effects. However, it is interesting to look at the figures for average establishment size (in terms of value added), which indicate that even in those industries said to be of largest optimum size, the establishment (plants, essentially) are quite small.

A very rough basis for comparison in terms of employment can be gained by assuming a value added of \$20,000 per employee. On that basis, \$1,000,000 of value added requires some 50 employees. It will be seen that all but 14 of the 48 industries listed fall below that line, and half of that 14, on the same basis, would employ less than 100 people. The effective size, then, is by no means necessarily large.

The same technique has also been applied by several others since, and its reliability critically examined by

BASIC DATA ON FORTY-EIGHT MANUFACTURING INDUSTRIES

Table I-8

INDUSTRY	Optimum Company Size (in thousand dollars of total assets)	Optimum range class limits (in thousand dollars)		Average Establish- ment size (in thousand dollars of value added)
	(1948-51)	from	to	(1947)
Motor vehicles, incl. bodies and truck trailers	\$827,828	\$100,000	open	\$3,715
Petroleum refining	765,761	100,000	open	3,429
Blast furnaces, steel works and rolling mills	525,485	100,000	open	8,310
Dairy products	446,483	100,000	open	110
Distilled, rectified and blended liquors	248,424	100,000	open	2,000
Pulp, paper and paperboard	203,794	100,000	open	1,645
Paints, varnishes, lacquers, etc.	175,404	100,000	open	394
Railroad equipment, incl. locomotives and streetcars	150,217	100,000	open	3,407
Tires and tubes	141,600	10,000	open	11,406
Grain mill products ex. cereals preparations	128,363	100,000	open	210
Drugs and medicines	123,662	100,000	open	552
Smelting, refining, rolling, drawing and alloying of nonferrous metals	100,398	10,000	open	1,658
Office and store machines	65,914	10,000	open	1,411

Table I-8
(Continued)

Bakery products	\$58,960	\$50,000	\$100,000	\$192
Yarn and thread	44,375	10,000	open	687
Carpets and other floor coverings	37,337	10,000	100,000	1,119
Broadwoven fabrics (wool)	31,265	10,000	open	1,211
Watches, clocks, and clock work operated devices	31,025	10,000	50,000	705
Cement	29,554	10,000	100,000	1,600
Malt liquors and malt	28,922	10,000	open	1,750
Agricultural machinery and tractors	28,291	1,000	open	684
Structural clay products	24,001	10,000	open	253
Newspapers	23,428	10,000	100,000	168
Knit goods	17,918	10,000	100,000	273
Confectionery	13,524	5,000	50,000	335
Commercial printing including lithographing	11,030	5,000	50,000	97
Furniture - household, office, public building, and professional	11,378	5,000	50,000	209
Men's clothing	10,077	5,000	50,000	247
Dyeing and finishing textiles, excl. knit goods	9,625	5,000	50,000	545
Canning fruit, vegetables and seafood	6,536	1,000	open	249
Broadwoven fabrics (cotton)	5,847	50	open	2,595

Table I-8
(Continued)

Footwear, exc. rubber	\$4,359	\$1,000	\$100,000	\$524
Paperbags, and paperboard containers and boxes	4,127	1,000	100,000	428
Cigars	3,753	250	50,000	174
Meat products	2,665	500	100,000	322
Nonferrous foundries	2,365	500	50,000	172
Fur goods	1,966	1,000	5,000	55
Partitions, shelving, lockers, etc.	1,545	500	50,000	121
Narrow fabrics and other small wares	1,382	500	5,000	226
Wines	1,304	500	5,000	227
Women's clothing	1,304	500	50,000	150
Books	1,137	50	50,000	399
Periodicals	1,117	250	10,000	307
Leather - tanning, curing and finishing	764	0	10,000	720
Concrete, gypsum and plaster products	762	250	10,000	53
Window and door screens, shades and venetian blinds	667	100	10,000	110
Non-alcoholic beverages	546	100	50,000	75
Millinery	468	250	5,000	108

Source: George J. Stigler, "The Economies of Scale", Journal of Law and Economics; Vol. I, 1958.

Shepherd, whose conclusions are these:

...results fall short of early promise... failures are many, proven successes few. Most of the numerically reliable measurements are for relatively trivial industries... Although other methods of estimating inter-plant, intra-firm returns to scale are still primitive, the survivor technique is, almost by definition, inappropriate. What is, is not necessarily what ought to be.(27)

Although some would disagree with Shepherd's final words, it remains true that attempts to replicate Stigler's work, or to apply the technique to other data, have led to unsatisfactory results. Clearly, whatever pressures the marketplace exerts are not readily interpreted by observations of firm size.

As to the remaining basic approach, that used by Bain, his summary results are displayed in Table I-9. His overall conclusions are as follows:

The extent to which economies of large scale are realized if firms grow beyond the size of a single optimal scale plant has been a subject of controversy among economists...It thus may come as no surprise that business executives questioned on the matter...revealed similar diversity of mind. Very distinct differences of opinion about the existence and importance of economies of multiplant firms were frequently encountered in the same industry, and in a pattern not satisfactorily explicable by the hypothesis that the individual would generally claim maximum economies for his own size of firm. The estimates of economies of large-scale firms based on questionnaire data should thus be viewed as extremely tentative.(28)

Several features of Table I-9 deserve comment. Although,

THE EXTENT OF ESTIMATED ECONOMIES OF MULTIPLANT FIRMS
IN 20 MANUFACTURING INDUSTRIES

Table I-9

(1)	(2)	(3)	(4)	(5)	(6)
Industry	Estimated percentage of national industry capacity in one optimal plant	Estimated percentage of national industry capacity in one minimum optimal plant	Estimated maximum extent of economies of the multiplant firm (as a percentage of total unit cost)	Estimated approximate number of optimal plants in one minimum optimal firm*	Number of optimal plants which would be contained in the average of the largest 4 actual firms
Group 1:					
Canned fruits and vegetables	1/4 to 1/2	1/4 to 1/2	None	1	17.6
Petroleum refining	1 3/4	1 3/4	"	1	5.3
Meat packing (diversified)	2 to 2 1/2	2 to 2 1/2	"	1	4.6
Fountain pens	5 to 10	5 to 10	"	1	1.9
Copper	10	10	"	1	2.3
Typewriters	10 to 30	10 to 30	"	1	1.0

*Number of plants as shown in this column are not always calculated from optimal-plant-size and optimal-firm-size estimates in any simple mechanical way, since the association of differences in plant-size estimates with differences in firm-size estimates has been recognized in deriving these numbers.

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Table I-9
(Continued)

Group 2:

Flour	1/10 to 1/2	No estimate	No estimate	No estimate	24.3
Distilled liquor	1 1/4 to 1 3/4	"	"	"	12.5
Metal Containers	1/3 to 2	"	"	"	16.7
Farm machines, ex tractors	1 to 1 1/2	"	"	"	7.2
Tires and tubes	1 3/8 to 2 3/4	"	"	"	9.3
Rayon	4 to 6	"	"	"	3.9
Automobiles	5 to 10	"	"	"	3.0
Tractors	10 to 15	"	"	"	1.3

Group 3:

Shoes	1/7 to 1/2	1/2 to 2 1/2	Small, or 2 to 3	3 to 5	21.8
Cement	4/5 to 1	2 to 10	Small, or 2 to 3	3 to 10	8.2
Steel	1 to 2 1/2	2 to 20	2 to 5	1 to 8	6.4
Gypsum products	2 to 3	22 to 33	Small	11	8.5
Soap	4 to 6	8 to 15	1/2 to 2	2 to 3	4.0
Cigarettes	5 to 6	15 to 20	Slight	3 to 4	4.1

Source: Joe S. Bain, Barriers to New Competition, Cambridge, Mass., Harvard U. Press, 1962, p. 86.

as Bain pointed out, these figures should be taken as "extremely tentative", the estimated extent of economies of the multi-plant firm, as a fraction of total unit cost, is in no case more than five percent, and very generally much less than that, if present at all. As later sections of this dissertation point out, such "savings" are dwarfed by variations in internal efficiency, and are further, diluted substantially by added costs beyond those associated with production as such. Bain's important findings on size of plant are taken up below.

The results and studies quoted here, at the least, suggest that greater size and scale of firm, per se, do not correlate well with efficiency, operationally defined. The basic theoretical questions, however, remain open, and the several approaches to this problem, combined with the difficulty of obtaining unequivocal results continue to be a source of considerable disagreement among economists. The preponderance of expert opinion probably leans toward the L-shaped, as opposed to U-shaped curve. Thus, Robin Marris recently wrote that "the empirical case against a law of diminishing returns to scale is now widely accepted except perhaps in the most diehard 'Liberal' quarters..."(29)

Consider, however, the following two statements, the first by Nicholas Kaldor:

The very fact that the simultaneous existence

of firms of vastly different sizes has become such a common feature of industry shows that diseconomies of large scale management cannot be an important limiting factor on size.(30)

On the other hand, here is George Stigler:

...if one reflects upon the persistence of small and medium-sized companies in the industries dominated by big businesses, it is apparent that there can be no great advantage to size. If size were a great advantage, the smaller companies would soon lose the unequal race and disappear.(31)

Thus two eminent economists draw rather different conclusions from observations of essentially the same phenomena.

All in all, three possible explanations can be adduced to explain these diverging view; one, scale effects are but minor elements in the total of factors responsible for economic efficiency or competitive survival; two, returns to scale are constant above some modest level, or three, there are substantial and important scale effects which are, however, masked by compensating effects from other sources. These distinctions, if they could be sorted out, would have important implications for public policy, as well as for decisions to establish new firms. However, it is certain that the details will themselves vary with the particular industry evaluated and its structural features. Possible conclusions must be deferred until more data are presented. First, however, we turn to studies on the effect of scale on manufacturing plants.

STUDIES OF PLANT SCALE

There are reasons to review data on size of plant, which are not equivalent to concern about diseconomies of increasing scale as such. For one thing, by definition, a minimal efficient firm will have precisely one plant of minimal efficient size. If there were economies to be gained from multi-plant or diversified operation, a one-plant firm would not be as efficient. However, as indicated above, this is doubtful, at least for many or most industries. On that basis, a firm operating one efficient plant can be fully competitive.

Moreover, even if there are no consistent diseconomies of scale, and an L-shaped cost curve exists, it is important to evaluate the minimum size at which available economies of scale can be realized. Finally, one would like to know the penalties which theoretically might be associated with operations at less-than-efficient scale. If, say, a plant of half the minimum efficient size incurs additional costs of only one percent, then profitable operation in the real world is by no means excluded. For new business in general, these data are critical. For all these reasons, it is important to look at available data on plant scale.

John Jewkes has pointed out that in the U.S., the average factory held 37.3 workers in 1914 and 42.8 in 1939.(32) Data since World War II are not strictly comparable, but the number of production workers per manufacturing establishment, even

so, was 49.5 in 1947, decreasing to 44.9 in 1967.(33) This does not constitute a strong argument for a trend to larger size factories. Jewkes himself drew the following conclusion from these and comparable statistics from other industrialized nations:

If there are pervasive and powerful forces making for increased size of factories, then they cannot have been operating long, because so far they have produced no remarkable results. If, on the other hand, there are forces acting in this direction which are deep-seated and have long been in operation, they cannot be very powerful, because they have not produced conspicuous effects.(34)

Even granting the above in general, it can be argued that such average figures are misleading in two important senses. First, since new (generally small) businesses are being formed continuously, and at an increasing rate, even if the size of plants owned by established and efficient companies was increasing, the effect would be masked to some degree. Second, businesses also fail at a significant rate, especially when small, and average figures may thus include a substantial fraction of manufacturing establishments which are demonstrably inefficient (since they are unable even to survive).

However, the more disaggregated data presented earlier are useful here. Table I-2 which breaks down manufacturing industry by type of firm (single plant; multi-plant, single

industry; and multi-plant, multi-industry or conglomerate) shows that in 1963 the latter two categories, which included only 4.0 percent of all manufacturing companies, owned 52.8 percent of all plants and accounted for 70.1 percent of total manufacturing employment. Clearly, these organizations constitute the core of the American industrial sector and it is here, if anywhere, that large plants would exist if they made economic sense. It is therefore striking to observe that the average production unit accounted for only 91.4 employees in the case of single industry firms, and 93.8 in conglomerates. Moreover, since these figures include all employees and not merely production workers, they may even overstate the actual size of plant.(35)

Moreover, the fact that the mean number of employees/unit is nearly identical for both single and multi-industry firms is presumptive evidence both that efficient manufacturing installations need not be large and that conglomerate growth is not due to the increased size of facilities but to acquisition of other modest units. As for manufacturing plants in general, the size distribution is heavily skewed, as indicated by the fact that the overall mean number of employees per separate unit is 46, whereas the median is only 5. That is to say, half of all manufacturing units employ 5 or less people.(36)

Although equivalent figures for particular industries

vary widely, there is therefore a strong case to be made that efficient manufacturing industry need not (indeed, probably should not) be large. If these powerful and successful organizations saw benefits to be gained by larger plants, they would certainly build them. In fact, careful studies of productivity, as measured by value of shipment per manufacturing employee, indicate that the highest such productivity tends to occur not in the largest size plant, but in those of moderate size within any given industry. The result of studies, according to Blair, are as follows:

When examined on an industry-by-industry- basis, which means that all plants are operating on the basis of a more or less common technology, the highest productivity levels are generally found in plants in the middle size range. According to the 1967 Census of Manufacturers, this was true of three-quarters of the 420 (4 digit) industries (including) 32 of the 44 food processing industries.(37)

None of this should obscure the fact that real economies of plant scale exist. The issue is merely at what levels their incremental value approaches zero. Considerable work has been done on the direct estimation of production scale by engineers and technologists. A study of that sort by Haldi and Whitcomb reached the following conclusions:

1. ...initial investment cost (and, therefore the amortization portion of total cost) in most types of plants and equipment (exhibits) economies of scale up to the largest plants observed in industrial countries. In the more

capital extensive industries, savings in capital cost are an important source of scale economies.

2. In process plants, operating expenses for labor, supervision, and maintenance also show significant economies of scale.

3. Consumption of utility services shows slight economies of scale, and consumption of raw materials generally shows none.(38)

Great variability, however, existed in the specific estimates, some of which indicated the presence of diseconomies. Consequently, as the authors point out, these conclusions must be seen as tentative. More importantly, yet, they are limited to production costs only and are based on a sample of industries which are known to require large production plants (e.s., petroleum, chemicals).

Moreover, such techniques, which essentially evaluate process or plant efficiency in terms of their technical ability to convert various amounts of material and labor into the end product with minimum waste of resources or at the least possible cost, are of severely limited utility in the present context. Although this is useful information for design purposes, it is far from adequate for social judgements. Horace Gray has pointed out that such "efficiency"

is a narrow, quantitative, mechanical engineering concept, which measures only physical inputs against physical outputs...This, however is "engineering" not "social" economics; the results are informative at the level of mechanics, but meaningless in any true economic or social sense.(39)

More comprehensive information is available, as noted earlier, from the work of Bain, who combined data from existing studies (where available) with direct estimates of scale effects obtained from executives in the industries studied. It is impossible to do justice to his findings in a brief space, but some of the most important results can be summarized. Table I-9 (discussed earlier) estimates of that fraction of national industry capacity that is capable of being provided by single plants of most efficient scale. Table I-10 presents the same data as a fraction of smallest and largest major submarkets (regional or product oriented) where the industries appear to be operationally segmented in that fashion.

And, indeed, although the figures vary widely, such segmentation could lead in principle to a structure of industry which, by production efficiency criteria, would involve at least some relatively centralized manufacturing plants, especially in such industries as steel, automobiles, diversified meats, cement, and fountain pens, serving regional markets. However, as has been noted, such plants could be operated efficiently as independent firms, since multi-plant economies are probably small.

However, this suggestion raises another question. To what extent would a producer be penalized by operating a plant of less than optimum size (i.e., how flat is the cost curve)?

PROPORTION OF NATIONAL INDUSTRY CAPACITY AND OF SPECIFIED
SUBMARKET CAPACITIES CONTAINED IN SINGLE PLANTS OF MOST EFFICIENT
SCALE, FOR 12 INDUSTRIES AFFECTED BY MARKET SEGMENTATION,
PER ESTIMATES CIRCA 1951

Table I-10

Industry	Percentage of national industry capacity contained in one plant of minimum efficient scale	Percentage of capacity supplying largest submarket contained in one plant of minimum efficient scale	Percentage of capacity supplying smallest major submarket contained in one plant of minimum efficient scale
Flour milling	1/10 to 1/2	1/3 to 1 1/2	1 1/2 to 7
Shoes	1/7 to 1/2	3/5 to 1 1/5	8 to 10
Canned fruits and vegetables	1/4 to 1/2	2 1/2 to 5	10 to 20
Cement	4/5 to 1	4 to 5	27 to 33 1/3
Farm machines, except tractors	1 to 1 1/2	4 to 6	4 to 6
Petroleum refining	1 3/4	4 1/3	11 1/2
Steel	1 to 2 1/2	2 1/2 to 6 1/4	20 to 50
Metal containers	1/3 to 2	2 to 12	8 1/2 to 50
Meat packing: fresh	1/50 to 1/5	1/10 to 1	1/4 to 2 1/4
diversified	2 to 2 1/2	8 to 10	24 to 30
Gypsum products	2 to 3	8 to 12	20 to 30
Automobiles	5 to 10	10 to 20	30 to 60
Fountain pens	5 to 10	10 to 15	25 to 33 1/3

Source: Joe S. Bain, op. cit., p. 76.

Such estimates were also made by Bain; they are summarized in Table I-11. It can be seen that for plants in those industries where figures could be obtained, these diseconomies are somewhat higher than those indicated for too small firms, but are still rather modest. The effect of these diseconomies on total competitive posture is discussed in some detail in later sections, but the general conclusion is that theoretical production cost disadvantages of the order of ten percent do not rule out competitive operation in the market.

Finally, Bain summarized (Table I-12) the relationship between actual firm size and his estimated optimal size for 20 industries. Save in the case of typewriters (and perhaps tractors), the top four firms in these industries operate, on the average, production facilities well in excess of those associated with single optimal plants. Of the remaining 18, 14 have an output more than four times that of an optimal plant. This implies either four times as many minimum efficient scale plants, or plants larger than mere scale considerations require.

Moreover, at least in the case of the relatively concentrated industries (roughly, the top half of the list), the distribution of that average output among the four firms is likely to be highly skewed.(40) Overall, one must conclude that in such cases, the one or two largest firms produce an amount equivalent to many more optimal plants than the average

RELATIVE COSTS AT SMALLER THAN OPTIMAL SCALE

Table I-11

Industry	Percentage of capacity supplying largest recognized submarket which is supplied by a single optimal plant	Judgement as to relative unit costs at smaller scales
Typewriters	10 to 30	Substantially higher at from 7.5 to 5 percent of national market.
Automobiles	10 to 20	Moderately higher at 5 percent of largest submarket; steeply higher at 2 percent of largest submarket; uneconomic at still smaller scales.
Tractors	10 to 15	Slightly higher back to 5 percent of national market; moderately higher at between 1 and 2.5 percent.
Farm machinery, ex tractors	4 to 6	Moderately higher at 2.5 percent of largest submarket.
Steel	2.5 to 6.25	Up by 5 percent or more of costs at scales at or below 1.25 to 3 percent of largest submarket.
Meat packing: fresh diversified	0.1 to 1 8 to 10	Only slightly higher at smaller scales. Only slightly higher back to 1 percent or less of largest regional market.
Canned fruits and vegetables	2.5 to 5	Up 2 to 5 percent of costs at smaller scales.

Table I-11
(Continued)

Shoes	0.6 to 1.2	Up from 1 to 10 percent of costs at scales substantially smaller than 0.6 percent of largest submarket.
Fountain pens	10 to 15	Higher but no definite estimate
Gypsum products	8 to 12	Higher but no definite estimate
Copper	10	Higher but no definite estimate
Metal containers	2 to 12	Higher but no definite estimate
Flour	0.3 to 1.5	Higher but no definite estimate

Source: Bain, op. cit., pp. 78-79.

ACTUAL SIZES OF FIRMS AND MINIMUM OPTIMAL SIZES OF PLANTS,
EXPRESSED AS PERCENTAGES OF THE NATIONAL INDUSTRY
CAPACITY OR OUTPUT, IN 20 MANUFACTURING INDUSTRIES

Table I-12

Industry	Average market share of first 4 firms in 1947	Mean estimate of percentage of national industry capacity in one optimal plant (approximate)	Ratio of actual average firm size to estimated optimal plant size
Copper	23.1	10	2.3
Cigarettes	22.6	5 1/2	4.1
Automobiles	22.5	7 1/2	3.0
Gypsum products	21.2	2 1/2	8.5
Typewriters	19.9	20	1.0
Soap	19.8	5	4.0
Rayon	19.6	5	3.9
Metal containers	19.5	1 1/6	16.7
Tires and tubes	19.2	2 1/16	9.3
Distilled liquor	18.7	1 1/2	12.5
Tractors	16.8	12 1/2	1.3
Fountain pens	14.4	7 1/2	1.9
Steel	11.2	1 3/4	6.4
Meat packing (diversified)	10.3	2 1/4	4.6
Petroleum refining	9.3	1 3/4	5.3

Table I-12
(Continued)

Farm machinery	9.0	1 1/4	7.2
Cement	7.4	9/10	8.2
Flour	7.3	3/10	24.3
Shoes	7.0	9/28	21.8
Canned fruits and vegetables	6.6	3/8	17.6

Source: Bain, op. cit., p. 84.

suggests. Given the very modest savings to be expected from multi-plant operations (see above), there would seem to be opportunity for a substantially greater number of independent firms operating in these industries.

As Bain also indicates elsewhere, he was unable to obtain even qualitative estimates of the shape of the cost curve (or the penalties for smaller facilities) in a number of important cases, and information for most others was sketchy in the extreme. Thus, even those firms with the most expert knowledge on this question were unable to answer the question.(41) Further, in an important comment, Bain writes:

It is notable that the virtual advantages of large-scale plants with respect to processing cost only, which virtual advantages are frequently large, are greatly diluted by the incursion by all sizes of plants of relatively constant costs per unit for raw materials, packaging, excise-tax stamps, and the like.

This dilution proceeds to the point of substantially reducing (often almost to the vanishing point) the net advantages to larger plants. The observation applies in full force to the soap, petroleum refining, cigarette, tire and tube, and liquor industries. (emphasis in original).(42)

CONCLUSIONS

Conclusions may conveniently be summarized as follows:

1. Below a certain size (dependent on the industry and product), manufacturing plants and firms are technically less efficient.

2. The threshold of significant scale effects is not known with any precision, nor is the actual shape of curves displaying scale effects.
3. The considerable uncertainty and variability of results, along with the very doubtful relevance of profit and growth measures to efficiency, suggest that competitive ability and scale are not necessarily related.
4. The penalty for operating well below apparent "optimum scale" is not great.
5. The presence of relatively constant costs above and beyond the variable costs related to size dilutes even the clear advantages of technical scale.
6. There is no empirical case to be made for significant economies of firm (as opposed to plant) scale.
7. Data on overall profitability of firm indicate the possible existence of serious diseconomies of scale.

In brief, then, these data do not lend strong support to those enamored of size or multi-plant firms, and still less of true conglomerates. More insight is, however, available from studies in a variety of fields concerned with the operation and internal structure of firms. Chapter II therefore, turns to a consideration of data from other sources.

NOTES TO CHAPTER I

1. From at least Adam Smith to the present, this has gone virtually unchallenged as a principle, both in command and demand economies. The Wealth of Nations opens, in fact, with three chapters devoted to this topic. The basic productive value of division of labor was equally accepted by Marx. At present, however, this principle has come under attack from two directions. Some radical theorists are challenging even Adam Smith's pin factory, claiming that the increase of production proposed is not factual and that the real function of highly specialized labor is to provide a rationale for capitalist managers to legitimize their claims to share in the returns (See Stephen A Marglin, "What Do Bosses Do?: The Origins of Hierarchy in Capitalist Production," Mimeograph, Harvard University, 1971). Second, increasing attention is being devoted to the issues of work rotation (for example, in the Kibbutzim) or the use of work teams (as in the new Volvo automobile factory in Sweden) which depend on different assumptions for their value. See P. Gyllenhammar, "Volvo's Solution to the Blue Collar Blues," Business and Society Review/Innovation, Autumn 1973, pp. 50-53, and below, pp.
2. Gordon C. Bjork, "Business and Economic Growth: A Long-Run Perspective" in Ivar Berg et al., The Business of America, N.Y., Harcourt, Brace and World, 1968, p. 225.
3. This point has been made most strongly by John K. Galbraith in The Affluent Society, 2nd edition, Boston, Houghton-Mifflin, 1969, Ch. 11. But see also the extensive discussion on this issue in Ch. III of the present work, pp. 185ff., and for a radical perspective, Herbert Gintis, "Consumer Behavior and the Concept of Sovereignty: Explanations of Social Decay," American Economic Review, May 1972, pp. 267-278.
4. As an analogue, it is useful to regard the firm as the molecule in a complex mixture of compounds. The molecule can be seen easily as a cluster of atoms or sub-atomic particles but its characteristic properties are destroyed in the process. At the same time, it should be noted that a problem arises because, although the firm is the decision-making entity, technical economies of scale are more relevant to the plant.
5. Nicholas Kaldor, Essays on Value and Distribution, N.Y., The Free Press, 1960, p. 4. See also Edith Penrose, The

Theory of the Growth of the Firm, London, Oxford University Press, 1959.

6. One should note that this "solution" to diseconomies of plant scale is itself subject to the same problem of "lumpiness" or indivisibility as conventional factors of production. That is, the extra production needed may not justify a full additional plant of optimum size. One is reduced to accepting, in practice, either the reduced efficiency of a single plant of greater than optimum scale, or unused capacity with its associated costs. The issue reduces itself, technically, to the shape of the cost curve; if the optimum point is more accurately described as a broad, flat region, the trade-off may be minimal. At the other extreme, if optimum scale of plant is small compared to total firm production, the incremental addition of another plant is evidently much more likely to be economic. In any case, it is technically true that plant diseconomies can be overcome by this means.
7. Kenneth E. Boulding, Richard T. Ely Lecture, 78th Annual Meeting of the American Economics Association, quoted in Oliver E. Williamson, "Hierarchical Control and Optimum Firm Size," Journal of Political Economy, April 1967, p. 123.
8. Frank H. Knight, The Economic Organization, N.Y., Harper Torchbooks, Harper and Row, 1965, p. 22.
9. Harold S. Slan and Arnold J. Zucker, eds., A Dictionary of Economics, 4th edition revised, N.Y., Barnes and Noble, 1961.
10. John L. Eatwell, "Growth, Profitability and Size: The Empirical Evidence," in Robin Marris and Adrian Wood, eds., The Corporate Economy, Cambridge, Harvard University Press, 1971, p. 393.
11. H.O. Stekler, Profitability and Size of Firm, Berkeley, University of California Press, 1963, p. 6. Note that it is possible to regard scale efficiencies as composed of two different sorts; pecuniary and technical. Pecuniary economies (e.g., cost of capital may be less for large sized borrowers) are here generally regarded as artifacts of the economic system, and thus related not to the ability to supply goods and services more effectively, given identical opportunity and factor costs, but to absolute size and the benefits gained from it. See below, pp. 177ff. It would, of course, be a different issue if pecuniary

economies resulted from greater technical efficiencies of scale. For present purposes, the point precisely is that unless firms have access to needed resources at a competitive rate they are perforce likely to be less cost-efficient even though their actual ability to produce is greater. At the very least, they face an uphill battle.

12. William G. Shepherd, "What Does the Survivor Technique Show About Economics of Scale?" The Southern Economic Journal, July 1967, p. 122.
13. Joel Dean and Winfield Smith, "The Relationship Between Profitability and Size." in William W. Alberts and Joel E. Segall, eds., The Corporate Merger, Chicago, University of Chicago Press, 1966, p. 17.
14. Joe S. Bain, Barriers to New Competition, Cambridge, Harvard University Press, 1962. Bain's work was a landmark in the empirical study of scale effects. It has not, however, been unchallenged. See, for example, Jules Backman, Advertising and Competition, N.Y., New York University Press, 1967.
15. Fortune, May 1971. The percentages for employment, after-tax profits, and assets are calculated from figures in the U.S. Statistical Abstract, 1972, Washington, D.C., Government Printing Office, 1972.
16. The figures on number of plants are from the public relations departments of the corporation mentioned. The employment, sales, profit, and asset figures are from the 1970 Fortune 500 list.
17. These comments are purely speculative, of course, but one can hardly fail to be struck by the figures. The three states in the highest category (over 70 percent) are those where specific attribution can be made for these effects. All three states (Delaware, Indiana, and South Carolina) appear to be examples of fixed industrial development, the first by a single company (DuPont) and the others by particular industries (automotive and textiles/apparel). The plant size effects in this locational sense may therefore be related to such issues as specialization.
18. Economic Concentration, Part 4, Senate Subcommittee on Antitrust and Monopoly, Hearings, 1965, pp. 1755-1760. See also John M. Blair, Economic Concentration, N.Y., Harcourt, Brace, Jovanovich, 1972, for more detail.

19. Stekler, op. cit., p. 87.
20. See Ralph E. Winter, "Untying the Knot," Wall Street Journal, April 13, 1971, for the phrase "fractional acquisition," quoted from the president of a service specializing in divestiture assistance.

A recent report by the staff of the Federal Trade Commission, Conglomerate Merger Performance: An Empirical Analysis of Nine Corporation, Washington, D.C., November 1972 specifically pointed to "...adverse consequences (of conglomerate mergers)...associated with a loss of information" (p. 200): that is, due to consolidated presentation of operating and financial data. This was felt to constitute not only a disservice to the public, but an "informational barrier to entry" (p. 201). This is not a new point; see, for example, Economic Concentration, Part 5, "Concentration and Divisional Reporting" (Senate Subcommittee on Antitrust and Monopoly, Hearings). The recent decision by the SEC forcing conglomerates to break out figures for broadly distinct lines of activity is a step in the needed direction, but far from enough.

It might also be noted that the FTC staff report referred to above concluded, with regard to the conglomerates' claim for synergy, that "the alleged qualities of corporate synergism, if they exist, are not detectable from our data" (p. 199). This is particularly interesting in view of the fact that the nine companies studied include the cream of the conglomerate crop; Litton Industries, Ling-Temco-Vaught, Gulf and Western, ITT, Textron, Rapid-American, White Consolidated Industries, FMC, and Norton Simon.
21. U.S., Congress, House, Antitrust Subcommittee, Staff report, Investigation of Conglomerate Corporations, 1971, p. 411.
22. Donald F. Eslick, testimony in Economic Concentration, Part 8, Senate Subcommittee on Antitrust and Monopoly, Hearings, 1970, p. 5013.
23. Weston; and Weston and Mansohoff, described in H. Igor Ansoff et al., Acquisition Behavior of U.S. Manufacturing Firms 1946-1965, Nashville, Vanderbilt University Press, 1971, p. 23.
24. Ibid., p. 87.
25. John M. Blair, in Economic Concentration, Part 4, Senate Subcommittee on Antitrust and Monopoly, Hearings, 1965, p. 1709. See also the prepared statement by Yura Arkus-

Duntove, Economic Concentration, Part 4, pp. 1705ff.

26. George J. Stigler, "The Economies of Scale," The Journal of Law and Economics, Vol. 1, 1958, p. 56. The technique really follows from John Stuart Mill, who wrote, in Principles of Political Economy:

Whether...the advantages (of) large-scale preponderate in any particular case over ...small establishments, can be ascertained, in a state of free competition, by an un-failing test...Wherever there are large and small establishments in the same business, that...which in existing circumstances carries on production at the greater advantage will be able to undersell the other. (Ashley edition, p. 134)
27. William G. Shepherd, "What Does the Survivor Technique Show About Economies of Scale?", The Southern Economic Journal, July 1967, p. 115.
28. Bain, op. cit., p. 83.
29. Robin Marris and Adrian Wood, Corporate Economy, p. XVI.
30. Kaldor, Value and Distribution, p. 4.
31. George J. Stigler, "The Case Against Big Business" in Edwin Mansfield, ed., Monopoly Power and Economic Performance, N.Y., W.W. Norton, 1968, p. 8.
32. John Jewkes, "Are the Economies of Scale Unlimited?" in E.A.G. Robinson, ed., Economic Consequences of the Size of Nations, London, Macmillan and Co., 1960, p. 98.
33. U.S. Statistical Abstract, 1972, calculated from table #1130.
34. Jewkes, in Robinson, Economic Consequences, p. 100.
35. As to the distinction between all employees and production workers, the Statistical Abstract, (1972), indicates that in 1963, when total manufacturing employment was 16,960,000, those classified as production workers numbered only 12,230,000.
36. Figures for mean and median are taken from Enterprise Statistics, Bureau of the Census (Washington, D.C.: Government Printing Office, 1963), table 10.

37. John M. Blair, Economic Concentration, op. cit., p. 98. Such figures should be used with some caution, since even at the 4-digit level of aggregation, very different products are involved, each of which may use quite different technology. Nevertheless, the extent of this finding lends support to the general case.
38. John Haldi and David Whitcomb, "Economies of Scale in Industrial Plants," Journal of Political Economy, August 1967, p. 383.
39. Horace M. Gray, in Economic Concentration, Part 3, Senate, Subcommittee on Antitrust and Monopoly, Hearings, 1965, p. 1163. For a more extensive discussion of this issue, see Walter A. Weisskopf, Alienation and Economics, N.Y., Delta Books, 1971, Chapter 6.
40. One of the several characteristics regarded as indicative of true oligopolistic concentration is that of asymmetry; that is, the uneven distribution of sizes even among the top four or eight participants in an apparently concentrated industry. In the U.S., by and large, such asymmetry is the case. See, for example, William G. Shepherd, Market Power and Economic Welfare, N.Y., Random House, 1970.
41. It could be argued that these firms were not so much unable as unwilling. If the data were available that indicated significant additional costs at smaller scale, there seems little reason to withhold them. Only if they indicate that economies of scale are not large would there seem competitive justification for secrecy. It seems fair to conclude that either the scale effects are not well known, or they are relatively small.
42. Bain, Barriers, pp. 79-80.

CHAPTER II
SCALE AND OPERATING EFFICIENCY

In the previous chapter then, the economic literature on scale effects has been surveyed with general results that do not support the case for continuing returns to scale, either with regard to plants or firms. However, such data are essentially based on a view of the firm as a "black box." Resources allocated by market or non-market mechanisms flow in; products flow out, and some measure of the internal processes is given by the dollar values of the inputs and outputs. However, additional and more enlightening information is available from closer inspection of firms' operational efficiency, given their environmental characteristics.

It is useful first to consider the general issue of firms' internal use of resources and, in particular, whether data substantiate the widely-held assumption of what might be called high "transformation efficiency:" that is, the firm's ability to make optimum use of its resources, given its purposes and goals. Following that, several more specific aspects of the general problem are discussed. These include the effects of scale on innovative and inventive capacity, the planning process, and manpower and organizational concerns (the firm as human organization).

THE INTERNAL EFFICIENCY OF FIRMS

One of the characteristics of classical economists' view of business organization is a tendency to view firms as entities operating at near-optimal efficiency within whatever constraints size, industry and the environment impose. The treatment of economies of scale and of other questions related to efficiency have thus generally focused on the allocative aspects; that is, the extent to which resources or factors of production have been optimally distributed to firms and establishment within the economic system. Within that framework firms are assumed to operate on or near the frontier of their specific production functions. A not untypical statement is the following:

...businessmen determine the cost of attaining any (desired) output by choosing the combination of factors (labor, materials, or capital) with which to produce that output...The production function incorporates all the technical data about production; it shows the greatest amount of output that can be obtained by the use of every possible combination of input quantities.(1)

If this describes the actual situation, then questions of allocation become critical. However, there is very good reason to believe that industrial firms operate not near their production frontiers, but well inside them and that, correspondingly, measures assuming the ideal case are likely to be misleading.

There are two points to be made. The lesser is related to utilization of capacity. It is clear that anything which might be theoretically true with regard to efficiency of a plant operating at design capacity, with all fixed assets are, in effect, idle. Particularly in manufacturing, where investment per production worker is high, the cost of capital and amortization charges can very drastically change the economics of the business. This does not mean that, in general, plants can expect to operate at full capacity. Because of the nature of capital investment in new or improved facilities (done in expectation of future needs and opportunities), there will generally be some excess capacity. In fact, for all United States manufacturing since 1960, capacity utilization has never been higher than 90 percent (in 1966), and has typically been a good deal lower (averaging 83.7 percent for the 11 years between 1960 and 1971). (2)

It is true, however, that when demand is increasing, there is an optimal trade-off possible between advance investment in new facilities and subsequent loss of business from too little capacity. That means, in effect, that it is possible for a firm to be following an optimal long-term strategy while never reaching an optimal level of performance at any point in time precisely because achievement of the former condition necessarily involves the latter as a consequence. Under these conditions, measures of short-term performance cannot be used

as indicators of operating efficiency, nor therefore of scale effects.(3)

But this is the minor point. While economists focus on problems of allocation, businessmen have always spent much more time on problems of internal efficiency, in the obvious belief that it can be increased. Presumably, the growth of sophisticated management tools, the increased importance of schools of business administration, and the continuing rise in business consulting services are further testimony to the perceived opportunities for improving internal efficiency. This point has been made very strongly by a highly respected economist, Harvey Leibenstein, who in 1966 published an important paper on this issue. In the concluding section of that paper, he wrote that:

...firms and economies do not operate on an outer-bound production possibility surface consistent with their resources. Rather they actually work on a production surface that is well within that outer bound. This means that for a variety of reasons people and organizations normally work neither as hard nor as effectively as they could.(4)

That is, the usual assumptions about efficient use of resources within a firm are simply not true. What is more, those inefficiencies are important. There is generally significant opportunity for firms to increase their output for any given array of resources or alternatively, to reduce their use of resources for any given level of output.

Leibenstein, in reaching the above conclusion, surveyed a considerable body of material from a wide range of sources. It may not be surprising to discover that the International Labor Organization productivity missions to many partly or poorly developed nations were able to produce enormous results. In such economies one is not likely to be surprised at inefficiency, and the unit cost reductions to the firms involved, typically in the 30-50 percent range, are therefore not unexpected. However, other studies (such as that by Johnston on the benefits from consulting efforts in modern Great Britain) have shown savings of roughly the same magnitude. On the average, the rate of return on consulting fees was found to be of the order of 200 percent. In comparable terms:

For the consulting job whose consequences were quantitatively assessed, the average increase in productivity was 53 percent, the lowest quartile showed an increase of 30 percent and the highest quartile 70 percent.(5)

Thus it is not merely in less developed economies that such efficiency increases can be obtained. In further discussion of this point, Leibenstein tried to identify the nature of what he labelled x-efficiency and although a thorough discussion is outside the scope of this paper, the following quote is directly relevant:

These facts lead us to suggest an approach to the theory of the firm that does not depend on the assumption of cost-minimization

by all firms. The level of unit cost depends in some measure on the degree of x-efficiency, which in turn depends on the degree of competitive pressure, as well as on other motivational factors. The responses to such pressures, whether in the nature of effort, search, or the utilization of new information, is a significant part of the residual (unexplained increase) in economic growth.(6)

It is at least arguable, and should perhaps be apparent, that there can be no perfect utilization of available resources. Theories of the firm assuming that any single specific parameter is responsible for observed behavior are making an overly simplistic assumption. Corporations, despite the legal fiction of personhood, do not act uniquely as entities, but as a composite of human subsystems, each of which is attempting to satisfy conflicting and complex needs, some personal (e.g., keep one's job, do more satisfying work, earn more money) and some organizational (e.g., exceed profit goals, develop new products, maintain the corporate share of market). These cannot simultaneously be maximally satisfied, nor can they always be combined into an optimal solution for the entity as a whole. What is clear, however, is that the larger the firm, and the more complex the subsystem interactions, the more alternative solutions exist, and thus the likelihood that efficiency, however, measured, can always be improved.(7)

Support for these views of potential loss of efficiency

can also be gained from simple observation of the extent to which companies "discover" during lean times that they are perfectly capable of operating at the same level with substantially fewer employees, or, in some cases, facilities. The Wall Street Journal, in a recent article, emphasized the surprisingly beneficial effects of the recent recession, in quotes from a number of corporate executives. Thus, Thomas M. Skove, treasurer of Acme-Cleveland Corp. said, "We've found that when we have to, a smaller number of us can still get out the work." As the Journal noted:

...many companies can increase output substantially without adding to the work force... Often it is merely a matter of having typewriters and drill presses running more steadily.(8)

Andrew Hacker has acerbically pointed this out in a recent book. The following passage conveys the spirit of his remarks:

That a large proportion of (corporate) employees are not necessary was illustrated when, due to a long labor dispute, one large corporation took the unprecedented step of firing one-third of its white-collar force. The wholesale departure of these clerks and executives had no effect on the company's production and sales. Nevertheless, the company was not one to show that an empire could function half-clothed, and it hired back the office workers it did not need just as soon as the cash was again available.(9)

The significance of all this is simply that computations

and estimates of economies of scale, from whatever source, can be misleading or downright inaccurate since they typically assume that firms and plants operate efficiently within their constraints. Since this is generally not the case, what is being measured, if anything, is the relative productivity of various entities all of which are capable of (and in time, probably will) increase their efficiency by amounts and in ways that are uniquely related to that entity. In addition, such savings as might in fact be available because of the real economies of scale (ranging up to perhaps 20 or 25 percent for a substantial change in size) are capable of being overwhelmed by the continuing increases due to improvement in "x-efficiency."⁽¹⁰⁾ As to the effects of scale on x-efficiency itself, discussion is deferred until later in this chapter.

It may be that this helps explain the great lack of consistency in the many studies of economies of scale noted earlier. It is still true that, depending on the specific industry or business in question, firms with only a few employees and little equipment will be unable to compete with a firm of reasonable size. Nevertheless, this adds weight to the argument that the scale needed to compete effectively in most markets is relatively small, and that more may often be gained by a focus on internal efficiency than by reliance on sheer size. But to a considerable extent, what is called for is a capacity for

innovation on behalf of both operating and economic efficiency. There is a widespread feeling that creativity, especially in manufacturing, is the special province of large and well-financed firms. Relevant data, to which we now turn, suggest a quite different conclusion.

SIZE AND INNOVATION

In the orderly world of theoretical economics, competition among firms in the marketplace is the normal order of events. Prices are thereby held to a level determined by supply and demand curves; individual firms can only survive by developing better and more economically efficient means of satisfying demand, either by improving on processes or products. This impetus to innovate is a cornerstone of economic theory, since, among other things, it forces producers to optimize the use of resources (leading to less waste and more flexibility) and maximizes the progress of technology (thus adding to the stock of social capital and increasing social and economic options).

All of this follows directly from Adam Smith, and until relatively recently, such concern as existed in this regard was more related to the effect of imperfect competition and monopolistic industry than to size per se. However, in 1942, Joseph Schumpeter published his monumental work, Capitalism, Socialism, and Democracy and started a debate which continues

to this day. For in it, he wrote among much else, that:

...in capitalist reality, as distinguished from its textbook picture, it is not (price) competition which counts, but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest scale unit of control for instance) - competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the output of existing forms, but at their foundations and their very lives.(11)

As Schumpeter conceived of this process, he saw in it the death of capitalism, not because it was inefficient or uncompetitive, but because large organizations had learned how to innovate on demand, and because their very size was becoming the prerequisite for successful innovation. Thus, the private entrepreneur would no longer be able to fulfill his vital role in the process of capitalistic development, in that new firms based on new ideas would increasingly be unable to enter the market.

This would mean, very simply, that small firms would be relegated to insignificant or secondary roles in the economic system, in considerable part because they would lack the capacity to challenge large enterprises based on new developments and products. John Kenneth Galbraith, in a celebrated passage, expanded on this in the following words:

...a benign Providence...has made the modern industry of a few large firms an almost per-

fect instrument for inducing technical change. It is admirably equipped for financing technical development. Its organization provides strong incentives for undertaking development and for putting it into use.

There is no more pleasant fiction than that technical change is the product of the matchless ingenuity of the small man forced by competition to employ his wits to better his neighbor. Unhappily, it is a fiction.(12)

And he added, in a later book, that "by all but the pathologically romantic, it is now recognized that this is not the age of the small man."(13)

Under the circumstances, and considering the importance of the issue, it is not surprising that considerable effort has been devoted to studying these questions. Does innovation proceed more efficiently in large firms? Is it increasingly difficult for small firms or individual inventors to compete on that basis? The considerable mass of data available suggests that the answer to both questions is a clear no. In what is probably the most intensive and comprehensive book on this subject, John Jewkes and his colleagues, in specific reference to Galbraith's argument, have written that "Since (publication of American Capitalism) nearly all the systematic evidence has run counter to any such doctrine."(14)

Not all innovative activities are of the same type, of course, and the effect of size and scale on their extent or effectiveness might reasonably be expected to differ. Most available data on results concern invention; the initial

stages leading to the formulation of a useful and novel combination of materials or ideas (roughly, the criterion used to determine patentability). This is preceded, often, by basic research; research conducted to explore frontiers of knowledge, generally without orientation toward specific "problems" to be solved. On the other side, inventions, once made, often require considerable development before they can be effectively used or produced. Innovations in development obviously include a wide spectrum of activities, shading into industrial or production engineering. Finally, many innovative activities concern modification or improvement of existing processes; these may or may not be the result of organized effort.

It is obvious that, of all these, development is the one most likely to be responsive to large organized activities, since much of what falls under this heading, though still innovative, requires or permits more straight-forward application of proven principles. Moreover, where development merges into large scale manufacturing (as in automobiles) or where it is oriented to end products of great scope and complexity (as in space vehicles), the resources required are themselves very extensive. However, two points need to be made in this regard. First, even where large size is required, it can often be generated ad hoc by firms in association for that specific purpose. Second, within given types of firms, or

industries, there is no evidence that above the necessary minimum size, development efficiency increases with scale of firm. Indeed, as following sections indicate, much development which benefits larger firms is done by smaller ones either deliberately set up for the purpose, or purchased after reaching success.

Finally, one might note that in certain industries, of which pharmaceuticals is perhaps the most obvious example, much of the expenditure on research and development in fact is designed to enhance efforts at product differentiation, regardless of the social or scientific value of the new distinctions. New products of this sort have been demonstrated to be economically valuable to the firms involved, both by increasing the barriers to entry of new competition, and by enabling more to be charged for what is in essence the same thing. Such activities, though responsible for an unknown but considerable fraction of corporate expense on research cannot be used to demonstrate the value of the larger scale of such firms, since the whole purpose is to retard competition on price and artificially inflate the firm's size. (15)

The detailed data on these matters is summarized in what follows, beginning with the relationship between size and invention.

Of 71 important 20th century inventions studied by Jewkes et al, more than half (38) were ranked as individual

inventions, either in the sense of men "working on their own behalf without (important) backing" or as employees of institutions such as universities which provided a setting for autonomous effort. Those inventions largely originating in the research laboratories of manufacturing companies number 24. The remaining nine are difficult to categorize unequivocally. These three groups are listed in Table II-1.

There is therefore no strong case to be made for the disappearance of the individual inventor, nor, as a glance at Table II-1 will show, for his automatic restriction to innovations of little consequence. However, it is also true that a greater proportion of research work is in fact being done in industrial laboratories, and that the relative number of patents being issued to workers in those settings is greater than previously. Although the details vary with the particular industry, this trend reflects first, the need in a few fields for expensive and complex equipment and second, the relative security and other benefits available from work in such organizations.(16)

Nor is there any evident correlation between expenditure on research and development (in which large size is more of an advantage), and the resulting technical progress. This is as true for nations as for firms. For example, in the U.S., "even disregarding expenditure on military R & D, nor correlation can be established between R & D expenditure and the

SOURCES OF RECENT IMPORTANT INVENTIONS

Table II-1

Individual	Corporate	Mixed or Unclear
Air Conditioning	Acrylic Fibres	Continuous Casting of Steel
Air Cushion Vehicles	"Cellophane" Tape	Electronic Digital Computer
Automatic Transmissions	Chlordane, Aldrin, Dielidium	Krilium
Bakelite	Continuous Hot-Strip Rolling	Long-Playing Record
Ball-Point Pen	Grease-Resisting Fabrics	Radar
Catalytic Cracking of Petroleum	DDT	Rockets
"Cellophane"	Diesel-Electric Locomotive	Shell Moulding
Chromium Plating	Duco Lacquers	Silicones
Cinerama	Float Glass	Stainless Steels
Cotton Picker	Fluorescent Lighting	Tungsten Carbide
Cyclotron	Freon Refrigerants	Wankel Engine
Domestic Gas Refrigeration	Methyl Methacrylate Polymers	
Electron Microscope	Modern Artificial Lighting	
Gyro-Compass	Neoprene	
Hardening of Liquid Fats	Nylon	
Helicopter	Oxygen Steel-Making	
Insulin	Polyethylene	
Jet Engine	Semi-Synthetic Penicillins	
Kodachrome	Silicones	
Magnetic Recording	Synthetic Detergents	
Moulton Bicycle	Television	
Penicillin	Terylene	
Photo-Typesetting	Tetraethyl Lead	
"Polaroid" Land Camera	Transistors	
Power Steering		
Quick Freezing		
Radio		
Rhesus Haemolytic Disease Treatment		
Safety Razor		
Self-Winding Wrist Watch		
Streptomycin		
Synthetic Light Polarizer		
Titanium (processing)		
Wankel Engine		
Xerography		
Zip Fastener		

Source: John Jewkes, David Sawers, and Richard Stillerman, The Sources of Invention, 2nd edition, N.Y., W.W. Norton, 1969, p. 66-75.

growth of G.N.P." And it may be noted that Japan, whose industrial growth in the last twenty years has been extraordinary, ranks among the lowest countries in research expenditure as a proportion of either income or population.(17)

Returning to the more direct issue of innovation versus size of firm, there is widespread agreement that large firms are not demonstrably more innovative than small. A study of 720 French firms engaged in R & D activities lead to the results indicated in Table II-2. These data suggest positive diseconomies of scale. Schmookler has put the case as follows:

...existing comprehensive indexes of output of new technical knowledge suggest that beyond a certain not very large size, the bigger the firm, the less efficient its knowledge-producing activities are likely to be. Evidently, as the size of the firm increases, there is a decrease of per dollar of R & D in (a) the number of patented inventions, (b) the percentage of patented inventions used commercially, and (c) the number of significant inventions. (emphasis added) (18)

Nelson, Peck and Kalachek, in a major study of technology and economic growth, reached the conclusion that:

These considerations and evidence suggest quite a different conclusion from the one equating large firms and technological advances. No single size firm is an optimum for conceiving and introducing all inventions of an industry. Rather, the optimum is a size distribution composed of small, medium, and large firms varying from industry to industry, and from time to time.(19)

SAMPLE OF SOME 720 FRENCH COMPANIES WHO ENGAGED
IN R & D IN 1965

Table II-2

	Small	Medium	Large
1. % of R & D expenditure to total turnover	0.7	0.4	0.5
2. % of R & D staff to total staff	1.1	0.8	0.5
3. % of research expenditure in total R & D expenditure	0.4	0.3	0.3
4. No. of Patents held as % of turnover	1.6	0.7	0.5
5. 4. as ratio of 1.	1.8	1.3	1.1

Source: Graham Bannock, The Juggernauts, Indianapolis, Bobbs-Merrill, 1971, p. 177.

And F.M. Scherer in prepared remarks for a Senate hearing wrote that:

...the best interpretation I can draw from my research results is that giant firm size is no prerequisite for the most vigorous inventive and innovative activity.(20)

Jewkes et al, in their own study, drew the following conclusions:

...the large industrial research organization cannot be considered, either actually or potentially, the sole and sufficient source of inventions...Three facts point in this direction:

1. The large research organizations of industrial corporations have not been responsible in the past fifty years for the greater part of significant inventions.
2. These organizations continue to rely heavily upon other sources of original thinking.
3. These organizations may themselves be centres of resistance to change.(21)

And Arnold Cooper has in fact argued directly that R & D is more efficient in small companies. He concluded after a study of his own that:

...the average capabilities of technical people are higher in small firms than in large ones... (R & D people) are more often concerned over how much a project costs than are their counterparts in large organizations...(and) the problems of communication and coordination tend to be less in the smaller organizations.(22)

Finally it is relevant to note that the bulk of increases

in industrial productivity are more often related to rather modest changes in internal operation and evolutionary technology on the shop floor than to "breakthroughs" or major developments which by their nature are scarce and unpredictable. It is the continuing flow of modifications which have the greatest impact, and they are likely to represent a constant source of improvement. Thus Fritz Machlup, in 1962, wrote that:

...it is by no means certain that the increase in productivity over...time is chiefly due to the great inventors and their inventions. It may well be that the sum total of minor improvements, each too small to be called an invention, has contributed to the increase in productivity more than the great inventions have.(23)

This was confirmed by Samuel Hollander, in a major study of DuPont rayon plants. He concluded that:

..."minor" technical changes - based on technology judged relatively "simple" to develop ...and usually representing "evolutionary" advances...accounted for over two-thirds of the unit-cost reductions attributable to technical change at most of the plants considered.(24)

Hollander also concluded that:

...it is possible to incorporate within a given structure sufficiently productive technology to permit an older plant to produce almost as efficiently as a newly built plant. Moreover (comparatively speaking)...the sum total of the outlay needed to accomplish the alterations at the older plant is relatively small.(25)

Accordingly, it seems likely that large sums of money would not necessarily be required for truly productive enterprises.

These overall remarks on size in relation to innovation are supported in detail by studies of particular industries and companies. For example, the DuPont Co., whose corporate image is highly research centered ("Better things for better living through chemistry"), was also studied by Willard F. Mueller. Of 25 important product and process innovations between 1920 and 1950, only 10 were based on the work of DuPont employees.(26) Information on steel, automobile, bread, and drug industries has been assembled by Blair, whose overall conclusion was that:

The information developed...provides no support for the thesis that concentration is essential for inventions, and only limited support for the idea that it is necessary to produce development and improvement.(27)

In the steel industry, particularly, the largest producers made no significant contribution to the three most important new technologies (oxygen conversion, continuous casting, and planetary rolling mills). Myers and Marquis, in their study of the railroad, railroad supply, housing, computer and computer supply industries concluded that "large and small firms did not differ clearly in the proportion of products, component, and process innovations."(28)

Similar views have been expressed by a number of executives of the very corporations often cited as examples of

innovative organizations. T.K. Quinn, a former vice-president of General Electric, gave credit to small companies for both discovery and first production of virtually every home appliance, including electric ranges and dishwashers, vacuum cleaners, steam irons and electric shavers. He also added that "The record of the giants is one of moving in, buying out and absorbing the smaller concern."(29) Jan E. Jertson, vice-president of Business Development Services, the venture-capital subsidiary of G.E., has commented that it is easier to fund small, new companies than to operate them as units of G.E., because this gets the advantage of small company momentum and entrepreneurship and "we wouldn't have to impose our practices upon them."(30)

Frederic de Hoffman, former president of the General Atomics Division of General Dynamics Corp., wrote that:

...American business certainly does not recognize (that change is the most vital part of technical progress). It conducts an eternal search for finding perfect stereotyped solutions to given problems and is very unhappy when new facts arise that demand a change in its little world.(31)

And considerable evidence can be marshalled to demonstrate that even widely accepted new technology, such as computers, have not made serious inroads into large organizations except in simple replacement operations. In particular, for purposes of top management planning and decision-making, the very place where the most significant contribution is to be expected,

and where the problems are greatest, there has been little indeed. A study of more than 12 large companies, selected to evaluate the expected use of sophisticated information processing technology, indicated that in no case was top management utilizing such techniques. Even in middle management, use was only moderate and was primarily in restricted areas, such as preparation of presentations.(32)

Overall, it can be fairly said that there is little or no evidence to indicate that large companies are more efficient in knowledge production and use than small ones, and there is more than a little information indicating precisely the opposite. A study by the staff of President Johnson's Cabinet Committee on Price Stability reached the following summary conclusion:

The weight of evidence hardly supports the simple prescription that large firms and concentrated markets are necessary to achieve an adequate rate of inventive output, and to foster a more rapid adoption of new technology.(33)

One aspect of the capacity of firms to utilize their available resources in innovative and efficient ways concerns planning. This is of particular importance in the light of the primary social functions performed by business entities; namely, the provision of needed or desired goods and services for society. In the face of rapid change, and the great variety of individual interests and wants, the difficulty of

effective planning is manifest. It is therefore appropriate to consider whether large firms can plan more effectively. More broadly, what is the effect of scale on the planning process?

THE IMPERATIVES OF PLANNING

In one way or another, much of the issue in any serious discussion of the role of business enterprise in meeting the needs of American society concerns planning. Production does not occur at the same time as consumption for any given item; whatever is obtained today (at least in the realm of economic goods) must have been created at some earlier time in the hope or expectation that it would be needed (desired) later. In one way or another, therefore, an estimate of the future is inevitably involved in all economic decisions. It is the special function of planning to attempt to minimize the uncertainty in those expectations. As Aaron Wildavsky put it:

Planning may be seen as the ability to control the future consequences of present actions. The more consequences one controls, the more one has succeeded in planning. Planning is a form of causality. Its purpose is to make the future different from what it would have been without this intervention.(34)

The question is whether the size of firms has an impact on planning and, if so, what it is.

To start, it is clear that the greater the time lag between the decision to produce a product, and its availability

to the (hopedfor) customers, the greater the uncertainty. Moreover, the uncertainty also increases with the rate of change of the environment influencing the structure of demand. Finally, assuming that the purpose of production is in fact to meet social and individual needs, the more distorted the information flowing to the enterprise about those needs, the greater the likelihood that products produced will differ from the actual needs.(35)

Galbraith has perhaps put the case for the planning benefits of large organizations most strongly:

The size of General Motors is in the service not of monopoly or the economics of scale but of planning. And for this planning - control of supply, control of demand, provisions of capital, minimization of risk - there is no clear upper limit to the desirable size. It could be that the bigger the better.(36)

His argument rests, fundamentally, on the complexities of modern technology and the consequent need for closely coordinated effort among the many highly specialized disciplines that increasingly characterize the American industrial system. Roughly speaking, this follows because 1, more time is needed for development of complex devices; 2, more capital is required for their manufacture; and 3, more (and more costly) specialists are needed to make the necessary decisions. Unless firms engaged in these activities have some ability to

control their environment, such an array of resources cannot be committed for the necessary time, because the risk would otherwise be prohibitive. In effect, this solution to the planning problem calls for a deliberate reduction of the rate of change of the environment.

Thus, to Galbraith, the choice is not between more or less efficient production, but between provision of these goods (by entities not entirely subject to market pressure, hence able to plan effectively) and the absence of such goods. As he writes elsewhere in the same work:

Size is the general servant of technology, not the special servant of profits. The small firm cannot be restored by breaking the power of the larger ones. It would require, rather, the rejection of the technology which in earliest consciousness, we are taught to applaud...The modern large corporation and the modern apparatus of socialist planning are variant accommodations to this need. It is open to every freeborn man to dislike this accommodation. But he must direct his attack to the cause. He must not ask that jet aircraft, nuclear power plants or even the modern automobile in its modern volume be produced by firms that are subject to unfixed prices and unmanaged demand. He must ask instead that they not be produced.(37)

No doubt, some would opt for that alternative. However, the main question is whether, in fact, that is the only choice. There is, however, a dilemma here. On the one hand, Galbraith argues that large scale is required in the service of planning

and control of the future. On the other hand, as he indicates elsewhere, since the necessary information and experience are distributed down through the organization, then decisions and decision-making authority are not in fact held by the organization at large, still less its visible leadership, but by rather smaller units which are more or less autonomous.

Galbraith recognizes this, citing it partly as an explanation of the necessary convergence between enterprises in highly industrialized economies, whether socialist or capitalist:

This autonomy is necessary both for small decisions and what appear to be large questions of policy...The effect of...denial of autonomy and the ability of the technostructure to accommodate itself to changing tasks has been visibly deficient operations.(38)

But this need becomes increasingly impossible with greater scale of the enterprise as a whole. It can only stretch itself so far, and as that tension increases, one or the other of these requirements must give way. Indeed, this conflict may well constitute the source of the most fundamental diseconomy of scale.

Particularly under conditions of rapid change, whether with respect to technology or market factors (both of which exist now), this conflict becomes more severe. The point has not been missed by businesses. Overall, it has generally been

agreed that small firms offer advantages of flexibility and responsiveness, and the ability to develop closer relationships to customers. Thus, as E.A.G. Robinson wrote some time ago:

...the small firm is strongest in all those industries in which fashion rules, and in which changes of design are constant.... (and) also in those industries where the conditions of production are so varying that important decisions must be made at frequent intervals.(39)

That this is still - even increasingly - true is demonstrated by the continuing attempts of large organizations to invent mechanisms whereby they can offer those same advantages. One need only look at the trend - nearly a stampede - towards project management and profits centers. Increasingly, modern theorists in organization and business urge decentralization of decision-making and new forms of organizational control. Warren G. Bennis, for example, has written that:

The social structure in organizations of the future will have some unique characteristics. The key word will be "temporary;" there will be adaptive, rapidly changing temporary systems. These will be organized around problems-to-be-solved. (40)

This point has been underscored by a recent study of the effectiveness of business organizations faced with different environmental demands, particularly contrasting a stable environment to one in dynamic flux. The conclusions strongly

suggest that under conditions of rapid external change, the organization must be more highly differentiated (both with respect to structure and people), and information about the environment must be available to more people: "The more unpredictable and uncertain the parts of the environment, the lower in the organizational hierarchy this (required knowledge) tends to be."⁽⁴¹⁾ Thus, increasingly, organizations must stretch themselves to provide that local autonomy, while maintaining the necessary overall coordination - an uneasy and difficult task.

There are, then, a number of different reasons to suppose that the need for more autonomous, decentralized decision-making units will continue to be felt by large enterprises. The history of the modern American corporation over the last 50 years or so has been in part the development of administrative structures responsive to increased market and product complexity. Alfred D. Chandler, Jr., in his pioneering study of the growth of the largest modern industrial firms has clearly shown the structural response - multidivisional organization - to changing demands of market and technology. He summed up the lesson as follows:

...growth without structural adjustment can lead only to economic inefficiency. Unless new structures are developed to meet new administrative needs which result from an expansion of a firm's activities...the technological, financial, and personnel economies of growth and size cannot be realized.⁽⁴²⁾

The present argument simply is that the new structures needed in response to today's requirements are different from those of the past. Indeed, economic inefficiency is increasingly what is to be seen.

But the general issue is that of coordination; whether separate activities, factors of production and consumption, and productive units are to be coordinated through the market or by administrative action within a firm as its growth internalizes what were once external elements. This is not the place for a full discussion of such effects which have, in any case, been widely discussed elsewhere. Briefly, however, those activities brought within the purview of a firm must be justified by the firm in terms of its own purposes and goals. Whether that shift of control results in a net increase in efficiency is another story. Observations of the behavior of the newly-expanded firm in the market might answer that question, were this process not subject to precisely the defects noted in the previous chapter's discussion on measures of size and profitability. The question cannot therefore be answered by that means in this case any more than it could earlier, and one is forced to seek more fundamental arguments.

Suppose it be argued, then, that as Galbraith asserts, if large industrial firms can reduce the fluctuations in the marketplace, and so limit the changes which would call for these stressful organizational adjustments, the problem of

matching disappears. Even granting that assumption (for which there is no support whatever), what does that imply? Galbraith himself has phrased it well: "The problem of the technostucture... is whether it can be accomodated to social goals or whether society will have to be accomodated instead to its needs."(43)

However, if one starts with the (proper) idea that the function of the economic system is to serve social ends, then it is impossible in principle to subscribe to the notion that control of the market or of the supply of certain goods and services should rest elsewhere than with the members of society for whose needs these goods are being produced. Only they are in a position to assure that fact, and only then if their choice is more than among a restricted set of alternatives, none of which may be their desire, but one of which must be made to serve, willy-nilly. Galbraith himself is uncomfortable with this need for market control to which society will have to accomodate itself. Clearly, if firms could be responsive to local conditions, they would not need to control them. That, by definition, is a reflection of their lack of ability to be adequately responsive. But ultimately, this question hinges on the other aspect of this thesis; namely, that without that scale and control, important goods will simply not be able to be produced.

Fortunately, his argument is not supported by the evi-

dence. It has already been noted that innovation is not the special province of the large firm. A brief look at the manufacture of automobiles may serve to demonstrate that even for production, present scale is unnecessary. To start, Bain has concluded that 7 1/2 % of national industry capacity could be produced by one optimal size automobile plant. As to economies of the multiplant firm, Bain concluded that these were largely advantages of sales promotion rather than production and distribution. Thus, it is likely that, even with the present integrated production facilities, some 14 independent firms could compete effectively in the U.S. market.

Moreover, the disadvantages of much smaller scale are not overwhelming:

...the trend of the estimates is that cost would be "moderately" higher at 150,000 units per year, substantially higher at 60,000 units...But it has been impossible to obtain quantitative estimates...the firms of the automotive industry seem generally uninterested in publicizing their plant and firm scale curves.(44)

It may be noted in passing that 150,000 units is only 2.3 percent of the 1970 sales, and 1970 was a distinctly off year as regards the record of the recent past.(45) Moreover, it has been estimated that the extra cost of American automobiles as a result of the annual model changes since 1949 amounted in the latter 1950's to about \$5 billion per year. Since the

annual sales of passenger cars was about 6.7 million units at that time, the additional cost of such changes was about \$750 per car, or some 40 percent of total wholesale value! Some of this covers desirable and useful changes in power and accessories. "But have they been worth \$5 billion a year? A reasonable man might have doubts."(46)

It is then, very difficult to argue that the present structure of the American automobile industry reflects the imperatives of technology or planning - at least in any socially desirable sense. One can, further, look at automobile production from other points of view. A detailed study of the British automobile industry indicated that the economics of the firm have roughly the following form:

Something like a 40 percent reduction of costs can be expected as production increases from 1,000 to 50,000 units per annum. Doubling volume to 100,000 units should lower costs by 15 percent - doubling to 200,000 (achieves) another 10 percent in savings (and) to 400,000 an additional five percent.(47)

But as will be noted elsewhere, a five percent savings in production cost is not of crucial importance given the structure of the industry. And, of course, companies like Volvo and BMW seem to have no problem surviving (and profiting) on outputs of the order of 200,000 units per year.(48)

Finally, there is no reason why automobile production need

be integrated at all. Just as in the machine tool industry, referred to earlier, true economies of scale could be achieved better by an array of firms producing major elements, (e.g., engines, bodies, accessories) of the automobile. The engine, which of all parts is most subject to technical scale economies, reaches its minimum unit cost (with present technology) at outputs of the order of 400,000 per year. European firms, in general, have chosen that route rather than vertical integration, in part precisely because it reduces risk and increases flexibility.(49)

One might ask, at this point, why, if these facts are accurate, American Motors nearly went bankrupt (or at least out of the private automobile business) or why British auto firms have been merging and consolidating so vigorously over the last some years. The answer, not surprisingly, is that the lack of increasing economies of scale, or the presence even of substantial diseconomies of scale, predicts poorly the outcome of an economic battle among the various firms in the industry. As is discussed later, size itself is associated with power, and leads directly to it. Under the circumstances, it is reasonable to expect that large and powerful firms will become larger.(50)

All in all, it is difficult to understand why Professor Galbraith is so confident that the present large size is required for a viable automobile industry. In some other in-

dustries, similar data have been generated. For example, in the steel industry, as Fortune said recently:

Those famous old economies of scale which demanded gigantic equipment and blocked the entry of small would-be competitors - are greatly diminishing in importance. Small companies, emboldened by steels' "new economies" are streaming into the industry, setting up regional, even local plants, splintering the business into smaller pieces - and making money.(51)

These "new economies" include rapidly changing technology which, as Blair had early predicted, offers considerable saving at smaller scale.

To sum up then, planning is perverted if it merely becomes a rationale for large corporations, and if it becomes used to control the goods and services made available to members of society. It is clear that some kinds of production call for very large entities - space flight being a case in point. However, that is an exception, rather than the rule. Consumer needs, if they are to be supplied efficiently, call increasingly for organizations more flexibly arranged and in more direct contact with those customers. The essence of planning, under conditions of increasing uncertainty, is to seek better ways by which those who have the needs can influence or control the productive apparatus more effectively, not less.

Under conditions of rapid environmental change, this is only possible if the "distance" between those supplied and the

locus of decision-making on the part of those producing is reduced. Richard S. Bolan commented on the relevance of various views of planning as follows:

- values are continually changing, goals are shifting, priorities are varying...A planning system which ignores this will quickly be out of touch and consequently have only a limited capacity to contribute to the policy-making process.(52)

But it can easily be shown in information theory that the feedback - information linking the environment and the organization attempting to service that environment - necessarily becomes less accurate or less complete as the rate of change of the data increases, or as the number of steps in the information transfer process increase. There are also human interaction problems associated with size, and noted below.

The rapidly changing present environment presents the former situation; large organizations involve the latter, the more so as they grow. What John Friedmann has called the "guidance system" thus becomes less and less adequate.

- where the guidance system is itself inadequate, its "output" may be full of "errors" or in the language of communications theory, "noise." An effective guidance system must bear some meaningful relation to the demands made upon society and the "turbulence" brought about by its own actions.(53)

Galbraith has suggested, in effect, that the solution to this problem lies in attempts to prevent that "turbulence" in the

future; to control the changes, in kind and extent, that the society will undergo.

It is not likely, for one thing, that such a strategy can work. Much of the present sense of social turmoil may well stem from the tension which arises from the attempts, however well-meaning, to provide just such control. Emery and Trist, in an important paper on changing environments, commented on the implications of "turbulent fields" as follows:

The turbulence results from the complexity and multiple character of the causal inter-connections. Individual organizations, however large, cannot adapt successfully simply through their direct interactions.(54)

What is needed, instead, they suggested, is a value shift which integrates the organization and the environment it serves. But under the present structure of large corporations, separate values are internalized because of their utility to the organization.

Over time, an organization fabricates an idealized self-image...The elements of fantasy in the view of the organization involve, usually, some distortion of reality, and, therefore, prejudice the evaluation of incoming information.(55)

This problem is to be solved not by the hope of better planning on a large scale (although that will always remain a worthy objective), but by the better integration of productive

enterprises with the elements of society needing that production.

Under conditions of rapid change in an affluent and complex society, the only means available for meeting differentiated and fluid needs is an array of producing units small enough to produce for their demands, and able to do so in a relatively short time; and yet large enough to take advantage of all important technical economies of scale and specialization. It is a contradiction in terms to speak of the necessity of very large units to control their environment so as to produce products which in fact no one may want!

Thus far, there can be a strong presumptive case made against ever increasing returns to scale. However, one of the most critical questions remains to be faced. Is there something inherent in the nature of large and complex organizations which mitigates against effective use of resources or which places basic restrictions on their internal efficiency? The information theoretic argument has already been noted, but the fact that organizations are networks of people has important consequences of its own. Considerable evidence exists, and an impressive body of argument, to indicate that that is in fact the case. The source however is not merely economic, but social. Businesses are human organizations, even though specialized, and size itself has important effects on the nature of human interactions and efficiency. It

is important, then, to look at such issues in more detail and in particular to consider the psychological and structural response to scale.

FIRMS AS HUMAN ORGANIZATIONS

There are many data and much experience indicating that a substantial (and growing) fraction of the workforce is dissatisfied or worse with their jobs. These problems are not limited to blue-collar workers. It is becoming clear that white-collar workers, including executive personnel, though relatively more satisfied than laborers, are increasingly experiencing similar problems. Moreover, this general "dissatisfaction" is not merely a vague wish for something better, but it is often associated with deterioration of mental, and sometimes physical, health. Nor is this a new discovery; it is in actuality so disturbing to contemplate seriously that it needs to be periodically "rediscovered", most recently in a major study done for the U.S. Dept. of Health, Education and Welfare.(56)

In the present context, the issue concerns the effect of scale and organizational structure on such problems, and its opposite, the potential enhancement of health and psychological well-being by participation in certain types of organization as against others. What follows below is an attempt at an overview of these matters, rather than a detailed in-

vestigation. Even that, however, indicates the potential value of smaller firms, differently organized. Further, an attempt is made to assess the effect of organizational scale on the behavior of the firm itself. The data here similarly support a conclusion that relatively smaller firms have significant advantages vis-a-vis their larger sister organizations.

It is appropriate to set the stage by indicating the scope of the problem overall. One of the most complete and careful studies was that done by Kornhauser in the early 1960's. He carried out detailed surveys of the mental health (as indicated by measures of such items as self-esteem, anxiety, life-satisfaction, quality of social relationships, and distrust) and attitudes toward work of a large and diverse group of corporate employees in the Detroit area. Kornhauser's sample included blue and white-collar workers in both factory and non-factory settings. Some of the relevant results are displayed in Tables II-3 and II-4. Table II-3 shows the proportion of young workers (aged 19 to 29), all of whom had had at least three years of steady work, evaluated as having "high" mental health in four different settings. Further elaboration is provided by Table II-4 which indicates the percentage of workers with high mental health as a function of skill level and type of job. Finally, with regard to those holding repetitive jobs, he noted that workers in small plants included

"HIGH MENTAL HEALTH" (HMH) AS FUNCTION OF
WORK ENVIRONMENT

Table II-3

<u>Setting</u>	<u>Percent of Young Workers (aged 19-29) with HMH</u>
Larger Plants	34
Smaller Plants	51
Non-Factory (Public Utilities)	69
White Collar	76

Source: Charles Hampden-Turner, "The Factory as an Oppressive and Non-Emancipatory Environment", in Humnius, Garson, and Case, eds., Worker's Control, N.Y. Vantage, 1973, p. 3.

"HIGH MENTAL HEALTH" (HMH) AS FUNCTION
OF SKILL AND JOB MECHANIZATION

Table II-4

<u>Level of Skill and Mechanization</u>	<u>Percent of Young Workers (aged 19-29) with HMH</u>
Skilled and High semi-skilled .	58
Ordinary semi-skilled	35
Semi-skilled, repetitive task	10
Semi-skilled, repetitive, task, machine paced	7

Source: Arthur Kornhauser, Mental Health of the Industrial
Worker: A Detroit Study, N.Y., Wiley, 1965, p. 57.

29 percent with high mental health, as compared to 18 percent in large plants.(57)

The results are remarkably unequivocal, especially in terms of their self-consistency and that with other findings indicated below, although it should be kept in mind that they refer to a particular socio-economic system. Blue-collar workers in small factories are 50 percent likelier to exhibit high mental health than similar workers in large factories, though workers in a non-factory setting (in this case, public utilities) are likely to be mentally healthier yet. Moreover, the results displayed in Table II-4 show a systematic and strong decay in mental health as exercise of skill and self-control over work decreases.

These latter findings are not rigorously related to size of factory or organization, but they are relevant nonetheless. The structural and coordinative requirements of large organizations, along with the increased problems of control, tend to foster repetitive, highly fragmented work, reaching the extreme on large assembly lines. Moreover, it is plausible to generalize Kornhauser's findings beyond the specific workers in his sample, and to suggest that the larger the organization, the less the self-direction and autonomy of most employees, whether blue or white-collar. Data in support of these propositions is given in later sections of this chapter.

Although direct comparisons are difficult because of the

several measures and techniques used by the many investigators of work satisfaction and worker health in various settings, it is worth noting that four studies of satisfaction have been carried out in Israeli kibbutzim (industry and farm) since about 1968. Leviatan has described the results as follows:

Between 60-70 percent say that they are very satisfied with their job, about 9-11 percent say that they are dissatisfied...the rest are satisfied to a little degree only. There were no differences found between farm and industrial workers.(58)

Further, this distribution was more positive than comparative studies done on both American workers and those of other countries.

However, one is likely to ask whether such findings are directly relevant in light of the possible compromise between job satisfaction and enterprise efficiency. In fact, although data are sparse, one comparative study of this question has been carried out by Melman in regard to six comparable pairs of Israeli enterprises, half managerially controlled, the other half cooperatively administered (Kibbutz enterprises). Although the study is merely a beginning, Melman concluded that:

...equal or greater efficiency of operation (was) found in the cooperative, as against the managerially controlled enterprises... This is not anticipated from conventional knowledge in economics and industrial management.(59)

For present purposes, one should note that the enterprises studied were also relatively small, all involving less than 250 persons. Thus, although Melman did not explicitly deal with the effect of size, it is possible to suggest that such high values of both efficiency and satisfaction may not be achievable in much larger units.

Other empirical studies have also demonstrated some relationship between size and the attitude and behavior of members. In particular, four kinds of studies are worth mentioning. Revans concluded that, for a given industry, large size both of organization and work groups, was positively correlated with rates of absence, strikes and accidents; studies by Marriott found a negative correlation between organizational size and measures of job performance; Hewitt and Parfitt concluded that "working morale" was negatively related to size; and Thomas found small organizations more likely to show high quality of work and general organizational effectiveness than large.(60)

These data are consistent with many other studies carried out elsewhere. Several comments can be made on the basis of such studies. First, there is a clear difference indicated between large and small plants, which suggest that small plants are "healthier". Second, it has been shown that "low mental health" as used here, is correlated with such deterrents to efficient operation as absenteeism, rate of griev-

ances, and even sabotage. Third, these results are not the result of a self-selection process which places those with initially low mental health into factory settings. Kornhauser's own conclusion was as follows:

...mental health (as here defined) is poorer among factory workers as we move from more skilled, responsible, varied types of work to jobs lower in this respect...(This) does not appear to be caused in any large degree by differences of prejob background or personality of the men...The relationship of mental health to occupation, in other words, seems to be genuine; mental health is intimately associated with the nature of the work...(61)

And indeed, most of the recent focus on possible "solutions" to these problems has dealt with job enlargement, job enrichment, participation in decision-making, rotation of tasks and shifts from assembly line to group assembly techniques. All of these are based on the recognition that the nature of the work environment, in terms of its task content, its technology, and its social organization, strongly influence worker satisfaction. Although such approaches have not been uniformly and completely successful, there are increasing data and numbers of experiences which demonstrate that they do have an impact.(62)

The relatively low level of "x-efficiency" of which Leibenstein took note, is certainly related to such findings. As he put it:

The simple fact is that neither individuals

nor firms work as hard, nor do they search for information as effectively, as they could. The importance of motivation and its association with degree of effort and search arises because the relation between inputs and outputs is not a determinate one.(63)

A significant and growing improvement in such efficiency can be obtained by internal changes which offer the individuals involved the real opportunity to contribute so as to achieve some personal goals as well as organizational ones. It is important, however, to consider the source of these motivational opportunities, particularly those which bear on questions of size and scale.

There seem to be three sources important for present purposes; overspecialization of function, inability to relate narrow tasks to overall purpose and opportunities, and complexity of internal coordination and interaction. As to the first, Adam Smith himself recognized the potential problem that could arise from overspecialization, as in the modern assembly line, although of course he had never seen such a thing. Nevertheless, he wrote the following remarkable passage in a discussion of the educational implications of the highly specialized industrial enterprise:

The man whose whole life is spent in performing a few simple operations, of which the effects too are, perhaps, always the same, or very nearly the same, has no occasion to exert his understanding, or to exercise his invention...He naturally loses, therefore, the habit of such exertion, and

generally becomes as stupid and ignorant as is possible for a human being to become.(64)

A recent example of this problem showed up at the new and highly automated General Motors production line at Lords-town, Ohio, where assembly line workers have rebelled against the dehumanizing work conditions. This is by no means a unique instance. Business Week, in an article on this topic, referred to "the increasingly serious problem of worker discontent on automated assembly lines everywhere."(65) It is likely that such problems will increase until work organizations are modified in significant ways. Blauner, following his own research, put the general case as follows:

...a person is more likely to be (alienated) ... (1) when he is powerless and lacks control; (2) when his role is so specialized that he becomes a "cog" in an organization; and (3) when he is isolated from a community or network of personal relations which would inhibit impersonal treatment. The result... is that...his (own) activity becomes only a means rather than a fulfilling end.(66)

The second source, inability to relate narrow tasks to overall purposes and opportunities, is clearly related to the first. Not only does mental health and satisfaction suffer from narrow specialization, but the very ability to contribute is decreased by those inherent blinders. Schmookler has concluded, for example, that:

There seems little doubt that many of today's firms have subdivided labor so much that oper-

ating employees no longer understand the relation of their work to the enterprise well enough to make significant improvements even when they have the native ability to do so.(67)

Nor are these problems limited to blue-collar workers. One of the executive vice-presidents of the Union Carbide Corporation, a giant by any standard, remarked in private conversation that he and his colleagues "had no idea how to manage a large corporation." He said they simply did not know enough of the corporate workings, nor did they know what to do even if a clear problem was identified.(68)

It has already been noted that much of technological progress within the firm is the result of a series of small innovations. This point can be made more generally. The primary source of all innovations is from recognition of a need, rather than from technical opportunity as such (as in "climbing a mountain simply because it is there.") In one study, only 21 percent of the successful innovations stemmed from technical sources, 30 percent were a response to perception of a need/opportunity in manufacturing, and 45 percent to market factors.(69) And such recognition, whether within the firm or with respect to the outside market, comes only under conditions in which workers (executives and labor alike) are more generally knowledgeable about the organization, its operation, and its relationship to its environment. This point has been made by Kenneth Arrow, for example, in a brief study

of a Scandinavian steel mill in which productivity steadily rose over a ten-year period in the absence of any new investment whatever.(70)

As to the third source of motivational problems, the detailed and ongoing studies by Robert L. Kahn and colleagues have demonstrated first, that psychological stress and organizational size are correlated; second, that stressfulness "stems in considerable part from increased requirements for coordination," and as a general conclusion, that:

The implications for builders and leaders of organizations can be summed up in these terms: minimize the requirements for coordination between positions and groups; in other words, treat every coordinative requirements as a cost, which it is.(71)

Such findings becomes part of a somewhat broader issue: the organizational and structural (as against individual) effects of size and scale. An earlier quote from Jewkes et al referred to a "resistance to change" on the part of large organizations. This concept, that organizations, in general, and larger organizations more strongly, are not easily shifted in their paths, has been discussed extensively by most modern theorists and researchers. The general findings discussed earlier support such a view, as does the evident reluctance of large organizations to utilize findings of potential value - even great and demonstrated value - when it is brought

to their attention. It is not merely the case that their ability to innovate may suffer, but that the application of innovations finds serious resistance within the very heart of such institutions.(72)

One view of the general problem has been developed by Schon:

Technological innovation attacks the corporate society at all levels. The corporate society is built to function on the model of the productive process - that is to say, in a manner that is rational, orderly, uniform, and predictable. But invention and innovation are nonrational processes that resist control. They are precisely what cannot be managed...(73)

But these problems are demonstrably more severe in large organizations than in small, other things being equal. The flexibility, stimulation and rewards which are needed to encourage or utilize innovations come much more easily to smaller groups.

The most obvious proof that large organizations are not well adapted to innovative activities is the extent to which such companies have been attempting to set up structures aiming to offer the advantages of small size within the broad constraints of the firm. The trend toward decentralized profit centers, venture development units, project management systems and the like is clear and widespread. It is not nearly so clear, however, that these techniques are truly effec-

tive. So long as that supposedly autonomous unit is subject to criteria meeting the requirements of the parent, it cannot in fact replicate either the reality or the experience of that same group working truly independently (in the control sense - obviously they are subject to important market forces). This is not to say that such approaches are not useful; indeed they are. But they cannot achieve their major goal. In fact, such techniques have been only partially successful. To quote Bannock once again:

The divisional venture system, like decentralized control and all the other attempts to simulate the small competitive corporation within the large, are only palliatives and could only succeed fully at the expense of breaking up the corporation.(74)

It is fair to point out, however, that some small firms, which are specialized suppliers of component parts, are the very opposite of independent. They are highly dependent on one or a few much larger firms who constitute essentially the whole market for their product. The larger firms, by this means, obtain the benefits of smaller facilities operated exclusively in their interest, while being free to cut them adrift or purchase less if their own purposes would thereby be better served. Monopolistic practices of this sort are perhaps less obvious than the more notorious evils of monopoly, but they are no less destructive. In any case, the prevalence of this practice (for example, in the automobile in-

dustry) makes clear the economic production value of smaller units, along with diseconomies due to too-close association with large firms and concentrated industries. Relationships in which the parties differ enormously in power are generally equally skewed with respect to the benefits derived, a fact which is as obvious in economic life as political.

That firms often place control and power benefits above those more narrowly associated with efficiency is also indicated by the results from a major study of corporate decision-making, with respect to the classic problem of making vs. buying (i.e., is it cheaper to purchase a component externally or set up to produce it internally). Data showed that the actual decisions reached in most of the cases evaluated were not consistent with the purely economic results. One of the authors of that study testified that "businessmen typically make more items than they are wise to make and, therefore, dissipate a sizable amount of resources." That is, from the standpoint of economic efficiency, many components which are produced by a firm for further modification can be produced more cheaply by other more specialized and typically smaller firms. Such decisions may be perfectly rational from the viewpoint of the larger entity, which has an interest in extension of its control and in growth, but such an attitude cannot be justified on competitive economic ground.(75)

Returning to the issue of scale as such, one notes at once that virtually all of the new forms of organization and the processes that underlie them, are more adaptable to small than large entities. This includes, for example, profit centers, matrix organizations, self-managed units, task groups, and contingent reward systems. It is not unreasonable to conclude that (1), new developments in task organization are universally based on forming more flexible, personal, and open relationships among members and (2), this is consistent with and related to new structures which attempt to convert large entities into collections of smaller groups in which face-to-face relationships can be built and maintained. As noted earlier, it is the temporary system which is seen as responsive to the new needs, since in the large organizations characterizing much American (and certainly industrial) life, there is no option but that small subsystems be temporary, if only because there is a continuing necessity to assure even better interconnection among the parts. However, much of this problem would be obviated by smaller organizations, since these problems of role, function, and connection are enormously reduced, in exponential ratio to the number of people and units. As to the efficiency of the various alternatives to conventional bureaucracy, much has been written. The general conclusion is that, although there is much yet to learn, every sign suggests that alternative forms of work organizations can

be as or more economically productive while greatly enhancing the value of that experience to those involved.(76)

At this point, it is possible to return to the question of x-efficiency, and its variation with scale of firm. It seems clear that the major sources of x-efficiency are first; costs and problems of communication and information flow; and second, human problems stemming from complex sources but clearly including overspecialization, inadequate understanding of the total entity, and suboptimizing tendencies which follow from greater identification with smaller units. In any case, both of these factors increase in importance with size, and probably quite rapidly. It therefore seems likely that x-efficiency itself will decrease with size and scale, or, to put it otherwise, that the gap between potential and actual performance is likely to increase (at least from this source) with size.

Against this, perhaps, must be weighed the possible increases in efficiency or effectiveness from two other sources; first, increased information access and processing capacity, and second, ability to utilize specialized human resources not economically available to smaller organizations. Clearly, these effects are real, in and of themselves. However, that is not to say that the benefits are necessarily realized. In the case of information, it can be argued that its use - dissemination, interpretation, and timely availability - is sub-

ject to the same internal costs and defects, and the same self-image problem described earlier. Indeed, data indicate that diffusion of information is slower as organizational size increases. As to specialized resources, data on conglomerates indicate that this presumed effect does not exercise sufficient beneficial influence to offset problems from other sources, although more research could profitably be used to this connection. In any case, it is also clear that smaller firms can acquire the same expertise by buying it as necessary from specialized business service firms, which are increasing in number, scope, and range of services.

CONCLUSIONS

These findings can be summarized as follows:

1. Firms operate substantially inside their production frontiers. Significant gains in productive efficiency can therefore always be made.
2. Both the number of innovations per resource unit used and the extent and rate of their application are greater in small or medium-sized than in large firms.
3. Planning is likely to be more responsive to social needs if carried out by modest-sized firms. Moreover, efficient production of major products (e.g., the automobile) does not require enterprise of the scale which now exists in the U.S.

4. Available data indicate that as size increases, worker satisfaction and mental health decrease, and less constructive behavior (strikes, etc.) increases.
5. In general, increased organizational efficiency and the capacity of organizations to utilize human resources are more consistent with small than large entities.

Overall, then, studies of firms' operations in general and with regard to specific critical functions do not conform to the hypothesis of increasing returns to scale. On the contrary, much of the data suggests serious diseconomies of large scale. Final conclusions, however, must be deferred until the relationship between firms and their environment is explored in more depth. Chapter III turns to this topic, particularly as to the links connecting productive entities to consumers of the goods produced, and the impact of size and scale on those connections.

NOTES TO CHAPTER II

1. Robert Dorfman, Prices and Markets, Englewood Cliffs, N.J., Prentice-Hall, 1967, pp. 67-68. Of course, no one assumes that the production function is either known with precision or ideally followed, but the assumption is that businesses, by and large, operate sufficiently close to their production frontier that attention can shift to the exogenous variables influencing the firm.
2. Calculated from U.S. Statistical Abstract; 1972, Washington, D.C., Government Printing Office, 1972, table 1137. The point is that the marginal utility of excess fixed investment is actually negative, since it contributes nothing to actual production while incurring costs (e.g., interest, maintenance).
3. See, for example, Alan S. Manne, Investment for Capacity Expansion, Cambridge, M.I.T. Press.
4. Harvey Leibenstein, "Allocative Efficiency vs. X-Efficiency," American Economic Review, June 1966, p. 413. Leibenstein concludes, in the paper, that the increased national income or product which would derive from perfect allocation of resources is only of the order of one percent. See also, on the different focus of businessmen vs. economists, John P. Shelton, "Allocative Efficiency vs. X-Efficiency: Comment," in American Economic Review, Dec. 1967.
5. Leibenstein, "Efficiency," p. 404. See also, for example, International Labor Organization, "ILO Productivity Missions to Underdeveloped Countries," International Labor Review, Part I, July 1957, pp. 1-29, Part II, August 1957, pp. 139-166.
6. Leibenstein, "Efficiency," pp. 412-413.
7. Much work is being done to explicate the observed behavior of real firms. From the point of view of economics, much of this takes the form of ascertaining what utility function, if any, firms attempt to maximize. The work of Oliver E. Williamson is particularly interesting in this regard. See, for example, his The Economics of Discretionary Behavior, Englewood Cliffs, N.J., Prentice-Hall, 1964. A very good analysis of the actual operation of a modern firm given by a sociologist is that of Wilbert E.

RELATIONSHIP BETWEEN R & D EXPENDITURE
AND NATIONAL PRODUCT

Table N-1

	(1) R & D Expendi- ture excluding defense, atomic and space \$ million 1963	(2) Total R & D Expenditure as % of GNP in 1964	(3) R & D Expendi- ture from Col. 1 as % of GNP in years there indicated	(4) Growth of real GNP per head % p.a. 1953-65	(5) Comparative Levels of real consump- tion per head. US=100 1965
United States	7805 (1963-4)	3.4	1.3	1.7	100
United Kingdom	1296 (1964-5)	2.3	1.4	2.5	69
France	715	1.9	0.9	3.8	69
West Germany	1178 (1964)	1.4	1.2	4.9	68
Japan	865	1.4	1.3	8.3	41
Italy	230	n.a.	0.5	4.6	46

Moore, The Conduct of the Corporation, N.Y., Vintage, 1962. It should also be noted that even in the absence of joint goals, equilibrium may not be possible for some situations in a perfect market. See John S. Chipman, "The Nature and Meaning of Equilibrium in Economic Theory," in Don Martin-dale, ed., Functionalism in the Social Sciences, The American Academy of Political and Social Sciences, Monograph #5, Philadelphia, February 1965, pp. 35-64.

8. Ralph Winter, "The Lean Look: Companies Find They Can Operate Effectively with Fewer Employees," The Wall Street Journal, March 8, 1972.
9. Andrew Hacker, The End of the American Era, N.Y., Atheneum, 1971, p. 50.
10. Much of this is due, as noted elsewhere in this work, to potential changes within the organizational structure of the firm. At present, considerable effort is being expended on what is usually called "industrial democracy" or increased participation by non-management employees in the decision-making of the firm.
11. Joseph Schumpeter, Capitalism, Socialism, and Democracy, 3rd ed., N.Y., Harper Torchbooks, Harper and Row, 1962, p. 84.
12. John K. Galbraith, American Capitalism, Boston, Houghton Mifflin, 1952, p. 91.
13. John K. Galbraith, The New Industrial State, N.Y., Signet Books, The New American Library, 1967, p.43.
14. John Jewkes, David Sawers, and Richard Stillerman, The Sources of Invention, 2nd edition, N.Y., W.W. Norton, 1969, p. 227. There have been, however, many well-known people prone to precisely the same view (as Galbraith's) concerning the beneficial effects of large organizations. A good case in point is David E. Lillienthal, Big Business: A New Era, N.Y., Harper and Brothers, 1952.
15. See for a comprehensive discussion of this issue, Competitive Problems in the Drug Industry, Senate, Subcommittee on Monopoly, Hearings, Part 5, 1968.
16. See Jewkes et al., Sources, pp. 123ff and Jacob Schmookler, Invention and Economic Growth, Cambridge, Harvard University Press, 1966. It should be pointed out that patent statistics are notoriously unreliable guides to invention per se, either as regards quality or quantity. Schmookler has a

useful discussion on this point, in Chapter II.

17. Jewkes et al., Sources, p. 199. See also Graham Bannock, The Juggernauts, Indianapolis, Bobbs-Merrill, 1971, pp. 170-190, and table N-1, taken from Bannock, p.175. It is not claimed that a simple relationship exists between R & D expenditures and growth, but these data certainly suggest that more money expended is not equivalent to results gain- or greater economic progress overall.
18. Testimony of Dr. Jacob Schmookler, Economic Concentration, Part 3, Senate Subcommittee on Antitrust and Monopoly, Hearings, 1965, p. 1259.
19. Richard Nelson, Merton Peck, and Edward Kalachek, Technology, Economic Growth, and Public Policy, Washington, D.C., The Brookings Institution, 1967, p. 71.
20. Frederick M. Scherer, Testimony, Economic Concentration, Part 3, Hearings, p. 1200.
21. Jewkes et al., Sources, pp. 141-142.
22. Arnold C. Cooper, "R & D Is More Efficient in Small Companies," in Harvard Business Review, May-June 1964, pp. 78,79,81.
Aside from the above direct references, the following are useful in support of the same point. Daniel Hamberg, R & D: Essays in the Economics of Research and Development, N.Y., Harper and Row, 1968; and the FTC Staff Report on Corporate Mergers, Washington, D.C., 1969.
23. Fritz Machlup, The Production and Distribution of Knowledge in the United States, Princeton, N.J., Princeton University Press, 1962, p. 164.
24. Samuel Hollander, The Sources of Increased Efficiency: A Study of DuPont Rayon Plants, Cambridge, M.I.T. Press, 1965, pp. 203-204.
25. Ibid., p. 201.
26. Willard F. Mueller, "The Origins of the Basic Inventions Underlying DuPont's Major Product and Process Innovations, 1920 to 1950" Economic Concentration, Part 3, Hearings, p. 1458.
27. Ibid., p. 1133. See also John M. Blair, Economic Concentration, pp. 199-227.

28. Sumner Myers and Donald G. Marquis, Successful Industrial Innovations, National Science Foundation Report #69-17, Washington, D.C., 1969, p. 29.
29. Quoted in Morton Mintz and Jerry S. Cohen, America, Inc., N.Y., Dial Press, 1971, p. 66.
30. Proceedings, Venture Capital and Management, 2nd. Annual Boston College seminar, 1970, p. 97.
31. Frederick de Hoffman, "Advanced Technology and American Business: Friend or Foe?" in A.W. Warner et. al., eds., The Impact of Science on Technology, N.Y., Columbia University Press, 1965, p. 95.
32. Rodney H. Grady, "Computers in Top-Level Decision-Making," Harvard Business Review, July/August 1967, p. 67.
33. Cabinet Committee on Price Stability, Industrial Structure and Competitive Policy, Staff study paper #2, 1969, p. 67.
34. Aaron Wildavsky, "Does Planning Work?," The Public Interest, #24 Summer 1971, p. 101. This quote actually does not go far enough; the function of planning may not always be to make the future different than it would otherwise have been, but to maximize the likelihood that it will take a specific form. A degree of overkill may therefore be present since we also cannot be sure that any particular strategy will in fact work.
35. This is a verbal statement of several quantifiable propositions in information theory. Their extension to planning in this way would be of considerable value in deriving guide lines for levels of planning (size and complexity of the system for which the planning exists) and time-related variables (rates of change in environment and response capability), to set the limits of planning in principle.
36. John K. Galbraith, The New Industrial State, pp. 87-88.
37. Ibid., pp. 44-45.
38. Ibid., pp. 110, 113. There have of course been many responses to Galbraith's arguments, in his whole body of work since American Capitalism. A representative collection is contained in Charles Hessions, ed., Galbraith and His Critics, N.Y., Signet Books, New American Library, 1972.

39. Edward A.G. Robinson, The Structure of Competitive Industry, Revised edition, Chicago, University of Chicago press, 1958, p. 44. This point of view, which can be found routinely in such places as the reports of the Senate Small Business Committee, in effect relegates such firms to the interstices of the core economy. Part of this is a reflection of the conventional definitions of "small," which imply one-man coordination and administration, but in part it is also due to the assumption, challenged throughout this study, that larger firms are generally more efficient where quantity of production justifies their larger size.
40. Warren G. Bennis, Changing Organizations, N.Y., McGraw-Hill, 1966, p. 12. There is an extensive literature on this point. See, for example, Bennis and Slater, The Temporary Society, N.Y., Harper and Row, 1968; Rensis Likert, New Patterns of Management, N.Y., McGraw-Hill, 1961; Donald A. Schon, Beyond the Stable State, N.Y., Random House, 1971; and the extensive writings of Chris Argyris of Harvard University.
41. Paul R. Lawrence and Jay W. Lorsch, Organizations and Environment: Managing Differentiation and Integration, Boston, Harvard Business School, 1967, p. 158.
42. Alfred D. Chandler, Jr., Strategy and Structure: Chapters in the History of the Industrial Enterprise, Cambridge, M.I.T. Press, 1962, p. 16. Considerable work has been done on the relationship between the organization of the firm and the demands it faces. Chandler's work has been extended to other countries in a series of D.B.A. dissertations at the Harvard Business School under the general supervision of Prof. Bruce Scott. From an economist's viewpoint, see particularly Oliver E. Williamson, "Managerial Discretion, Organization Form, and the Multi-Division Hypothesis" in Marris and Wood, eds., Corporate Economy, pp. 343-386. Also, Joan Woodward, Management and Technology, London, Her Majesty's Stationery Office, 1958.
43. Galbraith, The New Industrial State, p. 115.
44. Joe S. Bain, Barriers, p. 245.
45. Statistical Annual of the U.S.: 1972, table #850.
46. Richard Caves, American Industry: Structure, Conduct, Performance, 2nd edition, Englewood Cliffs, N.J., Prentice-Hall, 1967, p. 111. The original source of these data was F. M. Fischer, Z. Griliches, and Carl Kaysen, "The Cost of Auto-

- mobile Model Changes Since 1949," American Economic Review, May 1962. See also John M. Blair, Economic Concentration, pp. 334-338 and elsewhere for extensive information on this subject as developed through testimony and information provided by the automobile companies themselves.
47. Graham Bannock, The Juggernauts, p. 117.
 48. It is interesting to note that the organizational innovations in the automobile industry tend to come from these smaller foreign companies, as witness Saab's new assembly plant built around teams of workers rather than assembly lines as such.
 49. Bannock, The Juggernauts, p. 115.
 50. It is instructive to note that calculations of rates of return of the ten largest firms in the automobile industry between 1959 and 1963 showed American Motors at the top of the list with a return on assets of 19.9 percent (G.M. was 18.9, Ford 15.1, and Chrysler 6.5 percent). See Economic Concentration, Part 4, Hearings, p. 1755-1756.
 51. Allen T. Demaree, "Steel: Recasting an Industry Under Stress," Fortune, March 1971, p. 76.
 52. Richard J. Bolan, "Emerging Views of Planning," Journal of the American Institute of Planners, 33, #4 (July, 1967), p. 243.
 53. John Friedmann, "Notes on Societal Action," Journal of the American Institute of Planners, Sept. 1969, p. 315.
 54. F.E. Emery and E.L. Trist, "The Causal Texture of Organizational Environments," Human Relations, 18, #1 (1965), p. 31.
 55. Robert A. Rosenthal and Robert S. Weiss, "Problems of Organizational Feedback Processes" in Raymond A. Bauer, ed., Social Indicators, Cambridge, M.I.T. Press, 1966, p. 321.
 56. Special Task Force to the Secretary of Health, Education, and Welfare, Work in America. Cambridge, Mass., M.I.T. Press, 1973. There was at about the same time a series of hearings in the Senate; Worker Alienation, Subcommittee on Employment, Manpower, and Poverty, Washington D.C., 1972. For other recent work on the subject, see Harold L. Sheppard and Neal Herrick, Where Have All the Robots Gone? N.Y., The Free Press, 1972; Richard Sennett and Jonathan Cobb,

The Hidden Injuries of Class, N.Y., Knopf, 1972; Paul Blumberg, Industrial Democracy, N.Y., Schocken, 1969; Georges Friedmann, Industrial Society, N.Y., The Free Press, 1955.

57. The data are from Arthur Kornhauser, Mental Health of the Industrial Worker: A Detroit Study, N.Y., John Wiley, 1965. Kornhauser comments that "...through all these comparisons (of alternative determinants of measured mental health) size shows up as the strongest determinant." (p.112). The figures at the end of the paragraph are from table 6-2, p. 113. See also, for a more focused paper drawing heavily on Kornhauser's results, Charles Hampden-Turner, "The Factory as an Oppressive and Non-Emancipatory Environment" in Gerry Hunninus, G. David Garson, and John Case, eds., Workers' Control: A Reader on Labor and Social Change, N.Y., Vintage, 1973.
58. Uri Leviatan, "The Industrial Process in the Israeli Kibbutz," Center for Social Research on the Kibbutz, Givat Haviva, Israel. These figures should be interpreted with considerable caution. Kornhauser, Mental Health, includes many data indicating very high stated levels of job satisfaction within certain worker categories, but the overall range of responses is great. It appears at a relatively casual inspection to be fairer to say that dissatisfaction is lower in the Israeli case.
59. Seymour Melman, "Industrial Efficiency Under Managerial vs. Cooperative Decision-Making: A Comparative Study of Manufacturing Enterprises in Israel" in Studies in Comparative Economic Development, Beverly Hills, Sage Publications, 1969.
60. R.W. Revans, "Human Relations, Management and Size" in G.M. Hugh-Jones ed., Human Relations and Modern Management, Amsterdam, North Holland Pub. Co., 1958, pp. 177-220; R. Marriott, "Socio-psychological Factors in Productivity," Occupational Psychology, 25 (1951), pp. 15-24; D. Hewitt and J. Parfit, "A Note on Working Morale and Size of Group," Occupational Psychology, 27, (1953), pp. 38-42; E.J. Thomas, "Role Conceptions and Organizational Size," American Sociological Review, 24, (1959), pp. 30-37. See also, for a summary of those and other studies, Bernard P. Indik, "Some Effects of Organization Size on Member Attitudes and Behavior," Human Relations, 16, (Nov. 1963), pp. 369-384.
61. Kornhauser, Mental Health, pp. 75-76.
62. See, for example, HEW Task Force, Work in America, Blumberg,

- Industrial Democracy, Alfred J. Marrow, David G. Bowers, and Stanley E. Seashore, Management by Participation, N.Y., Harper and Row, 1967; and Louis E. Davis and Eric L. Trist, "Approaches to Improving the Quality of Working Life," commissioned for the HEW Special Task Force on Work.
63. Leibenstein, "Efficiency," p. 407.
 64. Adam Smith, The Wealth of Nations, Homewood, Ill., Richard D. Irwin, 1963, p. 284.
 65. "The Spreading Lordstown Syndrome," Business Week, March 4, 1972, p. 69.
 66. Robert Blaumer, Alienation and Freedom: The Factory Worker and His Industry, Chicago, University of Chicago Press, 1964, p. 33.
 67. Jacob Schmookler, "Market Structure and Technological Change," in Mansfiel, Monopoly Power, p. 61.
 68. This was during a conversation between the executive mentioned, the author, and Rosabeth Kanter, Brandeis University, as part of a consulting project. It took place in the spring of 1972.
 69. Myers and Marquis, Industrial Innovations, p. 31.
 70. Kenneth J. Arrow, "The Economic Implications of Learning by Doing," Review of Economic Studies, 29, (June 1962), pp. 155ft. A similar case is mentioned by Leibenstein, "Efficiency," p. 398.
 71. Robert L. Kahn et al., Organization Stress: Studies in Role Conflict and Ambiguity, N.Y., John Wiley and Sons, 1964, p. 394. Bennett Harrison of M.I.T. has made the interesting suggestion in this regard that taking literally the concept of cost of coordination would permit an economic analysis of the behavior of the firm, the results of which might more clearly indicate the diseconomies of scale.
 72. There is much available material on the problem of resistance to change. For general references, see Gordon L. Lippitt, Organizational Renewal: Achieving Viability in a Changing World, N.Y., Appleton-Century-Crafts, 1969; Gene W. Dalton et al., eds., Organizational Change and Development, Homewood, Ill., Irwin, 1965. A very good

treatment of this problem through the use of case studies is Elting E. Morrison, Men, Machines, and Modern Times, Cambridge, M.I.T. Press, 1968. Robert Schlaifer has made a very specific point in the following extract from his testimony at the Senate Hearings on Economic Concentration, Part 3, p. 1235.

...decisions to undertake, continue, or drop any project for radical innovation must usually be made by top managers or by managers very near the top...This means that the large companies in any industry, being necessarily few in number, simply cannot consider, let alone act appropriately on, all proposals worthy of careful consideration.

73. Donald A. Schon, Technology and Change, N.Y., Delacorte Press, 1967, pp. 64-65.
74. Bannock, The Juggernauts, p. 188.
75. Dr. Alfred R. Oxenfeldt, Economic Concentration, Part 4, Hearings, p. 1589. See also the book which expands on these findings; Oxenfeldt and Myron W. Watkins, Make or Buy: Factors in Economic Decisions, N.Y., McGraw-Hill, 1956.
- This is essentially the point made earlier, in Chapter I, which has to do with the structure of industry. The present thesis is essentially that smaller and more specialized firms (both as to product and market) are not only in themselves more efficient, but that they combine to create a more efficient system. Obviously, it is "rational" for producers to extend their control over resources and markets, both to enhance their own profits and power, and to minimize risk. Monopolies, cartels, mergers and restrictive agreements are among the results of this kind of rationality. However, none of these things are clearly identical with or even consistent with the highest level of attainable efficiency either in technical or social terms.
76. On this, the cited works by Blumberg and Kornhauser are particularly relevant, as is the reader edited by Hunnius, Garson, and Case, Worker's Control. See also Charles Hampden-Turner, Radical Man, Cambridge, Schenkman, 1971.

CHAPTER III
FIRMS, MARKETS, AND MARKET POWER

Thus far, little has been said about the firm as it interacts with the market environment in general and its customers in particular. Yet this is critical to efficiency since the latent value of a product is only realized when it is made manifest by a consumer's use. This is all the more important in the present context since final sections will begin to explore the possible advantages of different relationships between the producer and consumer (e.g., via community controlled firms). This chapter therefore explores the changing nature of the American marketplace, the importance of non-production costs (distribution, promotion, sales), and the effect of size on market power.

THE CHANGING MARKET PLACE

At the beginning of 1971, Fortune Magazine launched an important series of articles, called "The U.S. Economy in an

Age of Uncertainty." In it, among much else, was the following passage:

There is, in fact, more uncertainty about the possible course of the economy over the next ten years than there was at the beginning of either of the two preceding decades - uncertainty both over the size of the economy and its composition.(1)

Although Fortune's prime focus was on the social, political, and technological trends as they will influence the GNP and its components, there is a more pronounced basis for that uncertainty. It involves a shift in expenditure (business and individual) from goods and services conceived as commodities, generally useful products marketed to large groups, to specialties, more nearly tailored to specific individual wishes and desires. The uncertainty, in short, is due to the breakdown of the mass production, mass consumption economy and its replacement by a more diversified and rapidly changing structure of demand.

The fullest flowering of the Industrial Revolution was implicit in Henry Ford's dictum; "You can have a Ford in any color you want as long as it's black." By the early 1960s in contrast, the number of combinations of routine options available exceeded the total production of the entire Ford model year. It is unlikely that automobiles will be produced largely in small local companies, but it is not by accident

that the industry - one of the classics arguing for the benefits of large scale - has developed strategies to meet increasingly unique and even capricious personal desires. For one thing, of course, it is in the company's interest to produce what seem to be new and different versions of the same old product, but a price is inevitably paid every time an additional option is introduced, or distinctions made among otherwise identical units. Mass production and the modern assembly line offer their greatest technical advantage when the products so manufactured are precisely identical.(2)

The cost of any such changes are passed on to the purchaser, whether directly as in a given additional charge for an option, or indirectly, as in choice of color. That is, no direct cost is added on for that latter option, but it becomes an additional item of internal expense reflected in the overall price to all consumers.(3) The fact of the matter is, whether one is in favor of extensive choice or not, its presence generally reduces the extent to which large plants are more technically efficient. Moreover, these optional features are also a part of the general industrial scene. Sheets and pillowcases (still known as white goods in deference to their original uniformity) are produced in a vast array of colors and patterns; appliances not only are available in colors, but with their own increasing numbers of "features."

A remarkably broad array of changes in purchasing

patterns demonstrate the same trend. Antique shops, auction sales, and art galleries have grown very rapidly since W.W.II. In fact, antiques, as we now use the term, were nearly unknown before 1940. Older things were bought as art or because of their historical/cultural value; other objects were simply second-hand. And it is not merely that art sales have generally increased; those types of art attracting broadest consumer interest and growing fastest are graphics, prints and multiples because true originals in the classic sense are too expensive for any but the wealthy, and too scarce to satisfy any but a few of the large group wishing to acquire them. The striking event is not that more "wealthy" people buy art, but that the consumer base has broadened to include other classes.

Some figures help make this apparent. Alvin Toffler, in a study of these phenomena, reached the following conclusions:

Americans spent or donated, all together, a rock-bottom minimum of \$3 billion for culture (music, art, books, etc.) last year (1960), a figure that excludes public funds and business gifts - this sum is 70 percent more than the comparable estimate for (1950). This rate of growth was nearly four times greater than the rate of population growth during the decade.(4)

He also added, quoting from a study by Arnold Mitchell of Stanford Research Institute, that "the trends toward culture will create a total arts market of about \$7 billion by 1970."

Perhaps most startling of all is an advertisement which appeared in the Wall Street Journal offering a "guaranteed investment with an antiques franchise" and which required "no need for knowledge of antiques."(5)

If one looks at more traditional consumer goods, like cleansers and cosmetics, the number of such products available on market shelves has increased enormously. Moreover, these once-established markets have been segmented into dozens of differentiated sub-categories, quite aside from brand names, the numbers of which have also grown markedly. Distinctions are now routinely made as to applications, style, color, flavor, texture, method of applying or using, and size - all quite aside from price. In drug and grocery outlets only, there are some 6,000 products a year - more than twice the figure of 10 years ago, and it is expected that during the 1970s, a further 120,000 new products will be introduced in supermarkets alone.(6) The turnover of products in the supermarket is phenomenal. In 1966, some 7,000 new products became available. Put another way, 55 percent of all items sold there in 1970 did not exist in 1960, and 42 percent of all items then available have disappeared.(7)

This trend is driven primarily by a revolutionary change in attitude and awareness on the part of most Americans. In particular, as we enter the era of what Marshall McLuhan has called the "global village," more people are turning to the

use of purchasing decisions to create highly personal lifestyles and to provide at least the outer illusion of individual distinction in the face of an enormously enlarged peer group. As Victor Ferkiss has written:

In culture, as in politics or economics, what we find is not conformity, standardization and centralized control, as the proponents of the mass-society hypothesis allege, but diversity to the point of incipient cultural breakdown.(8)

Or, as a report from the Stanford Research Institute put it:

It more seems evident that the better off and better-educated groups are consciously turning away from mass conformity...The trend away from conformity toward individuality and self-expression should gain impetus...as levels of affluence rise.(9)

And a story in the New York Times, titled "Selling to the Individual," concluded that:

- the consumer's individuality - and catering to it - will be one of the dominant themes in the retail sales-promotion area in years to come.(10)

One underlying shift which has occurred in the American economic system is that in disposable income and its distribution. Without sufficient and discretionary purchasing power, none of these options would be possible. In fact, even over the last 15 years or so, the level and distribution of real

money income has undergone a nearly revolutionary change. For example, total real disposable (after direct and indirect taxes) income expressed in 1970 dollars rose by 72 percent between 1955 (\$399 billion) and 1970 (\$685 billion). Disposable income per capita increased by 44 percent over the same period, from \$2,410 in 1955 to \$3,460 in 1970.(11) Although this seems modest, when the change in distribution of family income over the same period is noted, as shown in Table III-1, the real effect becomes apparent. In short, close to 50 percent of all American families had in 1970 a money income over \$10,000 per year, whereas in 1958, that was true of only 25 percent, and the percentage of families with real annual incomes over \$15,000 has more than tripled in those 12 years.

That change in the distribution of income has greatly increased the purchasing flexibility of most American families. There is every reason to suppose that this trend will continue, at least for the foreseeable future. It is therefore clear that the forces leading both individuals and organizations toward increased use of purchasing options as expressions of individual interest are supported by an increasing financial capability to exercise those options.(12)

Business, of course, has often been seen as the cause of this situation. It is argued that business creates more demand, via advertising, promotion, and various marketing techniques, in the process turning people into consumptive machines,

CHANGE IN DISTRIBUTION OF
FAMILY INCOME OVER TIME

Table III-1

<u>Family Money Income,</u> <u>Before Taxes</u>	<u>Percent Distribution of Family</u> <u>Income, Before Taxes,</u> <u>In Constant (1970) Dollars</u>			
	<u>1958</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>
Under \$5,000	32.0	29.7	24.1	19.3
5,000-10,000	44.8	41.4	36.9	31.7
10,000-15,000	16.2	19.5	24.3	26.8
Over \$15,000	6.8	9.5	14.6	22.3

Source: "Consumer Income", Current Population Reports, Bureau of the Census, May 20, 1971.

independent of need or real value of the object "consumed." Without denying some truth in that argument, it must be said, as previous remarks have attempted to demonstrate, that the situation is not quite so simple. Despite the pressure from business, people consume in ways that do not uniformly conform to business interests.

One must distinguish an omnivorous appetite to consume from peoples' very real and important psychological need to express their own individuality, in part through shaping their material environment; that is, by acquiring material goods which can be incorporated into one's life space. To quote Simmel:

Every property is an extension of personality; property is that which obeys our will, that in which our egos express, and externally realize themselves.(13)

Thus, the reason why marketing works at all is because it draws on fundamental psychosocial needs, and not merely because of the Machiavellian genius of business enterprise. In any case, the ultimate proof of this proposition is the fact that business enterprises themselves are caught in a difficult situation, which poses enormous challenges to their capacity to survive in present form.

From the companies' point of view, the critical issue is that in broad areas, the total market has not risen nearly

as fast as its segmentation, and both manufacturers and merchandisers are caught in a situation neither to their liking nor their benefit. Since the market targets for new products are decreasing in size, being smaller and more specialized sectors in a broad category, the likelihood of making a profit on any one product is shrinking. At present, it is estimated that over 80 percent of all new products actually introduced to the market will fail, not to mention the far greater number yet which are killed before that point. In total, some \$15 billion are spent annually in this process.(14) The effect overall is clear; available markets for many given items are shrinking and firms with smaller production capability can compete more effectively.

It should also be noted that industrial products - as opposed to consumer - are feeling the same pinch. Business Week, in a major report on the new product problem, quoted Magnus E. Robinson, general manager of the Polymers Division of Shell Chemical Co., as follows:

- more than ever before, the challenge is to know the individual needs of the industry you market to...You risk virtually having to make a new product for every different application by every type of industrial customer.(15)

All of these effects place greater importance on close relationships between producer and consumer, or innovative functions like research and development, than on the organization's

ability to produce vast quantities of identical products at the least possible price. The relevant effects of scale thus become very different from those conventionally observed.

New strategies are being developed in an attempt to cope with these new demands. For example, in an article on marketing and its relation to new product development, Norman Barnett made a strong argument for a shift in focus, from looking at markets as generalized groups of customers defined by demographic and economic parameters, to "consumers' perception of products" as offering particular values to them.(16)

This is not easily done, given the present structure of American industry. Business Week, in a major article on consumer behavior, had this to say:

For companies that serve the consumer's needs, the challenges are stupendous. There is the obvious problem of simply trying to cope with the consumer's bewildering diversity of tastes. For large manufacturers, this involves no less than learning to custom-build on a mass basis and to switch over to what urbanologist Jane Jacobs calls "differentiated production."(17)

This very focus on "custom-building on a mass basis" raises the most serious questions about the size of economic units most suited to doing it. Since business grew large by learning how to develop, produce and market products for true mass consumption, the breakdown of that market suggests that present requirements could be better served by other - smaller - units.

That follows for two reasons. First, the structure, or-

ganization, specialization of function, technology, and experience derived from producing the largest quantities of identical products for wide distribution to undifferentiated consumers is increasingly inappropriate as both products and consumers become more individually treated. Such a change is not at all easy, and firms setting up specifically to meet the latter sort of demand would be expected to offer superior performance in any but the very long run (where other firms could conceivably learn appropriate behavior). Second, the scale of effort for differentiated production would itself ideally be smaller, as would such ancillary functions as sales, marketing, product planning, and distribution. This is due to the fact that as markets become more segmented, they come continually closer to the ideal field of action for smaller firms, which are much better suited to close relationships with customers, assessment of specialized demand, and production of more highly tailored products.

This, of course, says nothing of the competitive effect which these proliferating products generate in some fields. A substantial number of companies - especially large ones - are dropping product lines in which they were once predominant and more often than not leaving the field to much smaller and more specialized organizations. Consider home appliances, for example, the total market for which was about \$16 billion in 1971. During the last year, General Electric Co.

(presently the 4th largest U.S. industrial corporation) cropped entirely vacuum cleaners, electric blenders, fans and heaters, and Westinghouse Electric Corporation (14th largest industrial) eliminated television sets, electric knives and tooth brushes, tape recorders, hot plates, blenders and ultimately all small appliances, even toasters.(18) Although some of these product lines were probably sold to other firms, most of these changes simply represent a drop in the number of competitors in such markets. The market share previously held by Westinghouse and General Electric is then largely picked up by more specialized firms (e.g., Sunbeam) which, though sizable in absolute terms, are much smaller than the giants.

It is also clear that these very large manufacturers are aware that they are simply unable to compete in products which increasingly do not offer the scope for their greater size (and hence, presumed production efficiency) to overcome the advantages of smaller, more flexible organization. These companies, said the Wall Street Journal:

- figure they can do better in their primary markets if they quit trying to do too many other thing. They're getting away from the concept that they have to offer every conceivable product their customers might need...(19)

And, of course, this is related to their greater opportunity to make profits in more controlled markets. To quote John S.

Chamberlain, general manager of GE's housewares division:

After a thorough review, we have concluded that there are opportunities within the scope of our division product responsibility which provide a greater return than exists with these (dropped) products.(20)

It would appear that where serious competition exists, including competition on price, the largest companies can be at a distinct disadvantage.

So far, this work has focussed very largely on the effects of scale on production processes, including both its economic and operational aspects. Discussion of market issues, however, calls attention to the fact that final price of a good to the purchaser is based not merely on the cost of production per se, but also on the costs associated with physical distribution, (including wholesale and retail units) advertising and sales promotion, not to mention profit. To do justice to these subjects would require much more space than can be devoted to them here. However, some indication at least of the relative importance of production costs, vis-a-vis other costs, is required before significant conclusions can be drawn as to the relevance of these overall findings to smaller enterprises.

PRODUCTION IN PERSPECTIVE

If efficiency is taken (as noted in Chapter 1) with reference to the satisfaction of human and social needs, then the costs of production must be balanced against costs from

other sources. These include not only costs of physical transport of goods, but such other items as marketing and sales, research and development, general overhead, and profit for manufacturers, wholesale, and retail firms. Industrial location theory, to take that first, is based precisely on minimizing the total cost of production and transport. In the simplest case, unit costs of production, which up to some point decrease with scale, are compared to unit costs of distribution, which tend to increase (other things being equal) with the size of the area served. Thus, it does not automatically follow that increased returns to scale necessarily justify centralized production facilities. However, if the costs of production are very large as compared to the costs of distribution, it is likely that large centralized plants are justifiable (at least, on those purely economic grounds).

Of course, whatever the specific case, the presence of other costs dilutes the effects of scale. For example, if production costs make up only half the total cost of a good, operation of a smaller plant at a ten percent disadvantage due to too small scale would add only five percent to the customer's cost, assuming no change in other costs. In the particular case of physical distribution and transport, these could even decrease if a smaller area is being served, because such costs tend to rise with distance (but not linearly). Thus, the final increment in price may be smaller yet. In

actuality, cost variations are much more complex, but these basic principles hold.(21)

There are also economies of scale associated with aspects of the firm other than those directly related to production (e.g., distribution, wholesaling, and retailing). Some of these are similar or identical to those enjoyed by production units; for example, the ability to afford specialized management or technical resources. Others are more peculiar to those industries, such as those deriving from the ability to hold large stores of inventory. And equally, whatever power attaches to size, (discussed later in this chapter), is accessible to large service firms. Nevertheless, it is necessary to differentiate such real economies, which can be gained by the individual plant or establishment, from the false claims made for their advantages when agglomerated into larger firms. In any case, this does not diminish the necessity of a tradeoff between production costs and the various distributed costs associated with the delivery of goods to consumers.

The costs directly associated with physical production of a product, then, and it is only these costs to which the economies of manufacturing scale apply, constitute only a part of the whole. It is difficult to assess these costs exactly, since they vary with product, with firm, and with time, and are often associated differently with conventional accounting

categories. With these caveats in mind, however, Table III-2 is an attempt to derive an average breakdown of cost in several lines of business in the absence of transport costs for finished goods. In this table, overhead includes all costs but transport, aside from those directly related to production of the good (for manufacturers) or purchase of it (for merchandisers), which are included in "Cost of Sales". The mean value of cost of sales per dollar of retail sales price for the product classes listed is 0.384; that is, only a bit more than one-third of the final price derives from costs associated with physical production.(22) That is, even if there were no costs associated with distribution of goods to customers, there would be a very considerable dilution of the effects of production scale because of the additional functional and organizational costs associated with present industrial structure. Clearly, when transport costs are considered, the fraction of final consumer cost which represents production as such is smaller yet. A very rough estimate may be derived by noting that the cost of physical transfer of goods is about seven percent of the total market value of consumer goods sold.(23) The markup between production cost at the plant, and final price to consumers, is therefore probably about three times.

The figures in Table III-2 also tend to be conservative, since it is in the interest of every firm to apportion as much capital as possible onto a current account, in order to

FRACTION OF COST ASSOCIATED WITH ELEMENTS OF
BUSINESS PER DOLLAR OF RETAIL SALES PRICE

Table III-2

Products	Manufacturer		Wholesaler/ Distributor Overhead	Retailer Overhead
	Cost of Sales	Overhead		
Malt Liquors	.33	.33	.14	.20
General Apparel	.40	.12	.12	.36
Canned/Frozen Foods	.52	.19	.08	.21
Drugs	.27	.30	.13	.30
Automobile Parts & Accessories	.47	.16	.20	.16
General Hardware	.32	.23	.15	.30
Household Appli- ances	.33	.18	.13	.36
Gasoline/Oil	.43	.22	.11	.24

Source: Calculated from "Cost of Doing Business in 185 Lines," N.Y., Dun and Bradstreet, Inc., 1971.

reduce income tax liability. Moreover, other sources of similar data based on direct analysis of specific companies doing business in these various industries, typically show higher administrative and overhead costs than those reflected in the table, which are based on a statistical sample of income tax returns. It is clear, in any case, that the economies associated with production at different scales has a distinctly smaller effect on the consumer price than appears at first blush.

For these reasons, calculations of scale economies made with respect only to one element of production or distribution of the total process of producing and delivering goods to the consumer can give rise to misleading conclusions. The presence of large additional costs not taken into account dilutes the effect of economies of production scale. Moreover, it is possible that though the individual elements of the system appear to be efficient, the whole system is not. A large manufacturer may well be operating at a size that minimizes production costs by gaining all available economies of scale. The distributor or wholesaler who handles the products from such firms may also be efficient, given the structure of the production sector. However, the total process, measured without regard to firm boundaries, may not be efficient, since there may be opportunities for a different trade-off between size of plant and costs of distribution. Obviously, a facility producing

vast quantities of a product, serving a large market (in the sense of geographic area covered) will also be requiring, on the average, higher costs of physical distribution than several smaller plants distributed through the market territory. In such a case, what is the true measure of efficiency? Clearly, that overall structure of the industry which minimizes total cost to the final consumer.(24)

In fact, the situation of many products can be shown to be much more extreme yet, by considering the private or house brands which many retail outlets offer in direct competition with nationally known products. These are essentially of two types; those made explicitly for a particular chain or retail establishment (e.g., tools and paint for Sears Roebuck, home remedies and toiletries for CVS stores, canned and frozen foods for A & P, etc.) and those provided through an intervening firm for distribution to smaller outlets whose volume does not justify a private house label. In either case, these products are typically equivalent to the national brands with which they compete, and are often supplied by large manufacturers who offer the identical product under their own label, but at a higher price.

Leading corporations - Heinz, Armstrong Rubber, Westinghouse, and many others (such as Whirlpool, G.E. and SCM Corp.) - are allocating more and more of their output to products that are sold under cut-

rate private labels. Often manufacturers use the same materials in these brands as in products sold under their own label.(25)

Comparison of the prices of these two forms of distribution of identical products offers an enlightening insight into the cost structure.

Consumer Value Stores, for example, a chain of discount cosmetic and toiletry outlets in the Northeast, launched a program of private label products in 1970. As Ron Young, who was the vice president in charge of the program, wrote in the initial public announcement:

Our private label products will always be "as good as" or "better than" comparable national brands. The best and best-selling national brand products will be used as minimum standards. They'll be laboratory tested, analyzed and often improved on.(26)

Several dozen products are now available. Table III-3 shows a few comparisons.

Several things are worth noting. The CVS prices for national brands are much lower already than manufacturer's suggested list prices, since CVS is fundamentally a discount chain. For example, the suggested retail price for 100 Bufferin tablets is \$1.67 and for 100 1-A-Day vitamins, \$2.98. Second, the CVS products are all attractively packaged and in no obvious way inferior in appearance or presentation to the national brands (therefore, no great savings are being made by

PRICES, SELECTED PRIVATE VS. NATIONAL BRAND PRODUCTS

Table III-3

Product Description	National Brand			CVS Brand	
	Name	Price	Quantity	Price	Quantity
Vitamin Pills	1-A-Day	2.13	100	1.39	100
Cotton Swabs	Q-Tip	.55	88	.39	90
B Complex and Iron Tablets	Geritol	4.86	100	2.69	100
Aspirin	Bayer	.77	100	.38	100
Buffered Aspirin	Bufferin	1.00	100	.63	100
Extra strength pain reliever	Excedrin	1.46	100	.87	100
Super stainless double-edged razor blades	Gillette	1.29	10	.73	10

Source: Author's survey, June 27, 1972.

cheaper packaging). Third, it is likely, from CVS' own description of its program, that these products, by and large, are being manufactured on order by relatively small firms (such as manufacturing chemists). If this is not the case, and they are in fact being produced by the same type of large firm as the national products, one can still clearly conclude that, at least for products of this class, whatever economies of scale exist in production are being dwarfed by greater costs associated with advertising, promotion, and physical distribution.(27)

The reader may, at this point, enter a caveat. It is possible, first, that the products are in fact inferior to standard brands, either in quality or consistency. Quite aside from CVS claim, which might be taken as an advertising gesture, it would seem that the risk of losing credibility as a reliable source of such products would far outweigh the temporary benefits of increased sales. The second concern, which is more serious, is that the investment in research and development, and in testing of new products necessitates greater prices on the part of the firms making those expenditures, whereas others who merely copy, can do it at less cost. However, one can hardly resist noting that large companies have typically been on the wrong side of that argument, since they routinely buy out smaller firms or private developments to gain for themselves the same advantages, with less risk.(28)

In any event, there are several responses to this argument. One is that some of these products (e.g., aspirin, cotton swabs) can hardly be said to involve great innovations or elaborate R & D. Moreover, such products have been available for many years and whatever special costs have been incurred have presumably long ago been written off. Patents, after all, are valid for only 17 years, not forever, precisely to assure that the benefits which the innovation offers are not permanently monopolized. For another thing, to the extent that the brand name manufacturers are themselves supplying the product, they are presumably not doing so at a loss. It is merely a matter of keeping two sets of books, one of which reflects, at a higher price, the cost of maintaining the brand image, and the other of which reflects simply the production costs. Finally, the very size of the discrepancy makes any such simple arguments unlikely.

In the long run, it is important to study the sources of manufacture of private label products, and their changing price and availability over time. Such data are not presently available except in an occasional instance. However, it is clear that a very great difference in time-related behavior would be observed between identical products provided by name-brand manufacturers as against independent firms not consumer marketing any products of their own. In the former case, firms will presumably sell to private labellers if one, they have

unused production capacity (since marginal cost for these additional units will be far below average) or two, returns to the firm (in terms of its own objective function) are greater from such sales than from sales of its own brand. In the latter case (firms manufacturing solely for private label use), the thrust of this argument suggests that such firms are likely to be relatively local (vis-a-vis their markets) and relatively small, since they would be highly dependent on retailers for maintenance of market share and product promotion. The second case would, however, presumably be more efficient (by the preceding reasoning on scale) at least above some modest size. All of this should be observable by detailed observation. On that basis, more rigorous arguments could be made.

Returning, then, to Table III-3, the disparities between the prices shown are consistent with the large margins in such product lines. However, the same general effect can be seen in packaged foods and supermarket items, although the difference is smaller. In this case, however (food products), more detailed data are available: "In so far as comparative quality tests have been made and reported, distributors' (private label) and manufacturers' brands are essentially equal in quality". Moreover, "although private label products are not necessarily profitable, it is claimed and generally assumed that (they) are more profitable to distributors than are manufacturers' brands". And that is so despite the fact that, as

one survey concluded, "The average retail prices for distributors' brand items were lower (than manufacturers' brands) in almost all cases." A detailed analysis over time of 10 popular products showed such a savings of 21.5 percent on the average.(29)

In some cases, it can be argued that private brand products are really offered as "loss leaders" and might themselves lose money. This argument cannot be made, however, if a line of such products is available. Moreover, as the data noted below about food products indicate, these local brands are felt to be more, not less profitable. Nor is it the case that private brands are a small and unimportant aspect of the manufacturing and distribution system. In fact, they are immensely important in the national market. It has been estimated, by the National Retail Merchants Association, that private labels may represent as much as 60 percent of total department store sales, or some \$42 billion annually.(30)

Any discussion of private labels and brand names, however, raises the general issue of advertising or promotion in general. Although it is certainly true that the present price structure for large-scale use of media reflects a pecuniary economy of scale (e.g., television rates per exposure unit drop as volume purchased rises), this does not satisfactorily deal with the issue. The question is whether large-scale advertising is itself wasteful of resources (and promotes mar-

ket power), and what impact its use has on the competitive alternative proposed here.

THE EFFECTS OF ADVERTISING

To mention advertising is to expose a most perplexing topic. As Telser put it:

Hardly any business practice causes economists greater uneasiness than advertising. Among the many reasons for this feeling is the opinion held by some economists that competition and advertising are incompatible.(31)

In search of clarification or rebuttal of that proposition, much theoretical and empirical work has been done. Despite it all, results have been exceedingly modest in the sense that disagreement on the basic issue is at least as sharp as it was before that research was carried out. Indeed, a recent survey showed that even businessmen tend to feel more strongly than before that advertising is both wasteful and misleading.(32)

For present purposes, it is not necessary to take a strong position on the overall question. Very likely, part of the continuing dispute merely reflects the evident fact that the many kinds and uses of advertising are distinctly different in function and purpose. Correspondingly, the relation between advertising and competition under those very different circumstances can be both direct and inverse. Thus,

Taylor and Weiserb summed matters up as follows:

By now, there is fairly general agreement that... advertising is important as a barrier-to-entry and that advertising does succeed in shifting demand for individual products...

Further, in their own studies they concluded that advertising tends "to increase consumption at the expense of saving."(33)

All three of these conclusions support the value of advertising to firms, but the first two also support the statement that advertising is (or can be) wasteful. Barriers to entry of new competition can offer firms the potential to sell products at prices above what efficient markets would allow, and the shift of demand for individual products leads to the possibility of competition through advertising, the goods in question remaining materially unchanged in the process but becoming overpriced vis-a-vis the situation in the absence of such advertising. Moreover, these two effects offset each other since entry of new firms, which would presumably follow in the latter case, tends to be restrained by the former effect. The issue is, therefore, not whether there is a wasteful component to advertising - clearly there is - but whether it is specifically associated with certain forms of market structure of industrial organization, or alternatively is roughly evenly distributed among all uses of advertising.(34)

The present position adheres to the former alternative. Briefly, the reason is that the two effects noted, which can lead to economically inefficient production, are structural in their very nature. That is, barriers to entry refer to particular market or product sectors and tend to generate market oligopoly and concentration. Similarly, most firms in a given market sector will be forced to advertise their product more or less in step with other competitors in order not to lose market share. It is to be expected, then, that these disfunctional aspects of advertising will be concentrated in certain sectors. This tends to be confirmed by the fact that expenditures for advertising, as a fraction of sales revenues for given products, vary enormously among product categories and it is plausible that industries characterized by substantial advertising are pre-eminently those in which the above-noted effects of advertising exist.

A few specifics will make this clear. In 1968-1969, the mean expenditure on advertising as a percent of sales, for all manufacturing companies, was 1.38 percent. Five product classes (roughly at a 3-digit SIC level of aggregation) exceeded 5.00 percent on the same measure; malt liquors (5.46), tobacco (5.70), bottled soft drinks (5.36), drugs (9.25), and soaps, cleansers and toilet goods (10.06). All of these are non-durable consumer goods, with well established markets and strong brand identification. They are, as well,

inexpensive products subject to frequent and repetitive purchasing patterns. On the other hand, those product categories falling below 0.05 percent were sugar (.43), logging and basic lumber (.25), newspapers (.30), cement (.25), concrete, gypsum, and plaster (.39), primary ferrous metal products (.23), Primary nonferrous metal products (.49), fabricated structural metal products (.46), aircraft and guided missiles (.21) and ships and boats (.44).(35)

With the exceptions of newspapers, which are in themselves a medium of advertising and thus qualitatively different from other consumer goods, and possibly sugar, much of which is sold in bulk to other producers, these products are producer goods, costly unit purchases, and minimally if at all branded, though still well established in their markets. Clearly, there are important structural differences between those product lines involving high advertising content and those not so characterized. These figures also necessarily understate the direct advertising content of individual products, since they refer to aggregates of firms in an industry, and it is clear from the foregoing that advertising is primarily oriented to particular products within the set of firms in a given industry.

For example, in 1971, Noxell Corp. (proprietary drugs and medicated toiletries) spent about 28.4 percent of its sales revenues on advertising. Similarly for Alberto-Culver

Co. (toiletries) 19.0; S.C. Johnson & Co., (cleaning products) 16.4; Lever Brothers (soaps and detergents) 12.4; William Wrigley, Jr. Co. (chewing gum and candy) 12.8; Seven-Up Co. (bottled soft drinks) 14.8; and Mennen Co. (toiletries) 32.5 percent. And all of these figures exclude other important promotional costs such as for packaging.(36)

Clearly, then, large advertising and promotional costs are associated with specific types of industries and are not uniformly distributed. Moreover, these costs can be a very substantial fraction of final price paid by the consumer and therefore, if those costs can be reduced, significant savings can be passed on to consumers. This is, evidently, the basis by which many products can be sold under local or private brands at substantial savings. This argument is pursued below in some detail, particularly as to the criteria which can be established a priori to determine which product categories are subject to competitive attack on this basis. Further support for these ideas can be gained from studies indicating that more extensive advertising is associated both with increased profit, and with reduced risk of loss (both clearly related to market power).(37)

Some of the above issues are more related to absolute size than to relative scale. For example, it is market size that counts, or in a more sophisticated formulation, market density, in calculations dealing with location of plant, or

with amount of output and its relationship to the distributional functions which follow physical production. Human resources within organizations, in particular, are subject to increasing diseconomies as size of unit or number of persons increases. Indeed, as noted, firms struggle mightily to administratively decompose themselves into smaller groups so as to avoid these very problems. Size is not, however, merely a source of problems. It also offers very substantial advantages, at least in the present industrial system. Some attention should therefore be given these since they provide a source of increasing apparent market effectiveness even in the absence of real scale economies.

SIZE AND MARKET POWER

One of the pioneering empirical studies of effects due to scale was due to Blair, whose conclusions were not only that economies of scale are less important than ordinarily assumed, but also that technological trends are shifting the competitive balance more yet in favor of smaller, more decentralized units, at least in all but the continuous process industries. And he added:

...these new techniques, by shifting the point of diminishing returns toward smaller size, will tend to resolve the inconsistency which has long existed in economic theory between the struggle for greater efficiency on the one hand and the main-

tenance of competitive efficiency on the other.

(However), their adoption may be held back by the nontechnological, institutional barriers of monopoly control and lack of financial aid for small business.(38)

In effect, Blair was saying, these possibilities for the improved competitive posture of small firms vis-a-vis larger ones, may be restrained or prevented from coming to fruition by the fact that the structure of American industry puts more power in the hands of the large or concentrated firms than is economically justifiable. The point is important, and has been extensively discussed.

It is necessary, in short, to distinguish between true social efficiency and simple power. Efficiency has been defined earlier as a measure of the extent to which social and individual needs are met for a given set of available resources. But large and well-established firms also have power, the ability to control the environment toward their own ends. To a considerable degree, organizations with power can be less efficient; at least, they can change the nature of the contest so that others, even if more truly efficient, are less able to compete. Thus, many of the gross measures of the relative efficiency of firms of different scale (such as overall profit, sales growth, or survival), may be indicative of the power of size, rather than the economic effect of scale.

Robert Averitt, in a pioneering study, proposed that the

American industrial economy was in fact best conceived as composed of two quite distinct sectors of firms; a core and a periphery. His definition of the core firm is one "whose long-run average cost curves potentially rise as capacity increases, but may not actually do so."(39) He thus accepts explicitly that diseconomies of scale exist (largely for administrative reasons), arguing that new management and organizational techniques can overcome them, at least to the extent of permitting increasing technical economies of scale to overcome the residual diseconomies of administration. But as indicated by the earlier sections of this paper, it is by no means certain that these newer management techniques serve as Averitt supposes, nor does it appear that the technical economies of scale require anything like the size and scope of most center businesses.

In fact, Averitt's list of advantages of the core firm are nearly all related to size per se, rather than to efficiency or economy. They include, for example, power to outspend and outlive others, to spread risks, to diversify geographically and with products, better credit terms, and legal, political, and financial advantages.(40) Since all of these characteristic features offer competitive strength, what is important is that smaller, periphery firms, are at a definite disadvantage.

In fact, it is well established that large firms have a degree of power, simply as a result of size, which ordinarily is translated into more or surer profits on operations over time, into barriers to the entry of new competition, or into access to funds or control over market share greater than is to be accounted for by conventional models of a fully competitive economy. One cannot say a priori that large firms will show correspondingly large profits; indeed, as has been noted, the facts are often otherwise. However, the existence of market power, to use a generally accepted expression, does show up in other ways. Edwards put the overall case as follows:

A big firm has advantages over a smaller firm just because it is big. Money is power. A big firm can outbid, outspend, and outlose a small firm...Some of these advantages...constitute real economics. Others are bargaining advantages which do not appear to have any particular advantage to the economy as a whole, and some of them are advantages of being able to live for a time on accumulated fat. Such advantages of bigness are derived from the total size of the enterprise, whether that size is attained in one market or many.(41)

Several people have in fact estimated the extent of market power in American industrial life. Most such studies are based on concentration ratios within given economic sectors, combined with other correlated indicators as asymmetry (significant difference in size among leading firms in a concen-

trated industry). A recent extensive review of the data by Shepherd led to the following summary conclusion:

As far as (statistical) estimates are reliable, they suggest that markets with substantial market power accounted in 1963 for at least \$171 billion, or approximately 41 percent, of national income arising in market activity.(42)

In further discussion, Shepherd felt that the probable minimum value of substantial market power was between 35 and 45 percent of the total market activity. And, quite likely, there is some degree of market power for any large firm in other industries. It is a small competitive edge, perhaps, but it is an edge nevertheless.

The fact of market power is accepted by many or most of those who have studied the matter. It does not, of course, always coincide with size, nor is it present to the same extent in all companies of a given size or in comparable positions in their own markets. That is because there are two distinct aspects to such phenomena; those related specifically to absolute size, and those related to concentration (size in a given market area).(43) The latter has been the subject of great effort since the Second World War, and conclusions are mixed. A balanced appraisal would seem to be the following:

In the greater part of the American economy, market concentration is sufficiently low so that competition places substantial restraints on the discretionary pricing power of sellers

...Nonetheless, concentration is sufficiently high in a number of important producer goods, (e.g., steel) to confer substantial discretionary power in making price and other market decisions. (However), postwar market concentration trends in consumer goods industries have been less salutary than in producer goods... This increasing concentration suggest that there has been a growth in the discretionary purchasing power of sellers in the industries.(44)

And, in fact, there is evidence that in such concentrated industries, profits are higher than they would otherwise be. The same study quoted above adds elsewhere the following comment:

A growing number of studies confirms that there is a significant positive relationship between the level of industry concentration and reported industry profits. The studies show that profit rates tend to be 50 percent (or more) higher in highly concentrated industries than in moderately concentrated ones.(45)

These data, however, may appear to conflict with findings reported earlier that profitability tends to be inversely proportional to size, above a certain modest level. That is not necessarily the case. Higher profit rates, even assuming that measurement is made in terms of assets, can be consistent for industry as a whole with the reported variations with size within those industries. For that matter, the same could be true with regard to all industry. It would imply simply that profit rates for firms of the same size would increase as their industries became more concentrated. The dis-

tion is important. High concentration does not necessarily equal large size, and many very large firms are in relatively unconcentrated industries.

One might, however, expect that a significant advantage of large firms lies in their greater ability to take risks without likelihood of financial failure. Indeed, this is supported by the evidence. As Stekler notes:

...the variability of the profit rates of firms in a particular class diminishes with size. This is true for the profitable manufacturing firms as well as for all manufacturing corporations.(46)

Similar data exist elsewhere, leading to the conclusion that sheer size has at least one definite virtue; that of enabling firms to explore more alternative investments in relative safety. The issue for smaller firms is thus to develop risk-pooling mechanisms (e.g., by cooperative financing, etc.) which permit some of the same potential. But, of course, it could also be argued that the relative freedom to spend which large corporations enjoy might lead to less than optimum selectivity among alternatives.

Consider also that, as noted earlier, a (large) fraction of new ventures fail. It is difficult to see how this can ever be avoided, nor perhaps, should it be. However, if, say, five must be launched for one to succeed, new or small firms are penalized by their general inability to plan for a series

of risks. If it were the case that firms invest their resources in ventures commensurate with their size, one could argue that size is not necessarily beneficial. More typically, however, the growth of enterprises results from a large number of relatively small investment risks - small, that is, in relation to the resources available. As a result, they are more likely to grow and prosper, since the probability of success increases with the number of such risks taken, other things being equal.(47)

This is not to say that some large firms do not go bankrupt and/or suffer losses. Gross inefficiency over long periods of time can still cause problems, although this is not a frequent occurrence. Losses among the giants are exceedingly rare. In 1957 (a mild recession), only one of the top 200 industrials lost money; in 1964, seven of the top 500 lost money; and even in 1970 (a very bad year), only $\frac{3}{4}$ of the top 500 failed to show a profit.(48) U.S. Steel, a notably inefficient company by any standard, has not shown a loss for over 25 years. The Ford Motor Company lost amounts approaching \$1,000,000 a day for two years, after World War II, when they were considerably smaller! In the late 50's, the Edsel appeared; it cost Ford several hundred million dollars. Neither of these events was deadly to the firm.(49)

The clear lesson is this. Size - meaning sheer availability of capital - is an overwhelming advantage in our pres-

ent economy. Whatever controls are applied, capital offers the flexibility, time and comfort - solidity - on which management can build as needed. The ability to take economic risks with attitudes which help rather than hinder stems directly from resources of some magnitude. Small and/or new companies suffer most particularly in this regard; even if they have the same (or better) ideas, the attendant risks are perceived as greater, and therefore more likely to fail. The ease of entry into new markets, or new products, is simply less for smaller firms. It could then be argued that large size is socially useful, since it encourages risk-taking, but this is a matter of institutional arrangement. Pooling of risk could be accomplished by other (for example, cooperative) means, not merely by ownership alone. And, in any case, not all risks ought to be encouraged; at least, some are more socially desirable than others. Such a distinction is used to justify a wide range of activities, from investment in municipalities (tax-exempt bonds) to mineral and oil exploration (depletion allowances).

That choice of examples, however, raises the very important issue of consumer choice or sovereignty and whether, in the process of taking risks, or launching new products, consumer needs are actually being met or even seriously taken into consideration. To deal with these questions in detail is beyond the scope of this dissertation, but a few comments

can put the matter into an appropriate perspective. First, it is obvious that consumer interests are powerful and cannot be disregarded. The annals of marketing are built on the skeletons of such product failures as Ford's Edsel or DuPont's Corfam, not to mention thousands of less visible examples. However, it is equally obvious that consumer needs and choices are not made on the basis of fixed preference maps, but are themselves shaped by the very process which also attempts to satisfy them.(50) The findings in advertising offer some evidence of this, and it is well-known to every advertising, marketing, or product development specialist.

The fact is that one can select only from what is available, so long as that basic decision is in the hands of producers. To quote from Kurt Rothschild:

The fact is...that the consumer can influence only the output of goods already offered on the market. The initiative to introduce or withdraw a commodity rests entirely with the producer.(51)

Similarly, here is Robin Marris:

The bureaucratic environment of the large corporation...is likely to divert emphasis from the character of the goods and services produced to the skill with which these activities are organized...The concept of consumer need disappears, and the only question of interest...is whether a sufficient number of consumers, irrespective of "real need" can be persuaded to buy (a proposed new product).(52)

And lastly, it is worth quoting George J. Stigler, on the question of whether big businesses do, in fact, compete to the ultimate benefit of the consumer:

The answer is that they do compete - but not enough, and not in all the socially desirable ways...The plain fact is that big businesses do not engage in continuous price competition.(53)

In fact, it is likely that these effects, taken together, tend to produce behavior in the part of firms which reduces risk-taking behavior, at least outside certain well-explored avenues (e.g., new breakfast cereals). Firms in general often settle for merely adequate results, and are not disposed to risk their overall position. With market power, they are able to sustain this mediocre performance.

The brief conclusion, then, is that big business, generally speaking, does not reflect in the degree desired attention to the real needs of consumers, nor does it offer through the market mechanism, a meaningful basis for "consumer sovereignty." These things are not true in some industries, to be sure, nor to the same degree in others; but overall, large enterprise as such is not generally efficient by the test of social function. And it seems clear, for example, in the case of the home appliance industry mentioned elsewhere in this paper, that relatively smaller and more specialized companies can out-perform the giants.

Further evidence of market power is provided by the practice of "administered pricing," in which prices are not set by the direct effect of supply and demand in the marketplace, but in advance in order to achieve set goals for profits. This has been studied most carefully, perhaps, in the case of the large automobile companies.(54) Thus, for example, Robert L. Heilbroner described one such case as follows:

General Motors..."targets" its prices to attain a 15 to 20 percent return after taxes, calculating its costs on the assumption that it will use only 60 to 70 percent of its total plant capacity.(55)

Under the circumstances, the fact earlier reported by Bain that the automobile manufacturers shy away from claiming knowledge of the economic effects of scale becomes understandable. That is, they would rather not publicize their remarkable ability to produce profits at the expense of customers.

Similarly, it has been pointed out that U.S. Steel sets its prices so as to assure a profit even if it operates only two days out of five, and it has been successful in maintaining a profitable position despite its universal (deserved) reputation as an inefficient firm.(56) The present increased level of competition in the industry has had an impact on the pricing system, although not so much that one can place great credibility in the importance of technical scale economies.

In a Fortune article, Chairman Stewart S. Cort of Bethlehem Steel noted that his company in 1971 had to produce at 70 percent of capacity to make a profit, whereas in 1966, only 50 percent was needed.(57) Since technical scale calculations assume 100 percent utilization to achieve the supposed savings, it becomes increasingly clear that such issues are only peripherally related to the ultimate measure - efficiency to the society.

Of course, prices cannot be set by anyone with complete freedom. The administered-price thesis merely suggests that "a large body of industrial prices do not behave in the fashion that classical theory would lead one to expect" and, more particularly, that the actual behavior of these prices is typically such as to fall less in recessions and rise less in recovery than a simple response to market factors would predict.(58) At the same time, it is clear that all firms attempt to plan for their income and profit in future periods. Where firms have a degree of market power, therefore, such planning can utilize it to minimize future uncertainty. Although there have recently been challenges to the administered-price thesis, the data do suggest a degree of market power on the part of certain firms and industries.

In sum, the existing American market is increasingly troublesome for large corporations structured on the traditional basis of standardized production design. Moreover,

production costs account on average for somewhat over a third of total cost to the customer aside from transportation (for consumer goods), from which it follows that the cost of too-small scale, if any, is reduced proportionately in its impact on final cost. When transport is considered, the figure drops to about one third. A particular expense of importance is that associated with large-scale advertising which in certain types of industries is economically wasteful. However, from this and other means, large firms derive power with which to control their environment. To some considerable degree, organizations with power need not be efficient; at the least, they can change the nature of the contest so that others, even if more truly efficient, are less able to compete.

This chapter concludes, then, direct evaluation of the effects of scale on economic, operational, and market efficiency. Chapter IV, which follows, attempts to sketch out one line of argument concerning the implication of these conclusions for decentralized community industries. That is, this work was carried out as a step necessary to better appraise such a strategy. It is appropriate, therefore, to see toward what avenues of further exploration, attention could now be profitably directed.

NOTES TO CHAPTER III

1. Charles E. Silberman, "The U.S. Economy in an Age of Uncertainty," Fortune, January 1971, p. 73.
2. The quote is from Anne Jardim, The First Henry Ford, Cambridge, M.I.T. Press, 1970, p. 83.
3. For the cost of automobile options in particular, see Chapter II.
4. Alvine Toffler, The Culture Consumers: Art and Affluence in America, Baltimore, Pelican, 1964, p. 24.
5. Ibid., p. 25 for the Mitchell quote. The advertisement mentioned appeared in the Wall Street Journal, October 14, 1971.
6. "New Products: The Push is on Marketing," Business Week, March 4, 1972, pp. 72-73.
7. Alvin Toffler, Future Shock, N.Y., Random House, 1970, p. 65.
8. Victor C. Ferkiss, Technological Man, N.Y., Mentor Books, 1969, p. 175.
9. "Consumer Values and Demand," Long Range Planning Service Report #81, Palo Alto, Calif., Stanford Research Institute, 1960, quoted in Toffler, The Culture Consumers, op. cit., p. 63.
10. Isadore Barmash, "Selling to the Individual," New York Times, February 14, 1971. A very good article on this general phenomenon of consumer individuality is Charles E. Silberman, "Identity Crisis in the Consumer Markets," Fortune, March 1971, pp. 92ff.
11. Statistical Abstract of the U.S., 1972, adjusted by the retail price index for the relevant years.
12. None of these figures should be taken to signify that the problem of "poverty" has been resolved or that income distribution has become more equitable. For the first point, it is clear that absolute income is not the issue; relative income (hence relative deprivation) is what counts. See, for example, Lee Rainwater, "Economic Inequality and the Credit Income Tax," Working

Papers, Spring 1973, pp. 50-59; and Richard A. Easterlin, "Does Money Buy Happiness?", The Public Interest, Winter 1973, pp. 3-10. For the point on income distribution, see also Peter Henle, "Exploring the Distribution of Earned Income," Monthly Labor Review, December 1972, pp. 16-27.

13. Georg Simmel, in Kurt W. Wolff, ed., The Sociology of Georg Simmel, London, The Free Press of Glencoe, 1964, p. 344. This is of course in no way a denial of the fact that much demand is in fact created by business firms (See later in this chapter, on advertising). Marx's strictures about "commodity fetishism" are still to the point, as many modern theorists have testified (see, for example, the writings of Erich Fromm).
14. "New Products: The Push is on Marketing," Business Week, March 4, 1972, p. 76.
15. Ibid.
16. Norman L. Barnett, "Beyond Market Segmentation," Harvard Business Review, Jan./Feb. 1969, p. 152.
17. "What Makes the New Consumer Buy?", Business Week, April 24, 1971, p. 55.
18. Walter McQuade, "Why Nobody's Happy About Appliances," Fortune, May 1972, p. 180.
19. Ralph E. Winter, "More Companies Drop Products That Make Unsatisfactory Profits," Wall Street Journal, October 15, 1971.
20. Richard C. Balough, "G.E. Too Big for Small Goods," Boston Globe, March 7, 1972. It should be pointed out in this connection that the overseas markets for goods have different features. It is perfectly possible and consistent with firms' behavior to sell the relatively standardized products elsewhere, where local competition does not exist to an adequate extent.
21. All these standard approaches assume, in the general case, both a competitive market and the availability of equivalent goods. In the presence of market defects and such strategies as product differentiation, the situation can be quite different. In the particular case of decisions by one firm as to the location of its several production facilities, these concerns are not so applicable. Even so,

however, location decisions are quite typically based on many other considerations, such as where the firm's executives would like to live and what amenities will be available to them.

22. This should not be taken to suggest that the overhead costs are not necessary; many undoubtedly are. However, they are generally associated with a firm rather than a plant, and the scale effects associated with them are therefore quite different (see Chapter I).
23. On the whole, direct cost of goods transport (referred to in the trade as "line haul costs") ranges from six to nine percent of retail value. These can be approximated by simple calculations using data in the Statistical Abstract of the U.S. Note, however, that since costs of production are roughly one-third of retail value, the ratio of transport to production costs is about 25 percent. It would be higher yet if transport of raw materials and shipped-in producer goods were included. Therefore, even though it is a small part of retail price, it is a substantial fraction of manufactured cost. For a good and comprehensive analysis of the distribution problem, see Reavis Cox et al., Distribution in a High-Level Economy, Englewood Cliffs, N.J., Prentice-Hall, 1965. Physical transportation is discussed on pp. 113-116 and in Chapter 10.
24. John Friedmann pointed out some years ago in "Regional Development in Post-Industrial Society," Journal of the American Institute of Planners, 30, #2, May 1964, pp. 84-90 that "accessibility to product markets has become the most significant single issue in (U.S.) location decisions" and that "Production costs...probably vary by less than ten percent among alternative (U.S.) locations, and even this small difference may be declining" (p. 85). It may therefore be the case that since control is easier in centralized installations, there is less decentralization than the above would tend to predict. Also, it is worth noting that legal devices exist that completely alter the neat theoretical picture offered by location theory. For example, the "basing-point system" for many industrial commodities (e.g., steel) means that the customer is billed for transportation only as much as he would pay if he bought an equivalent product from the nearest available supplier.
25. "The Public's Crush on Private Labels," Time, October 4, 1971, p. 79.

26. Ron Young, "Introduction of Consumer Value Laboratories and Product of the Month," leaflet, CVS Stores, Newton, Mass., no date.
27. Advertising is discussed below in a general way, but it is worth noting that the most specific attempt to pin down some of these promotional costs was probably in the hearings of the Senate Monopoly Subcommittee, Present Status of Competition in the Pharmaceutical Industry, 90th Congress, 1st and 2nd sessions, 1967 and 1968. For general remarks on this subject, see Blair, Economic Concentration.
28. On the latter, see Chapter II, the section on innovation.
29. These data are all taken from William Applebaum, "Perspectives on Food Manufacturers and Distributors Brands' in the United States," in Applebaum and Ray A. Goldberg, Brand Strategy in U.S. Food Marketing, Boston, Harvard Business School, Division of Research, 1967, pp. 47, 46, 36.
30. "The Public's Crush on Private Labels," Time, October 4, 1971, p. 79.
31. Lester G. Telser, "Advertising and Competition," Journal of Political Economy, 72, #6, December 1964, p. 537.
32. Stephen A. Greyser and Bonnie B. Reece, "Businessmen Look Hard at Advertising," Harvard Business Review, May/June 1971, pp. 18ff.
33. Lester D. Taylor and Daniel Weiserb, "Advertising and the Aggregate Consumption Function," American Economic Review, September, 1972, p. 642.
34. There has been, as the above remarks imply, a great deal of effort and study devoted to the issue of advertising. The following citations are probably representative. Nicholas Kaldor "The Economics of Advertising" in his Essays on Value and Distribution, Glencoe, Ill., The Free Press, 1960; William S. Comanor and Thomas A. Wilson, "Advertising, Market Structure, and Performance," The Review of Economics and Statistics, 49, #4, November 1967, pp. 423-440; Douglas F. Greer, "Advertising and Market Concentration," Southern Economic Journal, Vol. 38, #1, July 1971, pp. 19-32; Jules Backman, Advertising and Competition, N.Y., New York University Press, 1967; and Blair, Economic Concentration, esp. chapters 13 and 20.

As to the question of whether advertising is wasteful, a remark attributed to (among others), John Wannamaker, the Philadelphia merchant, probably puts it in best perspective; "Everyone knows that half of all advertising is wasted; the trouble is that no one knows which half."

35. The figures are all taken from Advertising Age, April 10, 1972, p. 48, which in turn has derived them from Internal Revenue Service data. It may be noted that Norman R. Collins and Lee E. Preston, Concentration and Price-Cost Margins in Manufacturing Industries, Berkeley, University of California Press, 1968, concluded that the relation between gross margin and shipments was substantially higher in concentrated than unconcentrated industries, and further, that this relationship was much stronger in the case of consumer than producer goods.
36. Calculated from the Advertising Age figures for advertising expenditures of the 100 top national advertisers (April 24, 1972), and the Fortune 500 directory figures of income for those same companies in the same year (1971).
37. Comanor and Wilson, "Advertising and Performance" conclude that "Industries with high advertising outlays earn, on average, at a profit rate which exceeds that of other industries by nearly four percentage points...a 50 percent increase." (p. 437). The argument for reduced risk of loss shows up very clearly in the Senate hearings on Present Status of Competition in the Pharmaceutical Industry, Part 5, in the statements by Willard F. Mueller, pp. 1824-1852.
38. John M. Blair, Economic Concentration, Part 4, Hearings, p. 1781.
39. Robert T. Averitt, The Dual Economy: The Dynamics of American Industry Structure, N.Y., W.W. Norton, 1968, p. 105. The expression, "dual economy" is considerably older, having its roots in the study of partially-monetized developing societies, and initially Indonesia. It is worth noting that considerable work is now under way extending this concept to such matters as the operation of the American labor market. Although this is relevant to the present paper, space does not permit further comment. See, for example, recent work by Michael J. Piore, Bennett Harrison, David Gordon and others in American Economic Review, (May 1973), pp. 359-384.

40. Averitt, Dual Economy, pp. 70-71.
41. Corwin Edwards, "The Large Conglomerate Firm: A Critical Appraisal" in Mansfield, Monopoly Power, p. 117.
42. William G. Shepherd, Market Power and Economic Welfare, N.Y., Random House, 1970, p. 154.
43. This distinction has been made most consistently by Morris A. Adelman. See his "The Two Faces of Concentration," in Irving Kristol and Daniel Bell, eds., Capitalism Today, N.Y., Basic Books, 1971.
44. Report, President Johnson's Cabinet Committee on Price Stability, "Industrial Structure and Competition," 1969, pp. 81082.
45. Ibid., pp. 42-43.
46. H.O. Stekler, Profitability and Size of Firm, Berkeley, University of California Press, 1963, p. 100.
47. It might be noted, in this connection, that the largest industrial corporations (the Fortune 500) have financed approximately two-thirds of their growth since World War II from internally generated funds. They are thus able to free themselves to a substantial extent from the capital market and to gain particular advantages because of their size, see David T. Bazelon, The Paper Economy, N.Y., Vintage, 1959, pp. 214-215.

Prof. John Harris of M.I.T. has pointed out that bankruptcy laws, which in effect permit risks to be taken whose consequences are not borne by the entrepreneur, may serve to increase risk-taking behavior, particularly for smaller firms. Equally, however, this arrangement might lead to inappropriate or capricious risk, which is socially disfunctional.
48. Figures are taken from the Fortune 500 lists for the relevant years.
49. The U.S. Steel comment comes from Galbraith, The New Industrial State, p. 93. For the other remarks, see Richard A. Smith, Corporations in Crisis, N.Y., Doubleday Anchor, 1964; and John Brooks, Business Adventures, N.Y., Weybright, 1969.
50. See, for example, Herbert Gintis, "Consumer Behavior and

the Concept of Sovereignty: Explanations of Social Decay," American Economic Review, May 1972; and J.K. Galbraith, The Affluent Society, 2nd ed., Boston, Houghton-Mifflin, 1958, chapter XI.

51. Kurt Rothschild, "The Wastes of Competition," in Edward H. Chamberlin, ed., Monopoly and Competition and Their Regulation, London, Macmillan, 1954, p. 310.
52. Robin Marris, quoted in Bannock, The Juggernauts, p. 191.
53. George J. Stigler, "The Case Against Big Business," in Mansfield, ed., Monopoly Power, p. 5.
54. The expression "administered pricing" is of course from Gardiner Means, whose writings since the publication, with Adolf Berle, of The Modern Corporation and Private Property in 1932, have often focused on this issue. His most recent paper on the subject is "The Administered-Price Thesis Confirmed," American Economic Review, June 1972, pp. 292-306. The thesis has certainly not gone unchallenged. See, for example, George J. Stigler and J.K. Kindahl, The Behavior of Industrial Prices, N.Y., National Bureau of Economic Research, 1970; and Gilbert Burck, "The Myths and Realities of Corporate Pricing," Fortune, April 1972, pp. 84ff.
55. Robert L. Heibroner, The Making of Economic Society, 2nd edition, Englewood Cliffs, N.J., Prentice-Hall, 1968, p. 122.
56. Ibid.
57. Allen T. Demaree, "Steel: Recasting an Industry Under Stress," Fortune, March 1971, p. 76.
58. Means, "The Administered-Price Thesis Confirmed," p. 292.

Chapter IV

TOWARD THE PRODUCTIVE COMMUNITY

On the basis of the foregoing chapters, it is evident that large scale firms are neither as efficient as the conventional wisdom asserts nor as immune to competitive attack as their critics often suggest. It is therefore clear that at least on those grounds, smaller enterprises are not ruled out of contention in the marketplace. It is equally clear that the potential for decentralized community industries, or development strategies based on them, is enhanced by these conclusions. If, as has been shown, smaller firms - and in particular, single-plant firms - make economic sense, then a more decentralized industrial structure is not necessarily wasteful of resources or otherwise inefficient. This is, of course, true whether or not these now-smaller firms are controlled by private entrepreneurs or by some collective representing a community. However, because the present work focuses on the lat-

ter case, it is necessary to explore the possible differences that would follow from that distinction. To put the matter more concretely, are there, for example, particular reasons to suggest that community firms, even if the same scale as entrepreneurial ones, would be more desirable (and under what circumstances), and are there specific classes of products or industrial sectors more appropriate to one type of firm than another? This chapter develops a framework for considering such questions.

Before exploring these issues, however, some preliminary remarks are necessary. First, conventional (that is, useful but already widely accepted) approaches to economic development and industrial location consider certain basic parameters which are as important in the present context as anywhere else. Labor intensity, capital requirements, access to and size of markets, competitive environment, and the need for specialized technology and resources are obviously relevant considerations, although the significance of any one of these depends on the context.(1) Since the focus of the present work primarily concerns other issues, less widely addressed, these conventional matters are mentioned only to the extent that they are particularly relevant.

Second, it should be made clear that the present discussion is not limited to what are customarily classified as "small" businesses. One conventional definition, for example,

sets the upper size limit of small firms at a point:

...which, considering the nature of the business, permits personalized management in the hands of one or a few executives, as opposed to institutionalized management characteristic of larger enterprises.(2)

This definition, although it describes a type of organization which will often or generally exist in early stages of development, is entirely too limiting for several reasons. For one thing, such firms may or may not be efficient producers; this distinction is in that sense quite arbitrary. Second, it assumes an entrepreneurial or narrow control model for firms which is in distinct contrast to the collective alternatives, which may never be actually organized that way, even if it were possible given the size. Third, firms of that size and organized that way would not offer in any case an effective training/development opportunity for other workers, nor the potential to take maximum advantage of underutilized resources available throughout the organization, or of the extra benefits from shared or collaborative arrangements. If these do not occur, the organization will inherently be less efficient in its use of resources.

Fourth, it must be recognized that the very idea of scale is complex, and that it can refer to several very different measures. In particular, there is a considerable difference between scale as interpreted by employment, by capital invest-

ment, and by market or market area served, not to mention such other possibilities as energy required or physical space covered. In this dissertation, scale has generally referred to employment size unless other indices were specified. However, two plants of identical employment, and therefore of identical "scale" in that sense could easily differ by a factor of twenty in any of the other measures noted above. To apply the general conclusions to a particular case, therefore, would require detailed investigation of the particular industry or product orientation. For that reason, the present chapter particularly, attempts a different task, namely to develop and explore a set of theoretically important categories, on the basis of which more detailed questions could be considered.

Finally, the notion of community itself needs some attention. To this point, it has been used as if its meaning were self-evident, being implicitly contrasted to the country as a whole on the one hand, or to individuals and small groups on the other. At this point, however, with discussion turning to the more specific impact of a "community" focus on issues of size and scale of enterprise, a somewhat more detailed understanding is necessary. By community, then, two essential elements are implied for present purposes, although this is not meant to be a definition of the term, as that is a problem of considerable complexity to which social scientists continue to devote much attention.(3) First, a community is a specific

geographic unit, and moreover, one which is relatively small in proportion to some larger political unit in which it is embedded. Thus a nation, or a state, is not a community. The context, however, will necessarily provide the standard, differing at different times, for judging the significance of "relatively small." What is central here is not the idea of a community as conceptually fixed in size, but as signifying that attention is directed to a more local or parochial unit than would otherwise be the case. In that sense, areas large on an absolute basis may still be relevant cases.

Second, the concept of community directs attention toward a social unit - that is, a society which, though relatively small, is nonetheless a coherent whole with the capacity to engage all of a persons' roles and attachments. Within a community are families, interest groups, firms or other economic entities, and political subdivisions, governments, or parties. Thus, the concept of community is broader and more all-encompassing than "economy" or "polity," and to speak of a community is to imply concern with the broadest possible level of integration of social life and relationships. Related to this, plainly, is the notion that in such expressions as "community based" or "community controlled" or even "community industry," is inherent a view of the particular subject under discussion in relation to the total social unit rather than to some narrower aspects alone. Thus, community

industry refers to something whose interests inevitably extend beyond monetary profits, even if those are included in its focus. In short, its essential import is that the industry in question is to be considered in terms of its social functions, broadly construed.(4)

It should also be evident that the issue of size has special significance from an economic point of view. For one thing, as noted earlier, size in the sense of market area, or density, is a possible measure of scale; one which, in fact, is particularly relevant to the question of enterprise efficiency. Clearly, the size of any community, whether measured in numbers of people, geographic area, density of population, or income, total or disposable, would make a great difference in terms of efficiency (however assessed), appropriateness, or level of decentralization. Moreover, the appropriate or optimum size will necessarily differ when different industrial sectors or product orientations are considered. There can be, in short, no such thing as the "right" community size for all purposes. In the present context, then, rather than try to appraise these boundaries in detail, the essential idea of community industry is considered in order to see what might differentiate "community industries" from "decentralized industries" of about the same size.(5)

What difference, in short, does it make for decentralized industries also to be community based? Two key issues arise,

in the broadest sense; they are conveniently put as questions. First, is there reason to believe that the form of control of a firm - particularly private entrepreneurial vs. community collective control - would make a difference to the efficiency or competitive ability of the firm? Second, should the industrial sector, product line, or customer orientation of the firm be different if it is community-based, in terms of its potential viability and utility? These issues are taken up in what follows.

COLLECTIVE VS. ENTREPRENEURIAL CONTROL

At first glance, it would appear that a given product could be equally efficiently produced in the same size of plant for the same nominal market independent of its ownership or control structure. However, closer examination shows this to be a false conclusion, particularly in certain substantial and definable sectors of industry. To put it more directly, efficiency in social - even in economic - terms is not independent of the nature of ownership and control.

In particular, it is necessary to differentiate between enterprises controlled and owned "individually" as conventional entrepreneurial firms, and those based on some form of collective ownership or control. In the collective case, two distinct types exist, though as indicated below these are not necessarily incompatible. One can consider either control by

workers - those whose primary work is within the enterprise; or by the community - a larger and much more encompassing social unit with, perhaps, many such enterprises. Both forms of collective control are, however, quite different from "individual" control, and the implications for action are correspondingly different. The terminology is not entirely satisfactory, since it could be argued, for example, that a conventional publically-held corporation is collectively owned. The word "collective" in the present connection, specifically refers to a social unit having a collective identity, rather than a cluster of otherwise unrelated individuals. In this sense, most shareholder-owned firms are still individually owned since those holding stock perceive a commonality of interest only with regard to the success of the firm and since they act as individuals in any case.(6)

Economic institutions in any society are of course ultimately justified by the prevailing ideology in terms of their substantive contribution to the well-being of that society and its members. Such institutions are no more to be viewed as ends in and of themselves than are the products or services they generate. In the United States, or for that matter, in capitalist economies anywhere, it is asserted that these broader social purposes are optimally achieved through the separate decisions of individually controlled firms and consumption units interacting through market mechanisms. The defects and limita-

tions of this view are by now well known and have been written about extensively. What is less clear however is the impact of other, quite different alternatives on the social fabric.

In the present context, these things are important because the very idea of collective enterprise is inherently incompatible with those principles. It is not merely a matter of firms which are owned by such organizations as communities or community groups, but which continue to operate and organize themselves in the same ways as if they were owned by private entrepreneurs. If that were the case, there would be little difference. In fact, the result of simply changing the identity of the controlling group, without other changes, would not only fail to produce the desired benefits, but would continue to create the same kinds of dysfunctional distinctions among their several participants and constituencies as are seen in more conventional enterprises. Consumers would merely consume; workers would only seek pay.

The issue thus goes beyond narrow change. The essential meaning of community enterprises derives from the notion that economic institutions should not - indeed, if social welfare is sought, cannot - act only through market linkages based on price-making mechanisms. On the contrary, community enterprises will necessarily develop relationships with customers, workers, and owners which specifically take into account other than purely financial considerations.

This distinction is central. Economic relationships, mediated through markets, are supposedly at arms length. The very foundation of the market is its impersonality. To quote Milton Friedman:

There is no personal rivalry in the competitive marketplace. There is no personal higgling. The wheat farmer in a free market does not feel himself in personal rivalry with, or threatened by his neighbor, who is, in fact, his competitor.(7)

For fully-fledged community enterprises, however, this no longer holds. Those whose labor enters the community firms will not be merely selling their time to the highest bidder; customers, especially as they fall inside community boundaries, will not merely be used as opportunities for economic gain; managers will not be rewarded for orienting actions to promote the welfare of the firm, seen in isolation. Such relationships, instead of focussing on their purely instrumental character, will have to pay more attention to individual, personal, and social aspects. Economic acts, in short, will tend to become aspects of social relationships.

Although the problems of doing this are great, and must be minimized, more attention cannot be paid them in this dissertation. The arguments supporting such a set of principles are, however, briefly summarized. First, to reduce widespread existing alienation, and related social and individual pathologies, requires attention to people as whole individuals, and

to reconstruction of social units on a human scale - communities - capable of promoting and enhancing human growth and development. Second, the present capitalist arrangement of economic life inherently results in inequities in the distribution of material and psychic rewards alike, and in continued pressure for greater aggregate material output at the cost of continued degradation of both human and physical environments. To ameliorate these problems calls for fundamental change in economic organization, one alternative for which is the community-based decentralized industry evaluated here.(8)

It is useful, however, to return to the distinction between enterprises which are strictly worker controlled, and those which are more broadly community controlled. The workers are, of course, a part of the community, but it is apparent that the latter would involve more people in decisions affecting the venture than would the former. However, these two principles are not philosophically in conflict. The basic criterion, which applies to both, is simple and straightforward; those affected by the activities of an organization or group should have the controlling influence in those decisions, the more so as effects become more primary and central to those involved. Robert Dahl has called this "the Principle of Affected Interests".(9) In one way or another, then, truly community-based industry will involve substantial self-management of the separate units, although the detailed distribution of

powers will derive from some form of political process which mediates overall. In this sense, a key measure of community control will be the extent to which all workers are involved in the decision-making processes of the firm. Similarly, worker's control, though it may start as a movement purely internal to an enterprise, cannot stop there. As Andre Gorz has put it:

The demand for self-management...cannot be obtained within the factory walls, the laboratories and the research bureaus. Men who cannot be ordered around in their work cannot be ordered around in their life as citizens, nor can they submit to the rigid decisions of central administrators.(10)

As to the specific benefits of such systems, Vanek, in a major study of the economic and social values to be gained from the worker-controlled economy, has concluded that it

appears in a very favorable light, both in comparison to an absolute standard of efficiency and in comparison with other economic systems...It has a definite advantage in generating full employment, long-range price stability, and growth.(11)

Vanek also concludes that such a system has important advantages in social terms, such as those which require attention to what are otherwise externalities, plus education and a more genuine opportunity for people to be motivated by internal drives related to their individual interests and ca-

pacities. Since worker's control offers, by definition, the most direct opportunity for significant participation, the remarks made earlier on its value apply here in full force.

That is, there really does not seem any reason to doubt that participation of this sort would have a constructive impact on the motivation and commitment (and resulting psychic rewards) of "members of the firm," as well as on overall productivity measured against the organization's goals. Paul Blumberg, for example, as written in regard to the former issue that:

An impressive panoply of research findings... demonstrates consistently that satisfaction in work is significantly enhanced by increasing workers' decision-making powers on the job.(12)

And in regard to the latter issue (productivity), a similar conclusion has been drawn by the members of the HEW Task Force on work:

Several well-documented experiments show that productivity increases and social problems decrease when workers participate in the work decisions affecting their lives, and when their responsibility for their work is buttressed by participation in profits.(13)

These outcomes are found without regard to size or scale, but it is obvious that such effects will be more powerful, and easier to achieve in the bargain, as the units of control and size of employment decrease. This is, in part, essentially

a simple restatement of the conclusions reached in the previous chapter concerning the effect of size and scale on behavior and motivation of workers. Indeed, one of the essential features of the successful experiments referred to in the above two quotes is some way to create smaller social units with a work function. Smaller scale is thus of direct value in this connection. Moreover, both the potential and motivation for innovative activity will be enhanced by smaller size, particularly insofar as the individual worker can both understand the relationship of his tasks to the whole product, and perceive the impact of his actions on the whole.

These are, so to speak, some of the internal values which follow from a more collective orientation in the workplace. There are, however, potentially as important external effects; those concerning the relationship between the firm and its customers. Moreover, it will be seen that choice of product or service also can be influential in social and economic efficiency, and that certain sectors or orientations of output are more consistent with and supportive of community industry. To these considerations, we now turn.

PRODUCT CHOICE AND COMMUNITY CONTROL

As Chapter III indicated, the marketplace is changing so as to shift demand increasingly towards goods and services meeting individualized needs and desires. Within this context,

however, two classes of goods can be distinguished in principle. In the first class are included those products, which may be called tailored, characterized by their inherent capacity to be significantly modified to meet specific needs or interest. Such products, for example, include clothing, food, and furniture. Clothing can vary as to style, size, color, and fabric; furniture as to material and design; food processing as to flavor and cut, even without a consequent price difference.

The second class of products are those not inherently capable of supporting differences of significance (call them commodities), but which nonetheless are often artificially distinguished for purposes of sales, marketing, and promotion. This category includes such products as ethical drugs (e.g., aspirin), glass products (e.g., windows), many foods (e.g., table salt), and cleaning materials (e.g., soap, steel wool, detergents). The artificial differentiation in such cases is typically based on elaborate packaging, misleading advertising, imputed qualities, and brand names. Clearly, to apply this distinction rigorously is difficult if not impossible. For present purposes, however, it is merely necessary to recognize that these two categories suggest distinctly different conclusions as to appropriateness of various scales of production, and their consequent efficiency in meeting customer needs.(14)

The class "tailored products" clearly is that for which true mass production is inapplicable, since such products ought to be produced in conformity to wishes of individual consumers. In conventional practice, these requirements are relaxed in order to permit some economies of scale to be realized, as well as to offer firms producing such goods the possibility to centralize operations, create substantial and well-defined markets, increase sales and assets, and produce greater profits for the owners. This is generally done by a firm's vertical integration of the operations required to form relatively basic materials into those tailored products, coupled with very direct marketing to final consumers. Such an industrial structure, however, is not determined either technologically or by scale considerations, but is merely one of a wide range of options for producing such goods. Its virtues are many for the firm, and, as shown below, minimal for the consumer. Thus, Dean and Smith have pointed out that:

...we now recognize that important kinds of flexibility exist at many points in the process that determines the size of a firm...Great advantages of specialization do not always require firms large enough to use the entire output of a specialist...In general, firms can obtain any resource under a variety of arrangements, of which ownership is only one.(15)

As an example, consider clothing, say shirts. In the ideal case, each shirt produced would uniquely suit the cus-

tomers for whom it is intended. Its color, fabric, shape, style, and quality would reflect that personal focus. Even in that case, however, consumers in the aggregate will require large quantities of the commodities - such as basic fabrics, undyed and uncut - from which the shirts are to be produced. Such commodities can be efficiently produced by large-scale mass production methods. And although the scale required for that efficient production need not be as great as the present industrial structure suggests, it is clear that a substantial enterprise is needed.

At each successive step required to convert those commodities to tailored product, the market becomes smaller and the opportunities for mass production correspondingly less. Thus, the required quantities of a given fabric dyed a specific color will obviously be much less than the total; when the dyed fabrics are cut into different patterns, each combination of pattern and color will be still smaller in quantity, and in the end, only one shirt with a given set of features will be produced. At each such step, alternatives exist for separate firms to purchase intermediate goods for modification to a stage closer to final consumption. Truly efficient production of such products will be maximized, other things being equal, when finished products correspond precisely to consumer preferences (of course, at the least price). Several conclusions follow from that.(16)

First, that criterion urges timely and detailed interaction between customer and supplier. There is therefore an immediate benefit from close relationships where such products are involved, contrary to what competitive market models require. Although these are attainable in some degree by private firms, there is a clear advantage accruing to collective enterprises at least some of whose members (even potential members) are also potential users of the goods. Second, it follows that attempts to sell such goods in remote markets will produce less efficient results than similar production oriented toward more local consumption since the desired interaction with consumers is less available. However, since there may be real and significant increases in efficiency to be gained by production at larger sizes which could yield economies of scale, or to put it another way, since consumers will often prefer somewhat less specific tailoring at lower cost, there is a trade-off calculation to be considered. In contrast, production of commodities can be characterized differently.

To start, though there exists, as in tailored products, a similar series of more-or-less discrete operations to transform raw materials into final consumer products, there is by definition no real possibility of modifying those products to meet differentiated needs except at a very gross level of aggregation (e.g., warmer clothes in colder climates). Accordingly, the potential to utilize mass production techniques and the economic pressure to gain all possible economies of scale

exist in the fullest sense. The "decay" of appropriate scale characteristic of tailored goods (smaller units of output as final consumer is approached), does not appear in the case of commodities. Such industries are therefore expected to tend toward structures with relatively fewer plants of larger size, subject only to the constraints introduced by the process of physical distribution.

If it were true that such commodity products were available in the market in the undifferentiated form which their nature inherently suggests, competition even of an oligopolistic sort would tend to reduce consumers' costs to a level consonant with the costs of production and distribution; there would be strong incentives for producers to minimize their own costs and to construct just such factories and organizations as would accomplish that. Instead, however, attention has inevitably focused on the strategy of attempting to convert true commodities to apparent tailored goods, so as to avoid direct price competition in the marketplace. (Recall the discussion on size in chapter III.) The distinctions thus introduced - elaborate packages, exhortative advertising and promotion asserting the presence of unmeasurable values, and irrelevant physical modifications (e.g., colored toothpaste) - do not in fact render these competing products more different in any substantive sense, but to the extent that consumers treat them as if they were, narrow brand loyalty is the re-

sult.

From the point of view of firms producing such goods, this process is profoundly beneficial. Not only does it minimize the requirement for price competition with its attendant low margins, risk, and hard work, but by generating a new type of expenditure offers the possibility of greater growth in sales, and a consequent increase in status and influence. From the consumer's point of view, and, still more, with regard to productive use of society's resources, this process is sheer waste.(17)

In this case, then, very substantial cost savings are available in principle from production of commodities of this sort in the absence of means of differentiation noted above. The counter-argument, that such expenditures are useful in that they are necessary to assure a larger and more economical scale of production such that final costs are lower does not accord with the facts on scale efficiency presented earlier. In particular, these are the very goods most widely sold as private brands by local retailers, at great savings (up to 50 percent) and discussed in chapter III. It is, of course, true that efficient production scale for commodities in general will be greater than that for tailored goods, but it is also true that the market for such goods in any given group of potential customers will by definition be greater since these are less differentiable in character.

Many such commodities also can be characterized in an important additional way. These particular commodities are extremely well known in the sense that they have become routine elements in most people's lives. In a highly developed economic society such as the U.S., the central fact is that they have virtually saturated the total present market available, and thus no longer represent opportunities for growth in the same sense as new products or tailored goods. Mature commodity products effectively define the material level of a society; these are the components of the "market-basket" which every consumption unit must fill if it is to regard itself as even a minimum participant in society's prosperity. This is the essential meaning of the "revolution of rising expectations." As economic growth continues, more and more goods become mature in this sense; that is, nominal necessities for an adequate level of material existence. Some of the accompanying increase in disposable income, noted earlier, therefore tends to be consumed by increased expenditure on goods of this sort.(18)

However, this means that for any particular such good, there inevitably comes a time at which its market has become essentially saturated. More accurately, further growth will increase only with population or some related unit of consumption (e.g., families). Thus, even though opportunity continues to exist for new products, and for conversion of luxuries

to necessities, an increasing number of goods - the most basic and important ones at that - whose provision becomes seen as central to the continuance of the social and economic system, no longer offer strong economic incentives to firms that supply them. Although some aspects of this process are familiar to economists and business theorists, the implications of these effects overall is striking. In particular, in the United States, the most highly developed material economy in the world, this process is sufficiently far advanced to have had a significant effect on the industrial structure of those sectors oriented to mature commodity goods production.(19) In such sectors, opportunities for entrepreneurial firms diverge sharply from those available to collective enterprises.

Entrepreneurial firms of the usual sort have limited options under these circumstances. Differentiation on substantive grounds is ruled out by definition, leaving aside the possibility of using quality to serve that purpose. However, since not major firm active in consumer markets wishes to be seen as a producer of goods of inferior quality, this very real possibility is excluded on its fact. Differentiation, if it is to exist at all, must be sought through artificial means typically involving brand names and extensive promotional efforts. Since by definition there is no possibility for a firm to increase its market except at the expense of a competitive

firm (the total market being saturated), these promotional efforts aim to maintain share of market position. But all firms are caught in the same situation; they must run to stay in the same place. As many game theorists have pointed out (the prisoner's dilemma), no single firm can afford to reduce its expenditure on differentiation unless others will follow the same pattern. Since this cannot be assured, the tendency is for such expenditures to increase. This in turn results both in still higher prices (relative to costs) for the consumer, and increased barriers to entry for new firms. Thus, as Bain has written:

...product differentiation is of at least the same general order of importance as an impediment to entry as are economies of large-scale production and distribution...Second, great entry barriers are more frequently attributed to product differentiation than to scale economies in production and distribution.(20)

There is no strong incentive for other private firms to enter such a market, characterized as they are by substantial and capital-intensive barriers to entry, well-entrenched competitors, considerable risk, and a saturated market which requires acquiring customers only at another firm's expense. When new competitors do arise in such industries, they are drawn by the potentially high returns which accrue to the few well-established figures in the field. Such new entrants will of course generally be those whose own promotion and differen-

tiation strategy is thought to be powerful - as, for example, in the case of L'Eggs, the recent successful entrant in the women's hosiery field, and whose strategy was in clever packaging and a name that would "stick".

In any case, it is clearly more attractive for firms to enter growing market areas, where opportunities are less risky, and all participants can increase their sales together. It is in these cases, particularly, that large-scale advertising has its greatest potential benefits; not to switch customers from one brand to another with an identical product, but to generate larger aggregate demand for new goods which have untapped markets (see the section on advertising in chapter III). In short, separate suppliers have an obvious incentive to concert their promotional activities, even by separate (non-collective) decisions.

There appears, however, another possible strategy for producers of commodity products characterized by large costs of synthetic differentiation; namely, to offer the same product at a lower price, permitted by cutting the expense associated with advertising and promotion. For a number of reasons, this is less plausible than it seems at first blush. First, most consumer goods companies in this category compete with brand names in a wide range of goods; elimination of advertising support for any one product is therefore difficult without unintended and negative effects on other products.

Much promotion is itself institutional (oriented to the firm or a multi-product brand name). In fact, the very purpose which brand-name based promotion serves is that of forging links between the producers of a good and its consumers and through that mechanism, bypassing both wholesalers and retailers whose connection to the market is closer in principle. The history of American industrial development has been characterized by a shift in the sources of product credibility from retail outlets to wholesale merchant to manufacturers themselves. A reduction of advertising expenditures overall thus runs substantial risk of undercutting this market power on the part of such firms.(21)

Second, there is a real possibility that reduction of aggregate promotion for a product which has reached virtual market saturation (because one large firm reduces its share of advertising) will result in reduction of aggregate demand for that product, since many other products are competing for the same limited dollars. Third, such a strategy would be beneficial to the firm only if coupled with a substantial price reduction for the product involved (otherwise, since some customers will switch to another brand, net sales will drop, and will continue to do so over time). But it is all too clear that people mistrust apparent "bargains," unless they have knowledge of and confidence in the firm whose reputation stands behind the product. For a manufacturer, this itself requires

either continuation of its institutional promotion or willingness to supply the product to other marketers who sell the good as if it were their own. And this is precisely the case of private label goods, many of which, as noted earlier, are supplied by large and otherwise well-known firms.

The growing importance of and increase in private label products, both in reference to numbers of brands and total volume of such goods sold, has already been discussed. This success, however, is due not only to their demonstrated ability to provide the product at lower cost (which alone is often not sufficient) but also to the credibility of the retail outlet offering them and, in effect, assuring their reliability and quality. In short, the retailer acts as a sort of proxy for the community itself and is effective to the extent that it builds on local good will and its relationship to customers. Thus, public acceptance of such private brands, according to one study:

hinges on the existence of either customer need, or the fact that customer good will and confidence in the retailer is so strong that consumer acceptance of the private brand is assured...In other word...consumers strongly associate the fulfillment of their needs with a retailer, and not...with a manufacturer who most often is at a distant place from the consumer-retail community.(22)

But the process described above, which forces firms to compete via artificial differentiation or identical products,

sold to a virtually static market, results in a continuing increase of the potential savings available from products not saddled with such costs. It is this growing gap between the cost of name-brand products, and that of the same product made expressly by or for a retailer, that underlies burgeoning private-label sales.

This situation offers a real and powerful opportunity for community-based ventures to attain for themselves these same strong advantages, by building on the commitment of community members to enterprises perceived as operating in their interest. These same advantages are not available either to larger more remote entities without the same ties to the community, or to private entrepreneurs who, though resident in the community, are operating in their own private interests. Over time, these are certain to diverge from the interests of the community at large, and in any case, are unable to truly tap the community's self-interest.(23) The special value of community-based ventures follows from the very fact of community control and participation. As people perceive that such ventures operate for their benefit, respond to their needs, are controlled by their decisions, and provide them with desirable goods and opportunities, they will support and maintain them.

This contrast with the usual case in which customers and producers are related only through the impersonal medium of

the market. Customers' interests here are solely concerned with the product or service; if these are inadequate or unsatisfying, another source will be found. There exists neither the commitment nor the means to maintain or build a relationship to the producer of those goods.⁽²⁴⁾ All in all, then, the distinction between tailored and commodity goods leads to the following hypotheses concerning the potential opportunity they might offer community-based producers.

Tailored goods are likely to be characterized by substantial competition, including competition based on price. That is, it is reasonable to expect many suppliers of such goods, since they themselves are by definition easily differentiated along useful and significant (to consumers) dimensions. That competitive situation arises in turn because of both the lessened scale and aggregation advantages in manufacture of such products and the more specific links that can be formed between firms and clusters of consumers. Moreover, as implied earlier, the structure of such industries should ideally involve different scales of production, and perhaps different forms of organization, at each step in the transformation of raw materials to final tailored products, through several intermediate stages. One would therefore expect that the cost of these goods to consumers would reflect reasonably high production efficiency, both because entry of new producers should be relatively easy, and because the competition to supply dif-

ferentiated consumer needs of this type should be vigorous. As an opportunity for community-based enterprises, then, the prognosis is mixed. On the positive side are the small scale needed, and (most important) the close links with consumers. On the negative side, there are not likely to be large excess costs, which could offer a cushion to new entrants.

Economic advantages, therefore, will have to be achieved through new organizational or production methods. And indeed, community-based enterprises probably have an advantage in this regard. The small scale of such ventures inherently makes possible the kinds of innovative developments needed, because of the size effects noted in chapter II. The particular advantage of committed workers exercising collective control could then readily benefit from that opportunity. In the production of such goods, there will also inevitably be a trade off between completely custom-made products and the lower costs achievable by a degree of standardization, but the details of that could well be different in the case of community-based ventures, as against private entrepreneurial equivalents.

In the case of commodity products, the situation is quite different. As already noted, such industries are likelier to be relatively concentrated, and to consist of larger manufacturing units designed to capture all possible advantages of mass production. Competition will in general therefore be brand-name based, and will tend to be regional or even nation-

al in character, since there is no real opportunity to tailor the products to particular groups or clusters of consumers. Entry of new firms would therefore seem more difficult, not only for obvious reasons of size, but also by virtue of the issues raised earlier. In the more particular case of mature commodities, the opportunity for community industries is, however, enhanced very substantially by the inflated prices due to competition based on artificial differentiation. It has already been indicated that these costs are so great that what appears at first as a limitation (large production facilities) is in fact decidedly less so. Moreover, although such goods in fact require some reasonable scale for technically efficient production, that size need not be outside the capacity of modest sized communities (see below). In some cases, in fact, (e.g., compounded products such as aspirin and cleaning materials) that size is very small. Consideration of total cost to consumers suggests that even if there is an optimum production scale, operation below it would often be more than compensated by economies deriving from changes in distribution and promotion. All in all, then, there are also opportunities here, although for very different reasons explored more concretely below.

CONSUMER VS. PRODUCER GOODS

The foregoing argument implies that community enterprises should preferentially focus on consumer goods rather than in-

intermediate or producer goods. This point should be made explicitly. Such a focus is highly appropriate for several reasons. First, one of the key strategies which has been recommended for community-based enterprises (and for CDC's specifically) is development of a captive market; for example, by contractual relationship with other firms. But the essence of this strategy is to bind customers to producers as strongly as possible, and that can be accomplished directly by building commitment to the firm itself as a social institution.(25) The production of producer goods, even if based on a contractual or legal arrangement which guarantees a market for a certain volume and time is not equivalent. It is not possible in this case to develop the same commitment of community residents to the venture, since they cannot experience directly the utility of the enterprise. Also, of course, viable ventures based on producer goods are ultimately dependent on other firms over which the community has little influence.

Second, as has been noted, it is precisely in these consumer good, and specifically mature ones, that prices are most often inflated over what is technically necessary. Because of the need for large external producers to maintain strong brand images and to occupy large production facilities serving extensive areas (and thus requiring high costs of physical distribution), overpriced but routine consumer goods offer the best opportunity to help poorer residents increase their real

incomes. Witness the price comparisons of private vs. national brands for indication of the potential savings. In that strategy, as national labels lose ground, manufacturers' unit costs go up, greater expenditure on brand promotion is needed, and the competitive balance tips still further. Community enterprises offering such consumer goods, to the contrary, will increase their market loyalty as a result of the very nature of the enterprise. Its unit costs over time, accordingly, can be expected to show a relative decrease, as both learning and growth (at least up to a point) takes place. Depending on the product, one might utilize retailing or manufacturing as an entry.

It is also in this area of consumer goods that smaller scale enterprises make best sense, since it is here that one can take maximum advantage of basic materials and intermediate products produced by large firms as commodities, and which are more cost-efficient than the artificially differentiated final products to which they are converted. These in turn can be modified or finished in whatever way is appropriate to the local market. Bulk industrial chemicals can be mixed and packaged for household and/or agricultural needs; steel strip can be cut, painted, and assembled into venetian blinds; or bolts of fabric could be cut, dyed and sewn for a multitude of purposes. This is not a matter of cottage industries; significant enterprises can be generated in these and similar areas, em-

ploying anywhere up to a hundred or so, taking full advantage of modern technology and industrial organization, and producing for the community's needs.

As to the size of community which could offer an adequate potential market for consumer products seeking to meet local needs, available data are few and far between, and in any case, that size will differ enormously from one good to another. However, some preliminary indications can be offered as an illustration of possible community scale effects. Much more research is needed before anything can be said with confidence. Work presently underway suggests that in consumer goods, at a four-digit SIC (Standard Industrial Classification) level of aggregation, the following generalizations hold. Out of a total of 442 SIC categories, about 100 primarily concern consumer goods. Conservative estimates indicate that 27 of these, accounting for about 30 percent of total final consumption expenditure, could be efficiently produced for market areas with a half-million people or less. A further 33 industries, yielding almost an additional 30 percent of consumption expenditure, require market areas up to two million people. To put it another way, it appears that about 60 percent of the consumption needs of two million average consumers could be met by internal production with no less in economic efficiency. These figures suggest that, even with highly conservative assumptions, small or modest-sized areas could produce a substantial

fraction of their own final goods demand. Equally clearly, however, the areas involved are fractions of states, or smallish urban areas, and not rural villages or city neighborhoods.(26)

One benefit of routine consumer goods as a focus for community enterprises lies precisely in their prosaic nature. They are generally those goods or services the need for which is long-standing, predictable, basic, and not subject to rapid change. They are not, in short, glamorous products out of which new growth industries will develop, although there may be exceptions. This approach assures a minimum risk of market failure; that is, that the expected/needed market will not develop. It follows that the advantage which large firms have in financing extensive development programs or in taking a series of new product risks is of small consequence here. Moreover, since such goods are, by and large, relatively easily tested and evaluated by the consumer, the impact of large scale promotional campaigns aimed at convincing consumers that "Brand A" has special features which differentiate it from all others is less likely to be successful. The great increase in "consumerism," as indicated by the large sales volume of private or off brands, clearly suggests a more sophisticated and knowledgeable consumer; a development which community ventures should support and on which they can build.

There is also a point of particular importance in terms of poorer members of a community. Since advertising and pro-

motional costs are passed on willy-nilly to each purchaser of the product being advertised, there exists the possibility that this creates a highly regressive income redistribution scheme. That is, to the extent that a particular product category is more important in the consumption pattern of lower-income than higher income groups, then the former are subsidizing both those with higher incomes and the firms in question. There are in fact data suggesting that e.g., urban blacks, preferentially purchase national instead of local brands because of their importance to maintenance of an adequate self-image. Wealthier consumers, not confronted with the same problem, therefore benefit more from the availability of equal quality products at lower prices. A basic consumer goods strategy may thus offer preferential benefits to low-income persons, while generally beneficial to all consumers.(27)

Finally, it should be noted that products or services meeting direct consumer needs offer a significant option for the members of the community to participate in novel ways in those enterprises. Victor Fuchs pointed out that the

study of productivity in the service industries (demonstrates)...the importance of the consumer as a cooperating agent in the production process...this point is neglected in the analysis of productivity in goods-producing industries.(28)

And, as he also has indicated, this is understandable in the case of such industries as automobile production. The con-

sumer is effectively isolated from the production process in those areas. However, it is arguable that this isolation is precisely at the heart of the failures of much of industry to effectively meet individual and social needs.

In the final analysis, all goods are useful and desirable only to the extent that they offer a service to the consumer. No material product is produced or used as an end in itself. As Alfred Marshall pointed out:

Man cannot create material things...when he is said to produce material things, he really only produces utilities; or in other words, his efforts and sacrifices result in changing the form or arrangement of matter to adapt it better for the satisfaction of wants.(29)

Industry and enterprise thus exist only to carry out those satisfying adaptations or, to put it another way, to provide the services desired through whatever intermediary physical or social arrangements are required. One of the major benefits to be gained from smaller enterprises, oriented to the satisfaction of direct consumer needs, is that they make the value of the service more clear, while providing the real opportunity for members of the community to influence both the goods produced and the means used to produce them. Small scale thus has beneficial properties vis-a-vis consumers quite as much as earlier noted for workers. The focus of community enterprises on provision of those goods and services which the

members of the community themselves desire and can use directly, ultimately makes of the economic system something more consistent with its basic social purposes. It remains to discuss briefly the implications of such a strategy to trade across community boundaries.

IMPORT SUBSTITUTION AND EXPORT PRODUCTION

Theories of economic development generally differentiate production of goods and services for export from that expected to serve local markets. Moreover, the former (export production) is labelled "primary" because such activities are seen as the base necessary for any local area to participate in the complex web of economic interdependence characteristic of industrial societies. To quote Tiebout:

Export markets are considered the prime mover of the local economy. If employment serving this market rises or falls, employment serving the local market is presumed to move in the same direction...(Therefore) export employment is considered as "basic." Employment which serves the local market is considered adaptive and..."non-basic."(30)

This follows from the fact that no area can be independent, except through great waste of resources and the inevitable recognition that many material benefits will be lacking. On the contrary, it is argued that to reap these fruits, each person, each group, each region, each nation, should specialize in production of those economic goods in which he, she, or it has a

comparative advantage. For clearly, as the theory puts it, more can be gained by selling that advantageous product to others and using the funds gained to purchase for local needs from still other producers, than by attempting to produce for those local needs on a more costly, less productive, self-contained basis.

Obviously, there is much truth to this, and it becomes more true, the smaller the area considered. However, it is also true that depending solely on export industries would be equally foolish; in point of fact, it is impossible. Many goods and services are produced locally for local consumption and some of them could not reasonably be provided except that way. The plain fact is that all economies, except that of the world taken as a whole, or a few extremely remote and primitive settlements, are composed of a complex mixture of production for both local consumption and export markets. Moreover, many of the really interesting questions about the appropriateness of a given combination depends on environmental factors (including size) which are location specific.

As to the concept of comparative advantage, full discussion is not appropriate in this dissertation. However, several brief points should be made. For one thing, as Grunwald noted:

The concept of comparative advantage has been developed within a static framework, but... we

cannot apply it in that form to problems of economic growth. To a great extent, policies for economic development are directed toward changing existing comparative advantages. But existing theory does not help us to determine the direction of this change.(31)

In American communities, particularly, overdependence on trade may be as much (or even more) of a danger than too great independence. The risk in the latter case is merely one of inefficient economic resource utilization. The area of community would merely be somewhat poorer (but perhaps not by much, if Leibenstein's data on the relative welfare losses from allocative and x-inefficiency are at all accurate).(32)

In the former case, however, the local economy can (will) go through violent swings as the market for those specialized exports changes. Ultimately, if the market is dissipated or if other specialized sources replace the product/service offered, the area's economy will come to a virtual halt. This process is highly visible in American communities (and regions), as well as in many smaller countries. Moreover, in the specialized case, local skills tend to be highly oriented toward that productive technology, and of small utility elsewhere. Finally, this specialization tends to focus on people's value largely as a cog in a dimly visible wheel, a feeling which is often profoundly debilitating.(33)

A realistic aim for communities and regional alike must be to strike a better balance between the two extremes. In

the case of depressed communities, the balance is so lopsided as to admit of little debate. Its redress requires attention to local production for local needs, rather than for export. The latter will, in any case, automatically follow if efficient production is demonstrable in the home market. Since it is clear from all of the foregoing that necessities of scale do not prevent small or modest sized enterprises from competing successfully, it thus appears plausible to move toward the replacement of imports rather than the generation of exports.

This is, of course, not quite the same thing as the "infant industry" argument, typically advanced for underdeveloped countries. In the present case, the industries in question are not likely to be less efficient if run in competition with producers of similar goods outside. Quite the contrary, in fact. Protection is therefore not needed, except in the sense that more powerful enterprises may attempt to utilize that power to prevent erosion of their markets. Similarly, though it has been argued that the failures of import substitution in Latin America partly stem from the ability of commodity producers (e.g., steel) to cut off supplies, that is not a danger within national boundaries. The proper role for government, therefore, is assurance and maintenance of an open marketplace, rather than the opposite (e.g., by tariffs).(34)

Since communities in the sense used here are already com-

pletely embedded in the economic system, from a strictly financial point of view (at least in the short run), these two strategies would be precisely equivalent means of generating capital which could be invested elsewhere, but the overall social and psychological benefits mentioned, coupled with the basic findings on scale and competitive efficiency, argue strongly for the import substituting approach. Jane Jacobs has, in fact, proposed that the growth and prosperity of cities and their hinterlands is due to the continued generation of new kinds of work to meet the city's own needs, in conjunction with development of exports based on indigenous and locally oriented kinds of businesses. And she added the following in connection with the value of large organizations in this regard:

It is not the success of large economic organizations that makes possible vigorous adding of new work to older work. Rather...it depends upon large numbers and great diversity of economic organizations...(35)

As earlier figures have indicated, many such consumer goods could both be produced in and marketed to surprisingly small areas. And, if the focus rests particularly on relatively poor or deprived communities or regions, then mature goods in particular make up the bulk of local consumption expenditures. Accordingly, the production of such goods by a community-based enterprise, for the use of that resident group

would in the aggregate significantly reduce the flow of funds out of the community itself, thus both improving its economic position vis-a-vis wealthier areas and providing a degree of local autonomy.

The savings to be gained by this strategy, so far as consumers are concerned, are thus in principle very great. For this reason, people in the first instance will purchase such goods because the products are of lower cost and represent more value per dollar. That in turn provides the necessary time for the more important long-term support for such enterprises to come into play. That is, of course, the very community focus itself; such enterprises, controlled by community members, will become perceived as an integral and important aspect of the community itself. Workers, owners, managers and others depending on those ventures will be more personally known to customers, and identified as members of their community. People will thus buy because it is psychologically and socially meaningful for them to do so. And that, in the long run, is what is needed.

Chapter V, next, summarizes the overall argument and the major conclusions which follow from it.

NOTES TO CHAPTER IV

1. The present argument does, however, strongly dissent from the view that these considerations determine, in effect, the shape of industrial structures and economic organizations at any point. If anything seems clear, it is that more real options and choices exist in this realm than are usually assumed.
2. Edward D. Hollander et al., The Future of Small Business, N.Y., Praeger, 1968, p. 5.
3. For a thorough discussion of the definition problem, see George A. Hillery, Jr., (Communal Organizations: A Study of Local Societies, Chicago, University of Chicago Press, 1968) who utilizes 94 different meanings.
4. The focus on a defined area is one of the few elements common to most definitions. See, on this subject, Willis A. Sutton, Jr., "Toward A Universe of Community Actions," Sociological Inquiry 34, (Winter 1964). More generally, Roland L. Warren has written perhaps most extensively on this subject. See, in particular, his The Community in America, Chicago, Rand McNally, 1963. It is probably unnecessary to note that the particular meaning here attached to "community industry" would not be widely accepted, but in the writer's judgement, this must ultimately be the issue faced if the concept is to be more than cosmetic.
5. In fact, the single most difficult problem associated with this decentralist strategy concerns the interaction among these different levels or sizes of community or region. The simple solution is to collapse the multiple levels into a few well-bounded areas which divide the total. But this, of course, merely recreates political/economic units or small states. See Gar Alperovitz, "Toward A Pluralist American Commonwealth," in Alperovitz and Lynd, Strategy and Program, Boston, Beacon Press, 1973.
6. See, for example, Abram Chayes, "The Modern Corporation and the Rule of Law," in E.S. Mason, ed., The Corporation in Modern Society, Cambridge, Harvard University Press, 1959.
7. Milton Friedman, Capitalism and Freedom, Chicago, University of Chicago Press, Phoenix Books, 1963, p. 119.
8. For anyone who wishes to pursue this line of radical crit-

icism, with which the writer largely agrees, see R.C. Edwards, M. Reich, and T.E. Weisskopf, eds., The Capitalist System, Englewood Cliffs, N.J., Prentice-Hall, 1972, and The Review of Radical Political Economics.

9. Robert Dahl, After the Revolution?, New Haven, Yale University Press, 1970, pp. 64ff.
10. Andre Gorz, Strategy for Labor, Boston, Beacon Press, 1967, p. 126. One of the key points in this connection is that only when the firm is seen as a part of the community and as having a substantial influence over its economic (and therefore social) well-being will attention to community priorities assure that the firm's future remains connected to that of the community. (See, on this, Barry Stein, The Community Context of Economic Conversion, Cambridge, CCED, 1971.) But, of course, this need for continuity and association must be balanced by some attention to efficiency and use of resources. There is therefore necessarily some political process involved that balances one consideration against another. This shows up particularly well in the Yugoslavia case. See, for example, Gerry Hunnius, "Workers' Self-Management in Yugoslavia," in G. Hunnius, G. David Garson and John Case, eds., Workers' Control, N.Y., Vintage Books, 1973.
11. Jaroslav Vanek, The Participatory Economy, Ithaca, Cornell University Press, 1971, p. 38.
12. Paul Blumberg, Industrial Democracy: The Sociology of Participation, N.Y., Schocken Books, 1969, p. 1.
13. Work in America, Cambridge, M.I.T. Press, 1973, p. xvii.
The basic point here is, of course, widely agreed to in principle if not in practice. Decentralizing decision-making to include those who possess the most relevant information, are in the most direct position to implement decisions and gain feedback as to the effect is standard operating ideology, even though the practice is rarely applied as consistently as it could and should be. The literature on participation (industrial democracy) is replete with examples indicating the benefits from such a strategy. It is equally clear that the reason more such ideas are not implemented has to do with control preferences and power issues rather than operating efficiency.
14. One theory of differentiated products was developed at very great length by Edward H. Chamberlin who, in his

pioneering work, The Theory of Monopolistic Competition, (8th ed., Cambridge, Harvard University Press, 1962). He went so far as to suggest that virtually all products were in fact virtual monopolies in some sense, always being differentiated to a degree from other products (hence the expression "monopolistic competition"). But this categorical statement washes out crucial distinctions about the nature of such differentiation. Similarly, Paul Samuelson (Economics, 8th ed., McGraw-Hill, 1970, p. 498) uses a typology of this sort to distinguish products and markets on the basis of product differentiation strategies.

15. Joel Dean and Winfield Smith, "The Relationship Between Profitability and Size" in William W. Alberts and Joel E. Segall, eds., The Corporate Merger, Chicago, University of Chicago Press, 1966, p. 11.
16. This is a difficult point to formulate precisely, in part because of an ongoing debate as to whether consumers' "preferences" are endogenous or exogenous, about how they can be changed, and their stability over time. However, the point can be made more narrowly: whatever the structure of preferences existing at a given moment, perfect efficiency implies an exact matching of these preferences with goods at the lowest prices associated with the set of existing preferences.

There is also a radical critique possible in this regard to the effect that there is such a thing as pseudo-individuality, whose hallmark is the attempt to suggest, by such devices as different shirts or colors, a difference that does not actually exist. It is, therefore, still a form of artificial product differentiation, whose real purpose is to create continually expanding markets for the benefit of capitalists, but whose real effect is to waste resources.

This seems a matter of degree; excess and dysfunctional distinctions certainly are wasteful. On the other hand, the ability of persons to differentiate themselves, in part by personal property, seems a requisite for healthy human development, although the extent is some reflection of the historical situation.
17. Elsewhere in this work is a discussion about whether or not large firms compete in price and related to that, the issue of consumers' sovereignty (in chapter III). The conclusion to the former is "not enough" and to the latter, "not generally present." Whatever it is that firms attempt to maximize (if anything), whether profit, growth, assets, or managerial utility, the effect noted here assures their ability to do so at the expense of the consumer.

18. Another way to look at this situation is that people are more concerned with and influenced by their relative position in the status or income hierarchy than by absolute measures. See Lee Rainwater, "Economic Inequality and the Credit Income Tax," Working Papers 1, (Spring 1973), pp. 50-59.
19. Conventional Theory distinguishes necessities, luxuries, and inferior goods on the basis of their elasticities of demand with respect to income, which would respectively be zero, positive or negative. What is needed is a better basis for placing goods in categories of this sort, since most present methods are tautological.
20. Joe S. Bain, Barriers to New Competition, Cambridge, Harvard University Press, 1962, p. 142.
21. In regard to the comment on industrial development, see Alfred D. Chandler, Jr., Strategy and Structure, Cambridge, M.I.T. Press, 1969; or Nicholas Kaldor, "The Economic Aspects of Advertising," in his Essays on Value and Distribution, N.Y., Press Press, 1960.
22. Robert S. Hancock, "Factors Motivating Consumer Choice of Private Brands," in R.C. Anderson and P.R. Cateora, eds., Marketing Insights, 2nd edition, N.Y., Appleton-Century-Crofts, 1968, p. 335.
23. This notion in particular critically assumes existence of a collective unit, to which people can be committed, as against individual self-interest alone. It does not assume, however, that community ventures, or cooperatives, automatically promote that commitment. It takes attention and directed effort. Without that, they can be just as bureaucratic, impersonal, and privatized as conventional entities. The point is that they also offer the potential to engage people in general in more rewarding and meaningful relationships.
24. The very essence of the market system is its impersonality; as soon as personal relationships develop among participants in the marketplace, the system's theoretical virtues disappear. However, the advantages of such relationships to particular participants has always been clear, which is the explanation for much observed behavior. In effect, the relationship offers one (possibly meaningful) method for differentiating among otherwise indistinguishable supplies and suppliers of a given good. See also Charles Hampden-Turner, "A Proposal for Political Marketing," Yale Review of Law and Social Action, (Winter 1970), pp. 93-100.

25. For example, such a recommendation was strongly made by Abt Associates, Inc. (Cambridge, Mass.) following their three year study of the OEO Special Impact Program supporting CDC's.
26. These data are taken from an ongoing study by Barry A. Stein and Mark Hodax (Center for Community Economic Development, Cambridge, Mass.). The methodology involves evaluation of the size of plants actually being installed in various industries by businessmen, compared to consumption expenditure figures generated by various studies. Results are felt to be conservative, in the sense that it should be possible to produce many such goods efficiently at still smaller scales.
27. The finding about urban blacks was contained in a study by Lee Sturzberg Research Co., New York City, and reported in "Blacks Favor National Brands," Bay State Banner, Sept. 14, 1972. The notion about the possibly regressive nature of advertising costs is due to Mark Hodax, Center for Community Economic Development, Cambridge, Mass.
28. Victor R. Fuchs, The Service Economy, N.Y., National Bureau of Economic Research, 1968, p. 194.
29. Alfred Marshall, Principles of Economics, 9th (variorum) edition, N.Y., The Macmillan Co., p. 63.
30. Charles M. Tiebout, "The Community Economic Base Study," Supplementary Paper #16, N.Y., The Committee for Economic Development, 1962, p. 13.
31. Joseph Grunwald, "Some Reflections on Latin American Industrialization Policy," Reprint 203, Washington, D.C., The Brookings Institute, 1971, p. 828. The doctrine of comparative advantage, that is to say, inherently assumes first, that the advantageous situation can be reached before changes which might reduce it (legal, political, economic, or technological) take place; second, that once achieved in this static sense, modifications can be made fast enough to maintain quasi-equilibrium; and third, that all interactions among the parties (nations, generally) are carried out purely on the basis of the competitive economics of the situation (e.g., military, political or economic power action is ruled out). None of these conditions holds in practice.
32. Harvey Leibenstein, "Allocative vs. X-Efficiency," American Economic Review (June 1966).

33. See earlier, the section on firms as human organizations, chapter II.
34. This does not imply that government action should be limited to sanctions against those who violate the terms and conditions, which is essentially its present role (in the U.S.). On the contrary, government must act so as to enable different competing groups to gain access to the market and its resources (e.g., capital) in ways that are equivalent. Also, there are many goods and services (public goods, social overhead capital, etc.) which cannot be well organized through the market mechanism and it is therefore necessary, even accepting the principle that markets should exist where they make social and economic sense, for government (really, the collective society) to directly coordinate or control other important aspects of the social welfare.
35. Jane Jacobs, The Economy of Cities, N.Y., Vintage Books, 1970, p. 79.

CHAPTER V
SUMMARY AND CONCLUSIONS

This study set out to evaluate the potential viability of decentralized community industry, in particular by exploring the effects of size and scale on the efficiency and competitive ability of enterprises. This issue is fundamental to the broader question, since whatever else may be involved in decentralized community-based firms, they would at least need to be smaller than those presently composing the American economic system. Were that reduction in size not theoretically practical, such strategies would not be promising candidates for the revitalization of depressed areas and the expansion of rewards and opportunities for impoverished persons. In addition, this study proposed to apply the findings to the broader problem, not in a comprehensive way, but to indicate a framework for subsequent research and theory. This chapter summarizes the overall findings and presents the final conclusions.

With respect to the effects of size and scale, the general

findings include the following. All empirical studies indicate that below a certain size manufacturing firms (or plants) on the average are less efficient, but that certain size is not known with any precision. Moreover, it differs markedly with the specific industry evaluated. That very uncertainty and variability, among other things, suggests that such economies of production scale are not the primary determinant of either competitive ability or true efficiency. Specifically, available data indicate first, that in most industries the penalties for operating plants well below apparent optimal scale are not great; second, the presence of substantial relatively constant costs (added to those directly associated with production) dilutes even those clear advantages of greater production scale; and third, the empirical evidence suggests the presence of diseconomies of firm (as against plant) scale. It is, however, difficult to determine the exact result (or even a reasonably good approximation) of the combined effects of scale in any given case. This is due in part to the difficulty of disaggregating economic data on firms and economic sectors, and in part to the inadequacy of the measures typically used (e.g., profits) as a proxy for efficiency.

These data, however, are derived from studies which make the conventional assumption of economic theory that businesses operate efficiently within their own boundaries. The base to which economic scale studies refer, then, generally concerns

the ideal allocation of resources to the various entities composing the economic system. In fact, the basic assumption is so misleading as almost to vitiate the conclusions derived. The minor error is that plants are assumed to be operating at capacity, whereas they generally are not. The major error is that internal (intrafirm) efficiency is probably far lower than allocative (interfirm) efficiency, and there is reason to believe that large gains in productivity are always possible; the more so as size of unit increases. These gains can come from individual learning and motivation, from organizational or systemic change, and from continuing minor modifications in the way things are done. Such useful changes themselves become more difficult as unit size increases.

It has also been argued that innovation is increasingly the province of the large entity, and that increasingly sophisticated technology and highly specialized functions continue to reduce the small firm's opportunity to compete by developing improved products or processes. The data do not substantiate these claims; on the contrary, there is every reason to believe that smaller firms or private individuals have as much as, or more opportunity in this regard than giants. In fact, there are probable diseconomies of scale due to the difficulty of accepting or implementing change in large entities.

As to planning, large firms are said to be needed, because

the requirements of sophisticated technology and increasingly specialized knowledge call for long lead times to develop, design, and produce products. Firms must therefore have enough control over the market to assure that the demand needed to justify that time-consuming and costly investment will exist. This argument rests on a foundation of sand; first, because the needs of society should precede, not follow, decisions about what to produce, and second, because the data do not substantiate that argument except in rare and unusual instances, like space flight. On the contrary, planning for social needs requires organizations and decision-making capabilities in which the feedback and interplay between productive enterprises and the customers in question is accurate and timely - conditions more consistent with smaller organizations than large ones.

Finally, large size in and of itself is a decided deterrent to worker satisfaction (blue and white-collar) and motivation. Rates of absenteeism, grievances, and strikes all have been shown to be correlated directly with size, mental health is inversely correlated. Moreover, competitive efficiency based on new product utility as well as internal innovations in process and technology is more consistent with small firms, in which workers can better understand the relationship of their work to both the organization and its market.

Additional support for this argument comes from consider-

ation of the relationship between firms and consumers in the marketplace. In the present state of development of the American economy, consumers are increasingly using their growing purchasing power to acquire goods and services uniquely tailored to their interests. This is consistent with and related to the steadily rising rate of introduction of new products and greater varieties of options or modifications of existing products. The same statement applies to industrial as well as consumer goods. The result is that the advantages of true mass production are decreased, since markets for a given product actually tend to become smaller and more specialized. In response to this, many large firms are dropping such goods where competitive pressure is high.

It is also clear that costs directly related to production as such, are on the average a relatively small fraction (about one-third) of final total price in the market. This is true for two reasons; additional costs of overhead, distribution, and markup for wholesale and retail trade, which dilute the effect of production costs as such, and costs of advertising and promotion. The latter, although they differ widely among products and market, are very large in some important product classes. Therefore, even if production were slightly more costly in a plant of less than optimal efficient scale, the incremental final cost would be small. Market evidence for the potential of community industries to compete in certain

such markets is well shown by the enormous cost savings available from private labelled products, compared to nationally promoted goods of similar quality. Large firms, then, are often quite inefficient.

Much of this inefficiency, however, is masked by the power - market and financial - of large firms, which can continue to make profit and increase their scope and extent quite aside from their true efficiency. This is particularly true in concentrated markets, which exist more in consumer than producer goods. It has been estimated that some 40 percent of market activity is carried out by firms with considerable market power. Although, as noted, there are substantial data indicating that profitability and size are inversely related, large firms tend to have less variation of profits over time, a finding which can be interpreted as showing that large firms have greater capability to take a series of risks (because of financial strength) and perhaps, that they are less capable of unusually strong performance. Size alone, it is clear, is a decided advantage, at least in the service of risk pooling, staying power, and sheer muscle.

As to the specific implications for community industries, as contrasted to those of conventional entrepreneurial cast, real differences in opportunity and value exist. This, ultimately, is the heart of the matter and it is appropriately discussed as the final element of this work. First, however,

one important conclusion from the foregoing should be noted. The economy and society would both benefit from simple divestiture, by multi-facilitied firms, of the bulk of their production units. That is, even if industrial plants remained at their present scale, but in general became independent single-plant firms in the marketplace, competition would increase, concentration would drop (greatly), costs to users would be reduced, and consumer sovereignty would increase. It is also clear, especially in certain industries, that plant scale could itself be reduced further without loss of efficiency. However, even the present size of plant is often not large and most could certainly be established or operated by community institutions. There are other benefits from collective, as against individual entrepreneurial control, which add to this straightforward possibility. They offer the prospect of strengthened communities; in fact, of productive communities.

The Productive Community

Analysis of the meaning of community-based enterprise, and of their social and economic functions, leads to the recognition of substantial opportunities for such enterprises to offer benefits in both spheres. However, many details remain to be explored, and any specific combination of community and product orientation will need to be analyzed on its own terms. In any case, what is meant by community is fairly broad, and is inherently an extensible concept. Centrally, it concerns

actions relevant to a defined geographical area (though the size of such areas would vary widely depending on the particular issue), and on the social system of which the economy is only one aspect. Thus, to speak of community industries is to address potential social implications and not merely economic ones. Community industries, if the name is to have meaning, must be more than independent firms seeking to carry out private purposes, whether directed toward profit or power.

The need for strong social links between the enterprise and the community is thus great. Two criteria can be laid down for such links to be effective. First, it is necessary to provide as much feeling of and opportunity for involvement of community members in the enterprise as possible (an important innovative task). This follows from the great importance of shaping the venture into an instrument of perceived opportunity for the citizens whose interest it is intended to serve. That will largely determine its real impact. Moreover, such an approach helps to build the sense of community. Second, the priorities which determine the relationship of the enterprise with the community and the region, and which in turn shapes the use of profits or other resources, must be set by the "community" itself. No other arrangement can build the commitment of community members to the organization, or accurately respond to their wishes, no matter how "reasonable" or "appropriate" they seem to an outside agency, and regardless of the similarity of

the end result. It is the process which build commitment.(1)

Community-based enterprises of this sort can serve as a source of pride to the community as well as of economic power for it and its citizens. The very fact of such an enterprise, producing goods and services of significant value to local consumers, competing effectively with distant and previously invincible powers, and yielding returns which the community can use in its own interests, can transform the attitudes of members of the community (as well as those in the larger setting of the nation). Since any economic development strategy requires that the social system also be changed and further, that individuals be enabled to combine and act as collectivities, then the demonstration that such possibilities are real, and can be seized on the community level, is of central importance.(2)

In general, such enterprises offer the potential for high social efficiency, for a number of reasons. Community ventures in principle are more consistent than entrepreneurial ones with the more stringent meaning of "efficient" discussed throughout this dissertation. It has long been recognized that a productive and fruitful economic system rests, among other things, on the widespread ability of citizens to afford the output of the productive apparatus. Walter Hoving (ex-chairman of Tiffany and Co.), referred to this as the principle of self-consumption; "the man who makes the product must be one of its

major consumers."(3)

There is more to this than general rhetoric. In the sense of consumers in the aggregate being able to use the productive output in the aggregate, it is merely an obvious statement of overall system requirements. However, its greater significance lies in the personalized application to specific individuals and the efforts in which they are specifically engaged. This is a critical point; the social supports which define and shape a person's self-identity and sense of value are pre-eminently rooted in the communities in which we live. In that connection, one of the important virtues of community-based enterprises is related to their potential for involving people in work whose meaning and value is clear. There are many ways to do this, but if one aim of community ventures is to reduce dependence on others, then the value of producing goods which not only the producers (i.e., workers) but members of the general community, routinely utilize in their own affairs, becomes clear. Again, this is not suggested merely as a social desideratum, but a direct response to the low efficiency and destructive (to human growth) aspects of large-scale, impersonal enterprises in which work is purely instrumental. People work because otherwise they could not eat (at least, above some minimum threshold).(4)

Another important advantage of community-based enterprises in the sense of social efficiency, is that they convert what

are ordinarily externalities into internalities of the firm. That is, by virtue of community control and participation in a venture, many factors which usually are not taken into account in the firms' decision-making process must become so. Such factors include, for example, pollution, the effect of the firm on other local businesses, and the impact of work on other aspects of life. Kapp, in stressing the need for a reformulation of basic economic concepts to include social costs and benefits has written that

Instead of conceiving wealth and production merely in terms of exchangeable utilities, the new concepts of wealth and production will have to be defined in such a manner as to include also nonmarket values...Similarly, the principle of economy (that is, "economizing") will have to...take account of social costs and returns.(5)

By their very nature, true community enterprises operate on concepts redefined in this way. One virtue of such a system is evident: to the extent that individual enterprises operate on the basis of these broadened concepts, more formal and inherently less flexible regulatory measures are unnecessary. However, by the same token, this broader view may increase the narrowly defined economic costs of doing business, as contrasted to more conventional organizations. The very special problem of community enterprises, then, is to balance these two conflicting (at least in the short run) tendencies.

It means, in essence, that community ventures must either be sufficiently efficient to be able to maintain their products' prices at or below other equivalents while in fact absorbing additional social costs, or the customers must be willing to pay a premium because of the nature of the enterprise and their relationship to it, or both.

For reasons already described earlier, there is every possibility that a strong commitment of community citizens to their ventures/institutions can be developed, but this also takes time. It is therefore all the more important for initial enterprises to be selected from those that maximize immediate visibility and connections to the community, while providing direct savings to customers at the scales appropriate to the community in question. In the long run, if Federal, state and local governments move towards techniques to force private enterprises to account for present externalities, these start-up problems will disappear, or at least, become markedly reduced in importance. It would be a tragedy indeed if community ventures which are equally as or more efficient than larger private enterprises - all things considered - were unable to survive because of temporary defects in the cost system.

It is therefore necessary, especially initially, for community ventures to offer their goods and services at a price equal to or below that for similar goods available from other sources, since, although people are often willing to pay more

for products because of perceived non-economic or quantifiable value (as in the case of national brands vis-a-vis unknown but less expensive equivalents), it is not likely to be a permanent choice. In any case, competition on the basis of price alone is neither typical of large producers nor adequate assurance of permanence and opportunity for growth and resource development. Larger firms with greater resources can, if they choose, always underbid much smaller firms in the interests of maintaining or extending their markets.(6) What is appropriate is instead that products of a community enterprise be differentiated from all other similar products, but by a social process rather than by the expensive promotion, advertising, and branding incorporated in products of more conventional enterprise.

It is the conclusion of this analysis that in certain industrial sectors, as described in chapter IV, the potential cost saving to customers is sufficiently great to minimize or eliminate the theoretical risk of apparent short-term cost inefficiency. For example, production of basic industrial raw materials (e.g., steel, sulfuric acid, plastic resins) can not be as efficiently carried out in very small and highly decentralized plants, although as has been shown, the present scale is certainly not justifiable on grounds either of technical or social efficiency. However, the conversion, combination and modification of such products to meet final market demand does

offer significant and immediate opportunity. Moreover, in consumer goods, especially those which are seen as necessities of life, and which are now provided largely by nationally-known manufacturers, community enterprises could compete effectively on several levels. Lower prices permitted by savings on promotion and distribution would offer tangible and immediate benefits to consumers while allowing time to develop and extend other commitments needed to sustain the institution. Here, then, is at least one example where scale effects favor decentralized community industries. There may well be others.

A Few Final Words

Large organizations are not, by virtue of their size, inherently superior to smaller ones. Indeed, as this paper has attempted to show, the reverse is often more nearly the case, at least within certain segments of the economy and above certain very modest limits on smallness. Economic institutions, or businesses, exist for social purposes and it is therefore appropriate to evaluate the virtues of size - or for that matter, any other characteristic - as it influences those purposes. Nor can size, taken alone, serve as an adequate differentiating feature of organizations. One must consider instead:

the balance between growth and form. ...contrary to contemporary social thought, which becomes hysterical if it fails to push it at constantly accelerating rates, growth must actually be stopped when a thing reaches the form best suited to its function.(7)

If size is seen as the servant of function, then, as the foregoing discussion has attempted to indicate, it is not independent of the nature of the system in which that size is to be realized. Community-based enterprises will, not surprisingly, have options and advantages at a given scale quite different from those which would attend the same type of venture if entrepreneurially controlled and owned. That is not to say that the conclusions on size and efficiency are irrelevant to private enterprise, for they are not. Rather, it is more appropriate to consider alternatives of modest size as tools which, in the hands of communities, can offer more benefits than those which would accrue to it in any case.

The most basic and elementary functions of industry, to which all other considerations should be subordinated, have been eloquently described by R.H. Tawney:

...the principles upon which industry should be based are simple...they are simple because industry is simple. An industry, when all is said, is, in its essence, nothing more mysterious than a body of men associated...to win their living by providing the community with some service which it requires... Because its function is service, an industry as a whole has rights and duties towards the community, the abrogation of which involves privilege...

The conditions of a right organization of industry are, therefore, permanent, unchanging and...elementary...The first is that it should be subordinated to the community in such a way as to render the best service technically possible...because it is of the essence of a function that it should find its meaning in the satisfaction, not of itself, but of the end which

it serves. The second is that its directions and government should be in the hands of persons who are responsible to those who are directed and governed...(8)

By separating the bulk of economic enterprise from its direct functional roots in the society, and by appraising its virtues by measures remote from those functions, we have perforce created a situation in which the profits and sales figures - which are poor proxies for the measurement of the satisfaction of social needs - have indeed become ends in themselves. The reestablishment of enterprises in functional relationship to the community served can make more clear the essential inefficiency of many present organizations, while providing more meaningful benefits for members of the society, and of the communities composing it.

NOTES TO CHAPTER V

1. See, for example, Rosabeth Moss Kanter, Commitment and Community, Cambridge, Harvard University Press, 1972; and "Some Social Issues in the Community Development Corporation," in C.G. Benello and D. Roussopolos, eds., The Case for Participatory Democracy, N.Y., Grossman, 1971, pp. 65 ff.
2. See, for example, Elliot D. Sclar, The Community Basis for Economic Development, (Cambridge, Massachusetts: Center for Community Economic Development, 1970).

It is interesting to note that Arnold Toynbee, in searching for the historical roots of the rise and fall of societies, concluded that the growth of civilization was intimately interlinked with progress towards self-determination. See Arnold J. Toynbee, A Study of History, in the abridgement by D.C. Somervell of volumes I-VI (New York: Oxford University Press, 1947), pp. 198ff.

3. Walter Hoving, The Distribution Revolution, N.Y., Washburn, Inc., 1960, p. 12.
4. This view of the importance of community to persons' self-value derives from a long tradition in social science. See, for example, Charles Horton Cooley, Social Organization, N.Y., Schocken, 1962; or Robert Redfield, The Little Community, Chicago, University of Chicago Press, 1960. See also Barry Stein, The Community Context of Economic Conversion, Cambridge, CCED, 1972. On the importance of work, much has been written. This has been discussed in more detail in chapter II, but for a general reference, see Frederick Herzberg, Work and the Nature of Man, N.Y., World, 1966; Abraham Maslow, Towards a Psychology of Being, 2nd ed., N.Y., Van Nostrand Reinhold, 1968; Erich Fromm, The Sane Society, N.Y., Holt, Rinehart and Winston, 1955; and Douglas McGregor, The Human Side of Enterprise, N.Y., McGraw-Hill, 1960.
5. K. William Kapp, The Social Costs of Private Enterprise, N.Y., Schocken Books, 1971, p. 254. See also, in this regard, Ezra J. Mishan, Technology and Growth: The Price We Pay, N.Y., Praeger, 1970.
6. Whether and under what circumstances firms actually do underbid (sell below cost) is a subject of much dispute.

It is clear that the practice of selling products below average (but presumably not marginal) cost, which is called dumping, is widespread, as witness all the laws preventing it. Similarly, it is obvious that firms will bid low for an initial piece of work if it appears that the profits or other returns can be recouped later by being locked-in (having market power) to that situation. Indeed, from the perspective of individual firms, all these and related strategies (e.g., complex transfer pricing) are rational. From the standpoint of social welfare, they are pernicious, but very difficult to control precisely because of their individual rationality.

7. Leopold Kohr, "Wales Free: The Politics of Permanence," in Resurgence, Vol. 3, #2 (July/Aug. 1970), p. 9.
8. R.H. Tawney, The Acquisitive Society, N.Y., Harvest Books, 1948, pp. 6-7.

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